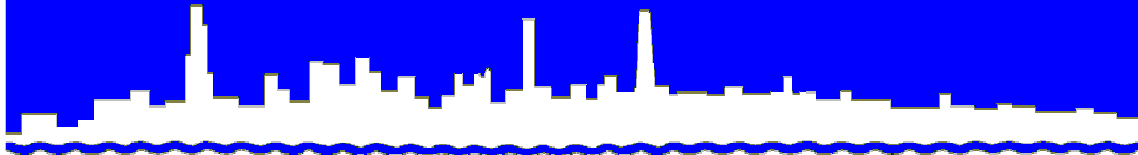


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 11-42

***WATER QUALITY ALONG THE ILLINOIS WATERWAY
FROM THE LOCKPORT LOCK
TO THE PEORIA LOCK
DURING 2010***

October 2011

Metropolitan Water Reclamation District of Greater Chicago

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**WATER QUALITY ALONG THE ILLINOIS WATERWAY
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TO THE PEORIA LOCK DURING 2010**

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TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	iv
LIST OF FIGURES	ix
ACKNOWLEDGMENT	x
DISCLAIMER	x
SUMMARY	xi
Water Quality	xi
Sediment Quality	xii
INTRODUCTION	1
DESCRIPTION OF THE STUDY AREA	2
Illinois Waterway	2
Monitoring Stations	2
MATERIALS AND METHODS	7
Field Monitoring and Laboratory Analysis	7
Water	7
Chemical Constituents	7
Bacteria	7
Chlorophyll <i>a</i>	7
Sediment	7

TABLE OF CONTENTS (Continued)

	Page	
RESULTS AND DISCUSSION	9	
Water Quality	9	
Spatial Variability Along the Illinois Waterway	9	
Total Suspended Solids	9	
Dissolved Oxygen	15	
Ammonia Nitrogen	15	
Total Nitrogen	15	
Total Phosphorus	15	
Fecal Coliform	15	
Trace Metals	15	
Waterway Use Designations	24	
Water Quality Standards	24	
Dissolved Oxygen	24	
Fecal Coliform	24	
Total Mercury	24	
Sediment Quality	24	
APPENDICES		
AI	Water Quality at Station 1 in the Chicago Sanitary and Ship Canal During May, August, and October 2010	AI-1
AII	Water Quality at Stations 2–4 in the Chicago Sanitary and Ship Canal and the Des Plaines River During May, August, and October 2010	AII-1

TABLE OF CONTENTS (Continued)

		<u>Page</u>
AIII	Water Quality at Stations 5–11 in the Des Plaines River and the Illinois River During May, August, and October 2010	AIII-1
AIV	Water Quality at Stations 12–21 in the Illinois River During May, August, and October 2010	AIV-1
AV	Water Quality at Stations 22–27 in the Illinois River During May, August, and October 2010	AV-1
AVI	Water Quality at Stations 28–41 in the Illinois River During May, August, and October 2010	AVI-1
AVII	Water Quality at Stations 42–49 in the Illinois River During May, August, and October 2010	AVII-1

LIST OF TABLES

<u>Table No.</u>		<u>Page</u>
1	Illinois Waterway Navigational Pools	2
2	Monitoring Stations Along the Illinois Waterway From Lockport Lock to Peoria Lock	5
3	Constituents Analyzed, Sample Containers, and Preservation Methods for Water Samples Collected From the Illinois Waterway Study Area	8
4	Summary of Water Quality From the Lockport, Brandon Road, Dresden Island, Marseilles, Starved Rock, and Peoria Pools of the Illinois Waterway During May, August, and October 2010	10
5	Summary of Metals Concentrations From the Lockport, Brandon Road, Dresden Island, Marseilles, Starved Rock, and Peoria Pools of the Illinois Waterway During May, August, and October 2010	21
AI-1	Water Quality at Station 1 in the Chicago Sanitary and Ship Canal During May, August, and October 2010	AI-1
AII-1	Water Quality at Station 2 in the Chicago Sanitary and Ship Canal During May, August, and October 2010	AII-1
AII-2	Water Quality at Station 3 in the Des Plaines River During May, August, and October 2010	AII-2
AII-3	Water Quality at Station 4 in the Des Plaines River During May, August, and October 2010	AII-3
AIII-1	Water Quality at Station 5 in the Des Plaines River During May, August, and October 2010	AIII-1
AIII-2	Water Quality at Station 6 in the Des Plaines River During May, August, and October 2010	AIII-2
AIII-3	Water Quality at Station 7 in the Des Plaines River During May, August, and October 2010	AIII-3

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
AIII-4	Water Quality at Station 8 in the Des Plaines River During May, August, and October 2010	AIII-4
AIII-5	Water Quality at Station 9 in the Des Plaines River During May, August, and October 2010	AIII-5
AIII-6	Water Quality at Station 10 in the Des Plaines River During May, August, and October 2010	AIII-6
AIII-7	Water Quality at Station 11 in the Illinois River During May, August, and October 2010	AIII-7
AIV-1	Water Quality at Station 12 in the Illinois River During May, August, and October 2010	AIV-1
AIV-2	Water Quality at Station 13 in the Illinois River During May, August, and October 2010	AIV-2
AIV-3	Water Quality at Station 14 in the Illinois River During May, August, and October 2010	AIV-3
AIV-4	Water Quality at Station 15 in the Illinois River During May, August, and October 2010	AIV-4
AIV-5	Water Quality at Station 16 in the Illinois River During May, August, and October 2010	AIV-5
AIV-6	Water Quality at Station 17 in the Illinois River During May, August, and October 2010	AIV-6
AIV-7	Water Quality at Station 18 in the Illinois River During May, August, and October 2010	AIV-7
AIV-8	Water Quality at Station 19 in the Illinois River During May, August, and October 2010	AIV-8

LIST OF TABLES (Continued)

Table No.		Page
AIV-9	Water Quality at Station 20 in the Illinois River During May, August, and October 2010	AIV-9
AIV-10	Water Quality at Station 21 in the Illinois River During May, August, and October 2010	AIV-10
AV-1	Water Quality at Station 22 in the Illinois River During May, August, and October 2010	AV-1
AV-2	Water Quality at Station 23 in the Illinois River During May, August, and October 2010	AV-2
AV-3	Water Quality at Station 24 in the Illinois River During May, August, and October 2010	AV-3
AV-4	Water Quality at Station 25 in the Illinois River During May, August, and October 2010	AV-4
AV-5	Water Quality at Station 26 in the Illinois River During May, August, and October 2010	AV-5
AV-6	Water Quality at Station 27 in the Illinois River During May, August, and October 2010	AV-6
AVI-1	Water Quality at Station 28 in the Illinois River During May, August, and October 2010	AVI-1
AVI-2	Water Quality at Station 29 in the Illinois River During May, August, and October 2010	AVI-2
AVI-3	Water Quality at Station 30 in the Illinois River During May, August, and October 2010	AVI-3
AVI-4	Water Quality at Station 31 in the Illinois River During May, August, and October 2010	AVI-4
AVI-5	Water Quality at Station 32 in the Illinois River During May, August, and October 2010	AVI-5

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
AVI-6	Water Quality at Station 33 in the Illinois River During May, August, and October 2010	AVI-6
AVI-7	Water Quality at Station 34 in the Illinois River During May, August, and October 2010	AVI-7
AVI-8	Water Quality at Station 35 in the Illinois River During May, August, and October 2010	AVI-8
AVI-9	Water Quality at Station 36 in the Illinois River During May, August, and October 2010	AVI-9
AVI-10	Water Quality at Station 37 in the Illinois River During May, August, and October 2010	AVI-10
AVI-11	Water Quality at Station 38 in the Illinois River During May, August, and October 2010	AVI-11
AVI-12	Water Quality at Station 39 in the Illinois River During May, August, and October 2010	AVI-12
AVI-13	Water Quality at Station 40 in the Illinois River During May, August, and October 2010	AVI-13
AVI-14	Water Quality at Station 41 in the Illinois River During May, August, and October 2010	AVI-14
AVII-1	Water Quality at Station 42 in the Illinois River During May, August, and October 2010	AVII-1
AVII-2	Water Quality at Station 43 in the Illinois River During May, August, and October 2010	AVII-2
AVII-3	Water Quality at Station 44 in the Illinois River During May, August, and October 2010	AVII-3
AVII-4	Water Quality at Station 45 in the Illinois River During May, August, and October 2010	AVII-4

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
AVII-5	Water Quality at Station 46 in the Illinois River During May, August, and October 2010	AVII-5
AVII-6	Water Quality at Station 47 in the Illinois River During May, August, and October 2010	AVII-6
AVII-7	Water Quality at Station 48 in the Illinois River During May, August, and October 2010	AVII-7
AVII-8	Water Quality at Station 49 in the Illinois River During May, August, and October 2010	AVII-8

LIST OF FIGURES

<u>Figure No.</u>		<u>Page</u>
1	Map of the Illinois Waterway From Lockport to Marseilles Showing Sampling Stations 1 to 21	3
2	Map of Illinois Waterway From Ottawa to Peoria Showing Sampling Stations 22 to 49	4
3	Total Suspended Solids Concentration at 49 Stations Along the Illinois Waterway From the Lockport Lock to the Peoria Lock During May, August, and October 2010	14
4	Dissolved Oxygen Concentration at 49 Stations Along the Illinois Waterway From the Lockport Lock to the Peoria Lock During May, August, and October 2010	16
5	Ammonia Nitrogen Concentration at 49 Stations Along the Illinois Waterway From the Lockport Lock to the Peoria Lock During May, August, and October 2010	17
6	Total Nitrogen Concentration at 49 Stations Along the Illinois Waterway From the Lockport Lock to the Peoria Lock During May, August, and October 2010	18
7	Total Phosphorus Concentration at 49 Stations Along the Illinois Waterway From the Lockport Lock to the Peoria Lock During May, August, and October 2010	19
8	Fecal Coliform Concentration at 49 Stations Along the Illinois Waterway From the Lockport Lock to the Peoria Lock During May, August, and October 2010	20

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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 2010, 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. Based on results from the 2010 surveys, the following conclusions can be made concerning the water quality along the study reach:

Water Quality

During 2010, the mean concentration of total suspended solids (TSS) generally increased in the downstream direction along the Illinois Waterway from the Lockport Pool (9 mg/L) to the lower Peoria Pool (50 mg/L).

The mean concentration of five-day biochemical oxygen demand (BOD₅) remained between 3–5 mg/L throughout each of the sampled pools.

The mean dissolved oxygen (DO) concentration increased along the waterway from the Lockport Pool (4.6 mg/L) to the upper Peoria Pool (8.7 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 (7.2) to the lower Peoria Pool (8.3).

The mean ammonia nitrogen (NH₄-N) concentration decreased between the Lockport Pool (0.39 mg/L) and the Starved Rock Pool (0.11 mg/L), and then remained roughly the same in the Peoria Pools.

There was an overall increase in the mean concentration of un-ionized ammonia (NH₃-N) between the Lockport Pool (0.003 mg/L) and the lower Peoria Pool (0.010 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 (NO₂+NO₃-N) and total nitrogen (TN) values from 4.93 and 5.94 mg/L, respectively, in the Lockport Pool to 2.46 and 3.39 mg/L, respectively, in the lower Peoria Pool.

The mean total Kjeldahl nitrogen (TKN) concentration decreased from the Lockport Pool (1.00 mg/L) to the Marseilles Pool (0.81 mg/L), and then increased to a mean of 1.07 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 (1.01 mg/L) to the lower Peoria Pool (0.49 mg/L).

Mean chlorophyll *a* concentration increased along the Illinois Waterway from the Brandon Road Pool (10 µg/L) to the lower Peoria Pool (43 µg/L).

The mean concentration of total cyanide was less than 0.005 mg/L throughout the Illinois Waterway sampling reach.

The mean concentration of phenols was less than 5.0 mg/L from the Lockport Pool to the Starved Rock Pool and was 5.0 mg/L in both Peoria Pools.

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* (EC) through the Dresden Island Pool. FC and EC densities then remained fairly uniform along the Illinois Waterway, except for a spike during August sampling, which was likely caused by a wet weather event. Elevated FC and EC concentrations were observed at stations 27-32, before returning to expected values.

Mean total concentrations of arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc remained relatively constant from the Lockport Pool to the lower Peoria Pool. The mean total iron and manganese concentrations increased progressively from 0.3 and 0.025 mg/L, respectively, in the Lockport Pool to 2.2 and 0.102 mg/L, respectively, in the lower Peoria Pool.

Sediment Quality

Sediment samples are collected biannually during the Illinois Waterway surveys, and were not collected in 2010.

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 at Lockport. These three WRPs provided wastewater treatment for an average flow of 1,226 million gallons per day in 2010.

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 quality surveys conducted during 2010. Data from previous years have been compiled in formal annual reports for 1977, 1983–1985, 1989, 1991, and 2002–2009.

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

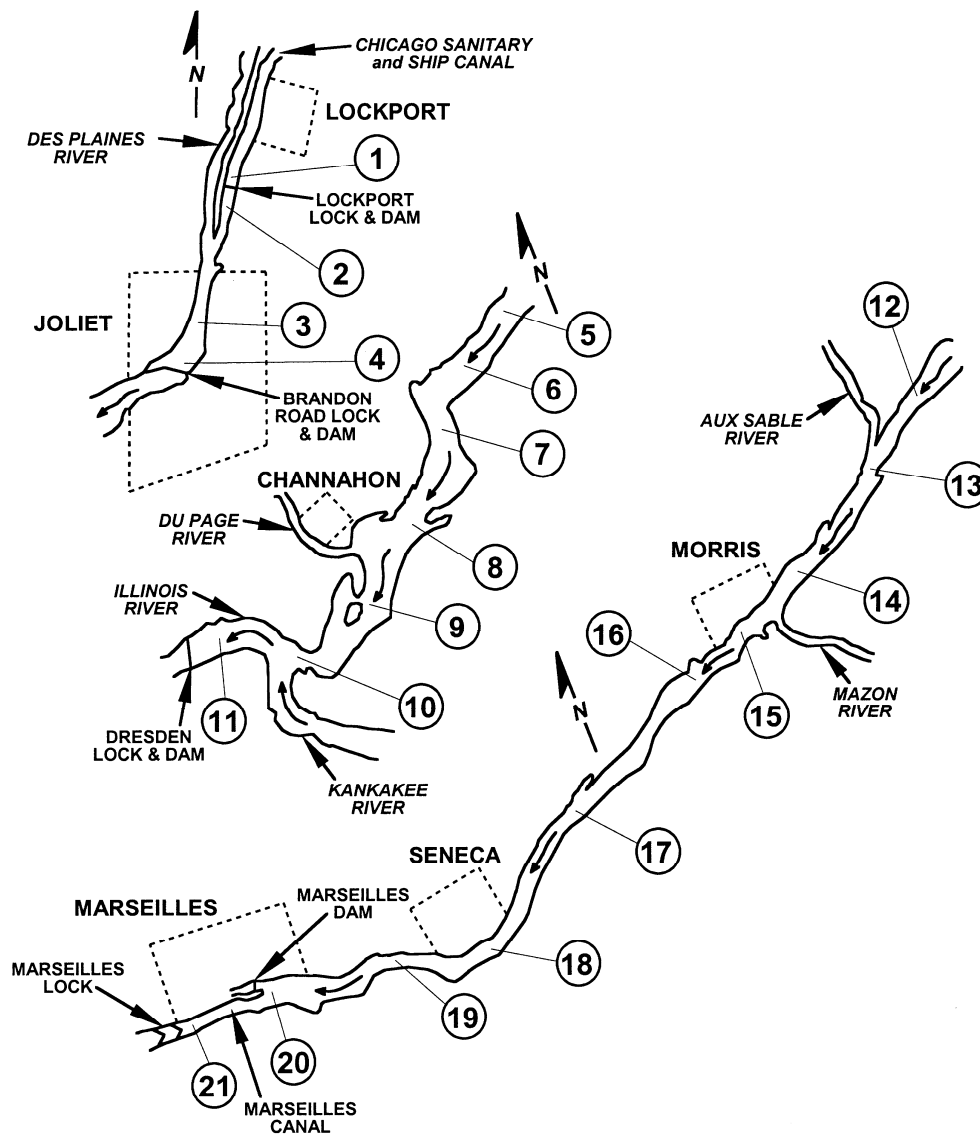


FIGURE 2: MAP OF ILLINOIS WATERWAY FROM OTTAWA TO PEORIA SHOWING SAMPLING STATIONS 22 TO 49

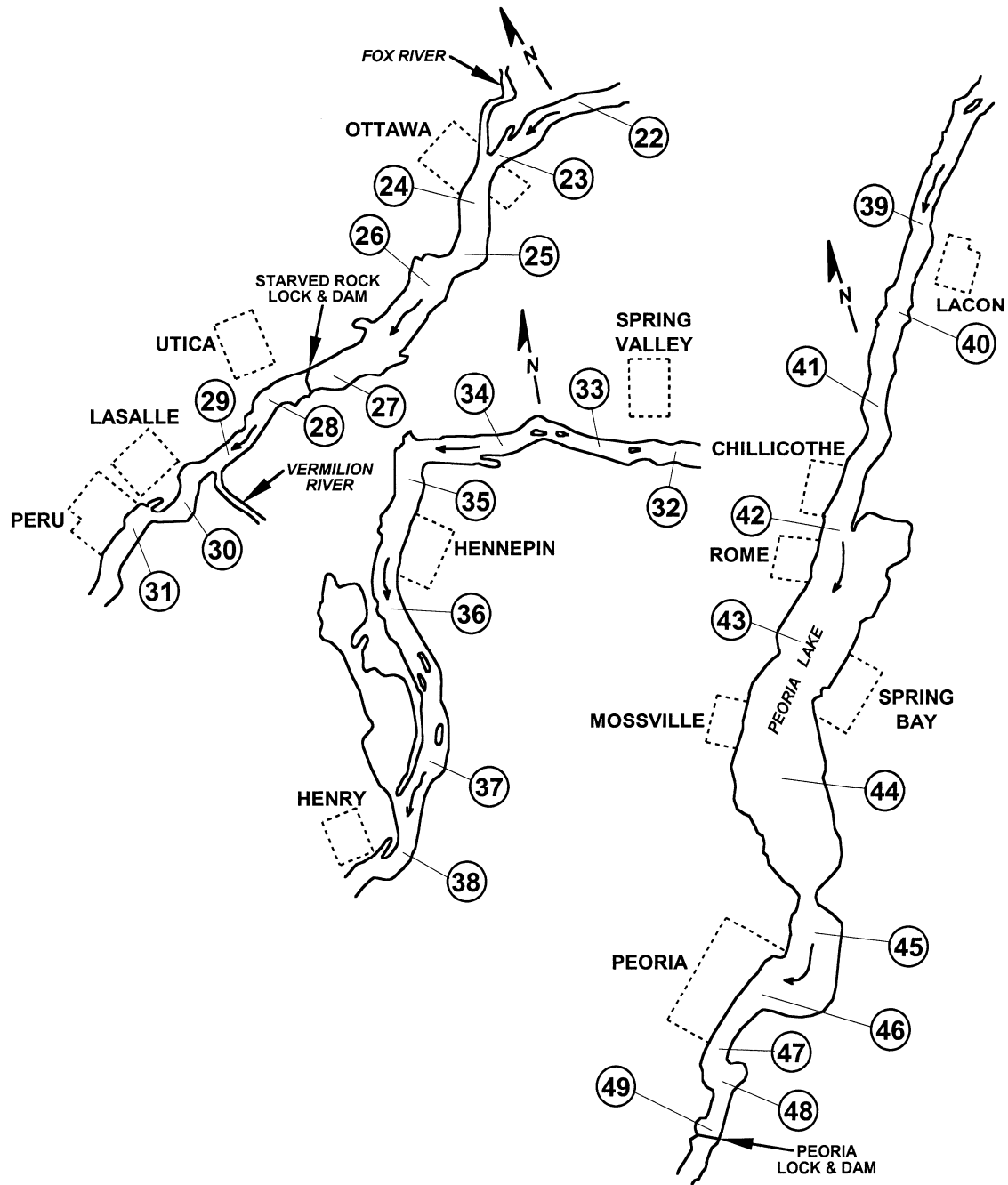


TABLE 2: MONITORING STATIONS ALONG THE ILLINOIS WATERWAY
FROM LOCKPORT LOCK TO PEORIA LOCK

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 3–6, August 2–5, and October 4–7, 2010. Samples were collected at a depth of three feet below the water surface in the center of the waterway with a submersible drainage pump. Except for FC and EC, all water samples were transported to the Cecil Lue-Hing R&D Laboratory in iced, insulated chests within 24 hours of collection. Samples for FC and EC analysis were transported to PDC Laboratories in Peoria, Illinois.

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 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 (NH₃-N) was calculated using the equation given by the Illinois Environmental Protection Agency (IEPA) 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 EC analyses were collected from the 49 stations concurrently with samples for analysis of 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, 1998.

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 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, 1998.

Sediment. Sediment samples were not collected during the 2010 survey.

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 ₂ SO ₄ to pH <2
Un-ionized Ammonia (NH ₃ -N)*	mg/L	---	---
Total Kjeldahl Nitrogen (TKN)	mg/L	Plastic	Cool, 4°C, H ₂ SO ₄ to pH <2
Nitrite plus Nitrate Nitrogen (NO ₂ +NO ₃ -N)	mg/L	Plastic	Cool, 4°C, H ₂ SO ₄ to pH <2
Total Phosphorus (TP)	mg/L	Plastic	Cool, 4°C
Chlorophyll <i>a</i>	µg/L	Plastic, Amber	Cool, 4°C, MgCO ₃
Total Cyanide (TCN)	mg/L	Plastic	NaOH to pH 12
Phenols <2		mg/L	Glass H ₂ SO ₄ to pH <2
Total 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
<i>E. coli</i>	cfu/100 mL	Sterile Plastic	Cool, 4°C, EDTA, and Thiosulfate

NA = Not Applicable.

*Determined by calculation using water temperature, pH and NH₄-N.

**Ethylenediamine-tetraacetic acid.

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 29 constituents measured at each of the 49 monitoring stations, including calculated values for $\text{NH}_3\text{-N}$ and TN, are presented in Appendices AI through AVII. The water quality data for selected parameters are summarized by navigational pool in Table 4.

Spatial Variability Along the Illinois Waterway. *Total Suspended Solids.* As shown in Figure 3, TSS was generally similar between Lockport and the Peoria Pool. The elevated concentration of TSS during August could have been related to a storm event during the sampling. There was an increase in TSS in the lower Peoria Pool, which has been observed in previous years.

TABLE 4: SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

Navigational Pool	Constituents ^a	Range	Average
Lockport	Water Temperature (°C) ^b	21.0 – 26.4	23.3
	TSS	7 – 12	9
	Turbidity (NTU) ^b	6 – 11	9
	Conductivity (µS/cm) ^b	743 – 1,181	910
	BOD ₅	3 – 5	4
	Dissolved Oxygen (DO) ^b	4.1 – 5.4	4.6
	pH (units) ^b	7.1 – 7.3	7.2
	NH ₄ -N	0.24 – 0.61	0.39
	NH ₃ -N	0.002 – 0.003	0.003
	TKN	0.51 – 1.89	1.00
	NO ₂ +NO ₃ -N	2.55 – 6.69	4.93
	TN	3.06 – 8.58	5.94
	TP	0.65 – 1.29	1.01
	Chlorophyll <i>a</i> (µg/L)	No Data	No Data
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – <5	<5
	FC (cfu/100 mL)	72 – 2,200	814 ^c
	E. coli (cfu/100 mL)	18 – 820	294 ^c
Brandon Road	Water Temperature (°C) ^b	20.8 – 26.3	22.8
	TSS	8 – 24	15
	Turbidity (NTU) ^b	9 – 22	14
	Conductivity (µS/cm) ^b	749 – 1,209	936
	BOD ₅	<2 – 4	3
	Dissolved Oxygen (DO) ^b	4.7 – 6.4	5.5
	pH (units) ^b	7.1 – 7.4	7.3
	NH ₄ -N	0.17 – 0.55	0.29
	NH ₃ -N	0.002 – 0.004	0.003
	TKN	0.60 – 1.42	0.90
	NO ₂ +NO ₃ -N	2.41 – 6.67	4.82
	TN	3.02 – 8.09	5.72
	TP	0.61 – 1.22	0.93
	Chlorophyll <i>a</i> (µg/L)	3 – 30	10
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – <5	<5
	FC (cfu/100 mL)	36 – 2,700	892 ^c
	E. coli (cfu/100 mL)	<10 – 1,400	456 ^c

TABLE 4 (Continued): SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

Navigational Pool	Constituents ^a	Range	Average
Dresden Island	Water Temperature (°C) ^b	19.8 – 28.2	23.4
	TSS	5 – 39	16
	Turbidity (NTU) ^b	10 – 36	19
	Conductivity (µS/cm) ^b	796 – 1,212	959
	BOD ₅	<2 – 13	4
	Dissolved Oxygen (DO) ^b	6.5 – 9.9	8.0
	pH (units) ^b	7.3 – 8.3	7.6
	NH ₄ -N	0.10 – 0.36	0.23
	NH ₃ -N	0.003 – 0.013	0.005
	TKN	0.45 – 1.66	0.96
	NO ₂ +NO ₃ -N	2.27 – 6.43	4.76
	TN	3.01 – 7.41	5.72
	TP	0.61 – 1.27	0.92
	Chlorophyll <i>a</i> (µg/L)	4 – 21	10
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – <5	<5
	FC (cfu/100 mL)	10 – 1,600	425 ^c
	E. coli (cfu/100 mL)	<10 – 1,300	245 ^c
Marseilles	Water Temperature (°C) ^b	19.3 – 27.6	22.3
	TSS	2 – 37	14
	Turbidity (NTU) ^b	6 – 40	18
	Conductivity (µS/cm) ^b	803 – 972	868
	BOD ₅	3 – 5	4
	Dissolved Oxygen (DO) ^b	7.2 – 9.3	8.4
	pH (units) ^b	7.5 – 8.7	8.0
	NH ₄ -N	<0.10 – 0.24	0.16
	NH ₃ -N	0.002 – 0.025	0.009
	TKN	0.50 – 1.17	0.81
	NO ₂ +NO ₃ -N	1.93 – 4.97	3.67
	TN	2.62 – 6.14	4.48
	TP	0.51 – 0.88	0.64
	Chlorophyll <i>a</i> (µg/L)	10 – 23	16
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – <5	<5
	FC (cfu/100 mL)	<10 – 640	122 ^c
	E. coli (cfu/100 mL)	<10 – 260	64 ^c

TABLE 4 (Continued): SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

Navigational Pool	Constituents ^a	Range	Average
Starved Rock	Water Temperature (°C) ^b	18.0 – 27.9	22.0
	TSS	3 – 72	20
	Turbidity (NTU) ^b	10 – 61	20
	Conductivity (µS/cm) ^b	698 – 935	850
	BOD ₅	<2 – 8	4
	Dissolved Oxygen (DO) ^b	7.1 – 12.4	9.5
	pH (units) ^b	7.7 – 9.1	8.3
	NH ₄ -N	<0.10 – 0.17	0.11
	NH ₃ -N	0.002 – 0.016	0.006
	TKN	0.70 – 1.67	1.00
	NO ₂ +NO ₃ -N	1.67 – 5.03	3.29
	TN	2.59 – 6.09	4.28
	TP	0.39 – 0.75	0.58
	Chlorophyll <i>a</i> (µg/L)	11 – 46	30
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – <5	<5
	FC (cfu/100 mL)	10 – 37,000	2,174 ^c
E. coli (cfu/100 mL)	<10 – 4,500	322 ^c	
Upper Peoria	Water Temperature (°C) ^b	17.6 – 28.5	21.7
	TSS	9 – 81	41
	Turbidity (NTU) ^b	21 – 107	42
	Conductivity (µS/cm) ^b	659 – 919	827
	BOD ₅	<2 – 8	5
	Dissolved Oxygen (DO) ^b	6.8 – 11.1	8.7
	pH (units) ^b	7.6 – 9.0	8.3
	NH ₄ -N	<0.10 – 0.23	0.13
	NH ₃ -N	0.002 – 0.026	0.009
	TKN	0.71 – 1.72	1.07
	NO ₂ +NO ₃ -N	1.75 – 4.42	3.03
	TN	2.92 – 5.29	4.10
	TP	0.42 – 0.71	0.54
	Chlorophyll <i>a</i> (µg/L)	24 – 55	38
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – 13	5
	FC (cfu/100 mL)	<10 – 44,000	4,427 ^c
E. coli (cfu/100 mL)	<10 – 1,900	259 ^c	

TABLE 4 (Continued): SUMMARY OF WATER QUALITY FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

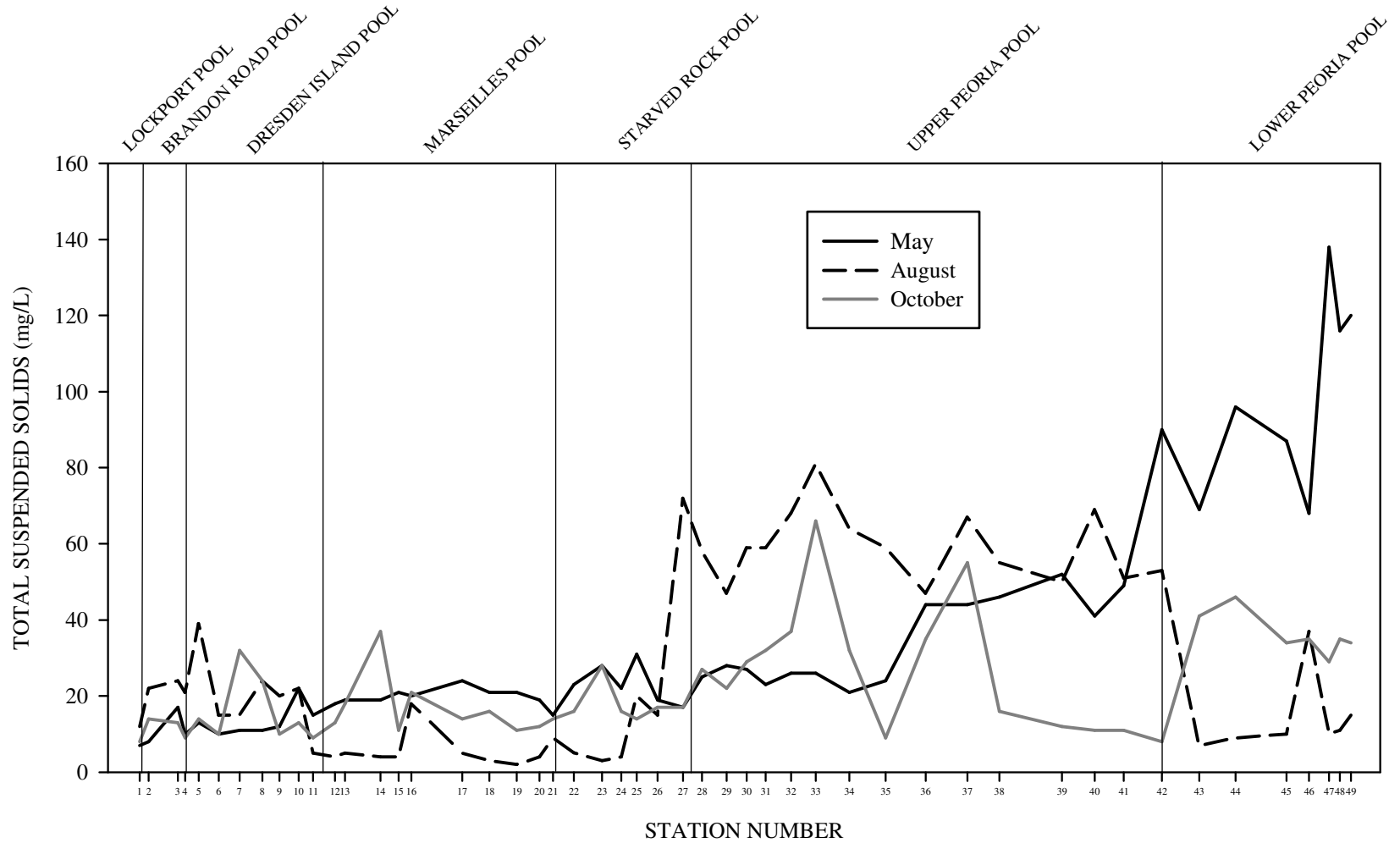
Navigational Pool	Constituents ^a	Range	Average
Lower Peoria	Water Temperature (°C) ^b	16.8 – 28.9	21.5
	TSS	7 – 138	50
	Turbidity (NTU) ^b	26 – 111	70
	Conductivity (µS/cm) ^b	713 – 895	825
	BOD ₅	<2 – 6	4
	Dissolved Oxygen (DO) ^b	5.6 – 9.3	7.6
	pH (units) ^b	7.8 – 8.8	8.3
	NH ₄ -N	<0.10 – 0.32	0.13
	NH ₃ -N	0.003 – 0.025	0.010
	TKN	0.62 – 1.26	0.93
	NO ₂ +NO ₃ -N	1.13 – 3.73	2.46
	TN	2.06 – 4.89	3.39
	TP	0.39 – 0.57	0.49
	Chlorophyll <i>a</i> (µg/L)	17 – 91	43
	Total Cyanide	<0.005 – <0.005	<0.005
	Phenols	<5 – 7	5
	FC (cfu/100 mL)	<10 – 1,000	94 ^c
E. coli (cfu/100 mL)	<10 – 910	111 ^c	

^aExpressed in mg/L except where noted.

^bField measurement.

^cGeometric mean.

FIGURE 3: TOTAL SUSPENDED SOLIDS CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2010



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 DO concentration along the Illinois Waterway remained above 6.5 mg/L below the Dresden Island Lock and Dam to the end of the sampling reach, except during August when there was a slight decrease in the lower Peoria Pool.

Ammonia Nitrogen. Ammonia nitrogen generally decreased from the Lockport Pool through the upper Peoria Pool ([Figure 5](#)), then increased slightly in the lower Peoria Pool. The slightly higher values during the third day of the August sampling trip may have been due to a wet weather event.

Total Nitrogen. As shown in [Figure 6](#), there was a general decrease in TN concentration from the Lockport Pool to the Marseilles Pool. TN concentration remained stable throughout the rest of the sampling reach. 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.

Total Phosphorus. Concentrations of TP decreased along the Illinois Waterway from the Lockport Pool through the Starved Rock 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. During May and October the FC concentration peaked slightly in the Brandon Road Pool, decreased to nearly zero downstream of this peak, and then remained rather uniform along the Illinois Waterway through the lower Peoria Pool with a small peak near the end of October ([Figure 8](#)). August values were slightly above normal values and then on the third day were much higher. This may have been a result of a wet weather event.

Trace Metals. Total concentrations of chromium, and zinc remained relatively constant from the Lockport Pool to the lower Peoria Pool ([Table 5](#)). Total iron and manganese generally increased progressively downstream. Concentrations of copper, nickel, and silver were at or below the LOQ for all water samples collected. Total concentrations of arsenic, cadmium, lead, and mercury were less than the LOQ for all water samples collected.

FIGURE 4: DISSOLVED OXYGEN CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2010

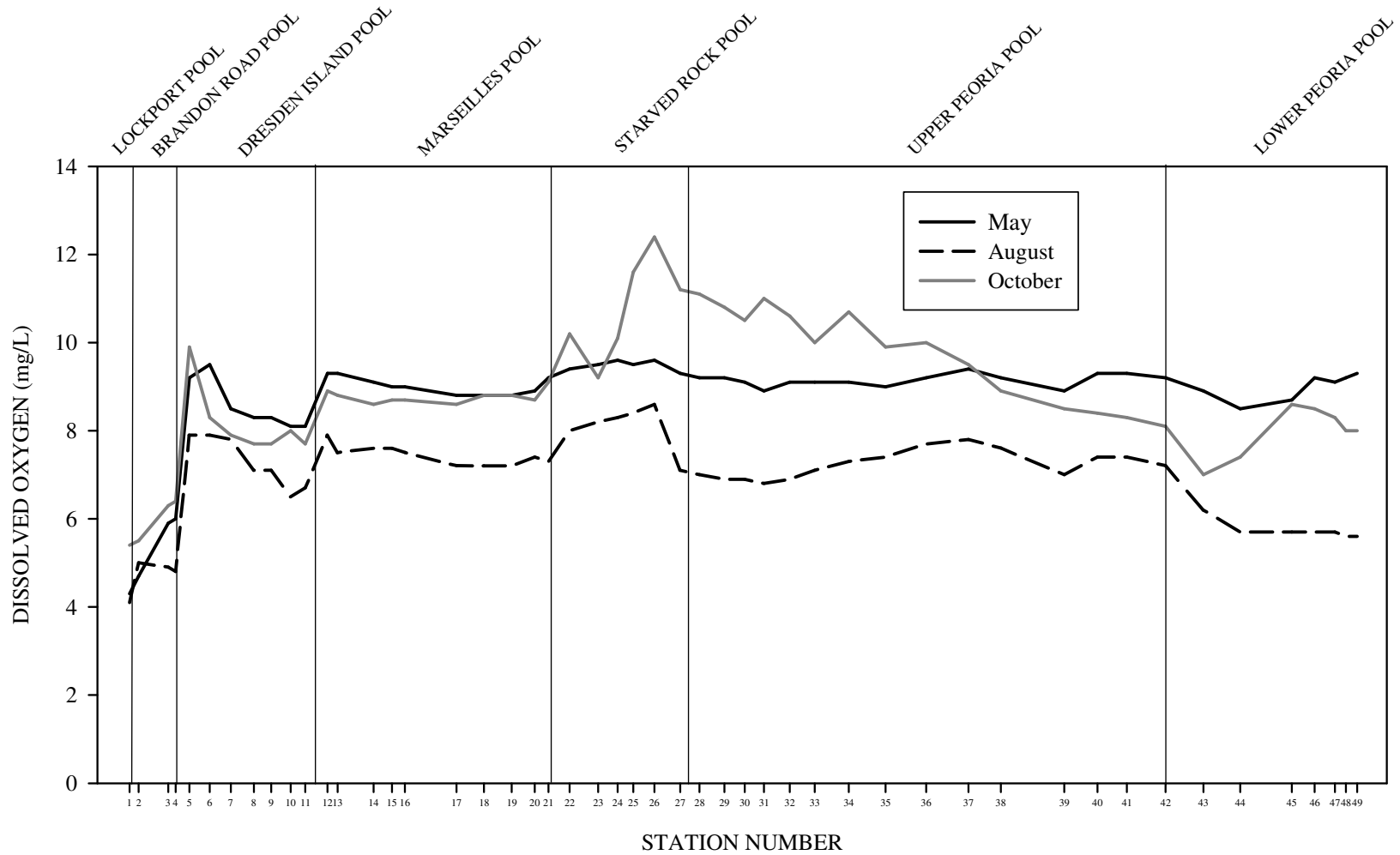


FIGURE 5: AMMONIA NITROGEN CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2010

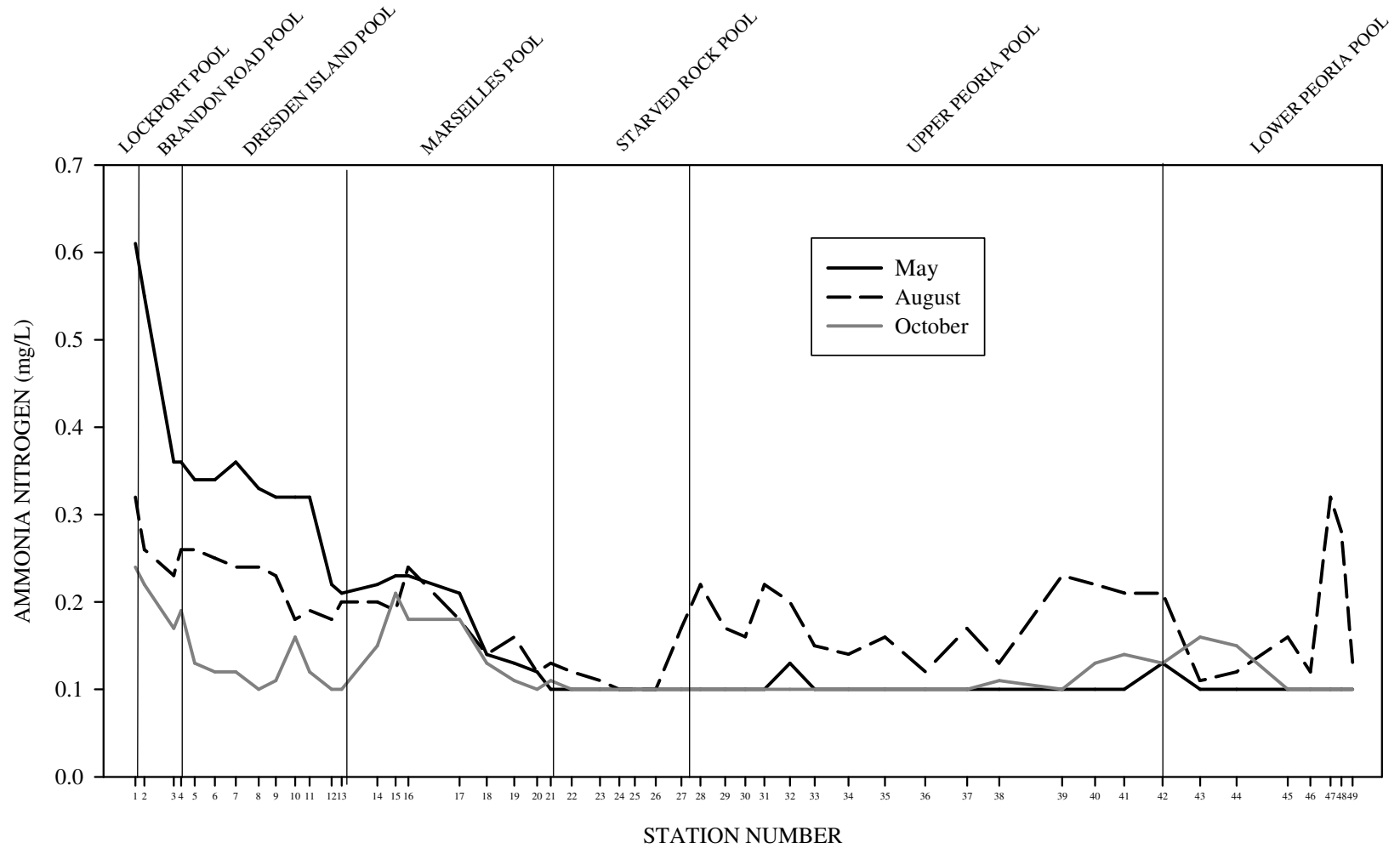


FIGURE 6: TOTAL NITROGEN CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2010

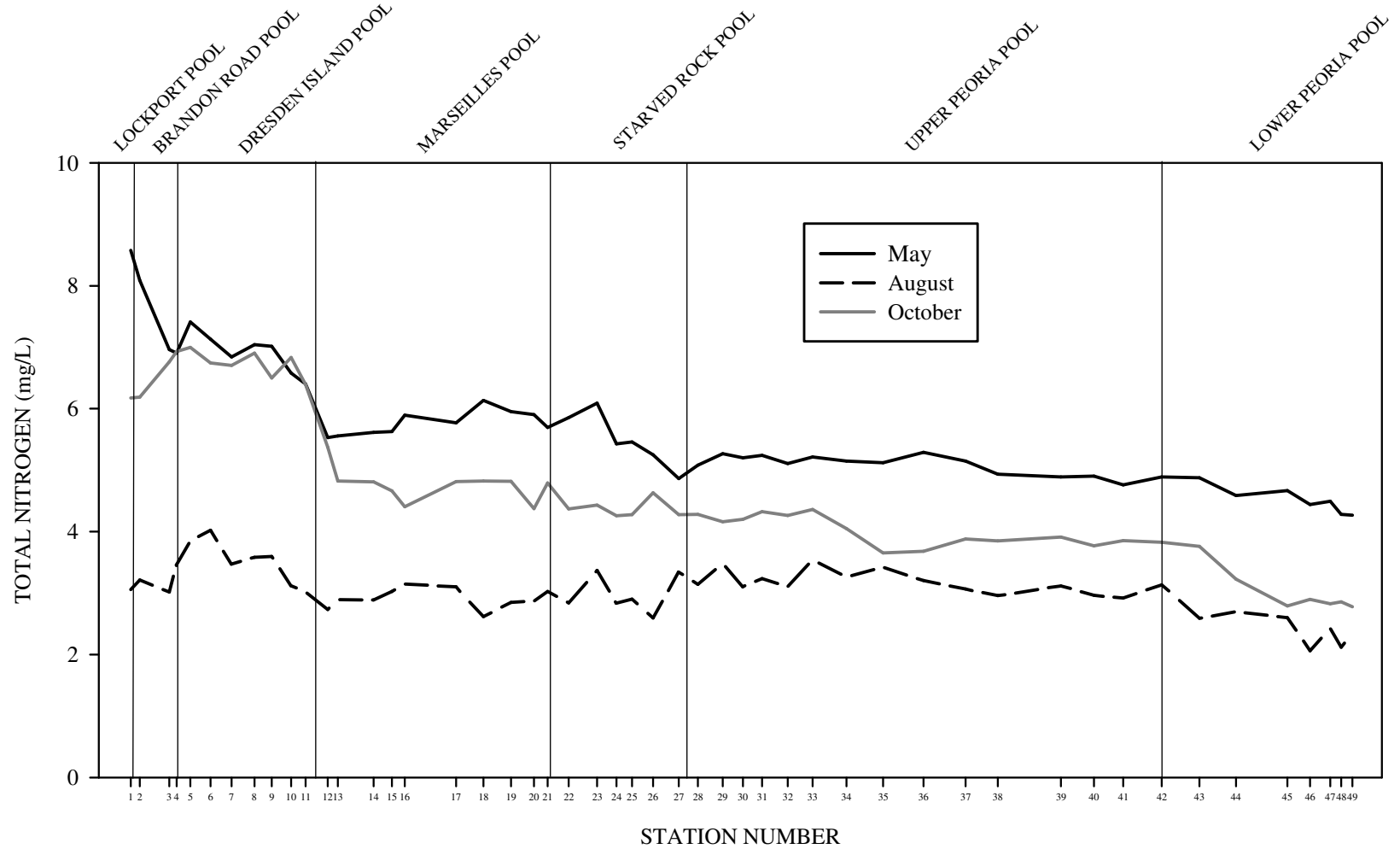


FIGURE 7: TOTAL PHOSPHORUS CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2010

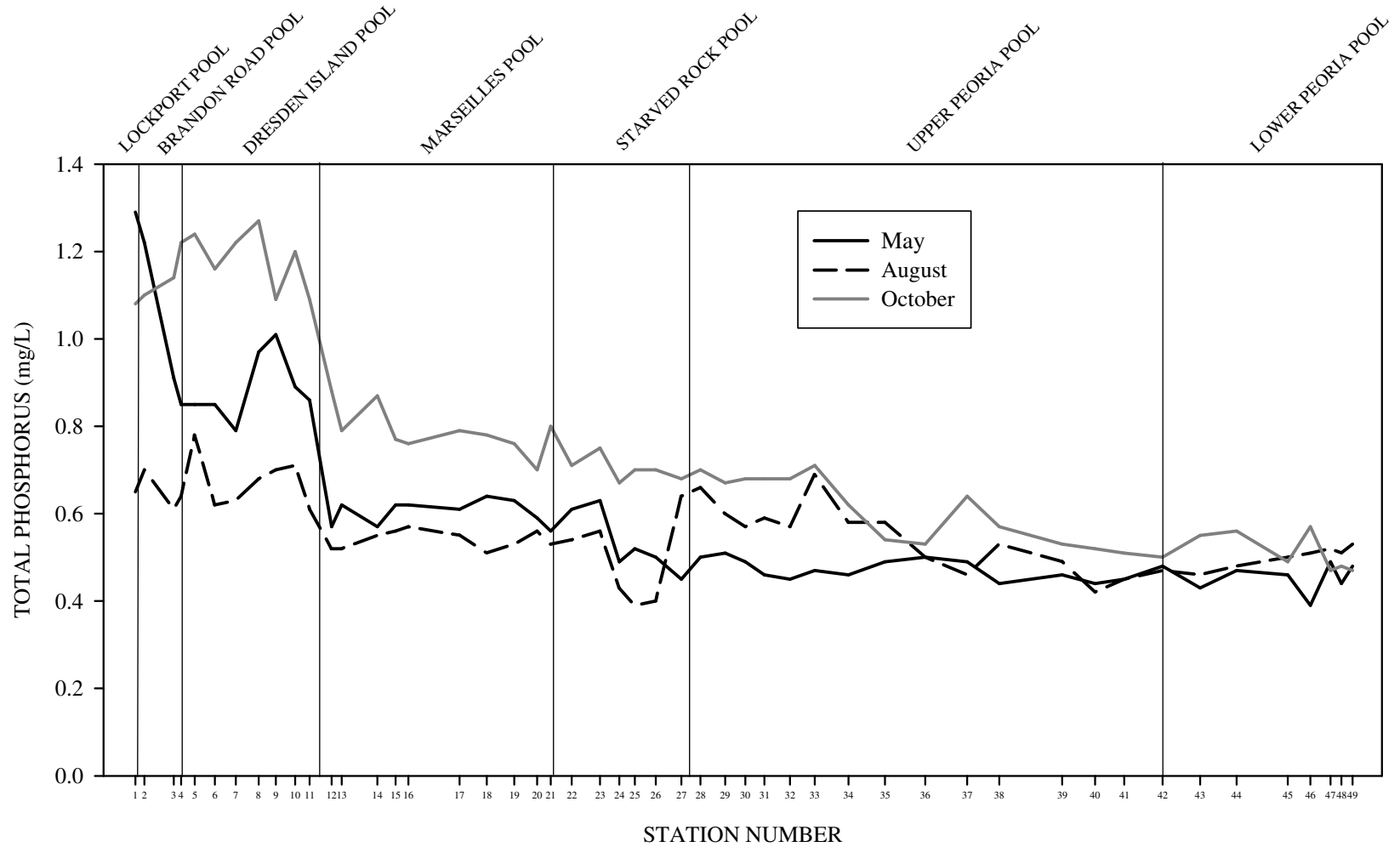


FIGURE 8: FECAL COLIFORM CONCENTRATION AT 49 STATIONS ALONG THE ILLINOIS WATERWAY FROM THE LOCKPORT LOCK TO THE PEORIA LOCK DURING MAY, AUGUST, AND OCTOBER 2010

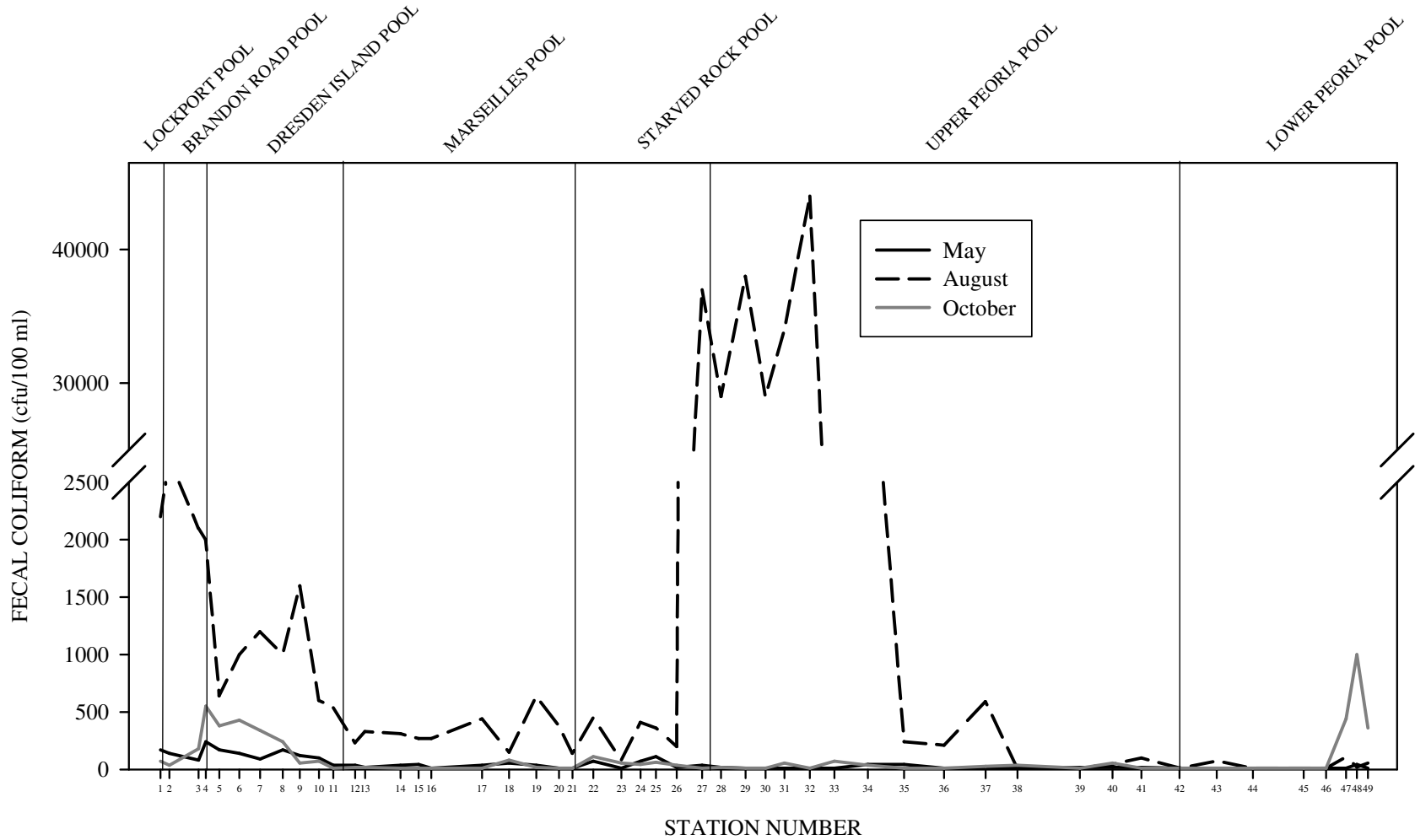


TABLE 5: SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

Navigational Pool	Constituents ^a	Range	Average
Lockport	Total Arsenic	All values <0.05	<0.05
	Total Cadmium	All values <0.01	<0.01
	Total Chromium	All values <0.01	<0.01
	Total Copper	All values <0.02	<0.02
	Total Iron	0.2 – 0.4	0.3
	Total Lead	All values <0.03	<0.03
	Total Manganese	0.017 – 0.033	0.025
	Total Mercury (µg/L)	All values <0.20	<0.20
	Total Nickel	All values <0.01	<0.01
	Total Silver	All values <0.003	<0.003
	Total Zinc	All values <0.07	<0.07
Brandon Road	Total Arsenic	All values <0.05	<0.05
	Total Cadmium	All values <0.01	<0.01
	Total Chromium	All values <0.01	<0.01
	Total Copper	All values <0.02	<0.02
	Total Iron	0.2 – 0.8	0.5
	Total Lead	All values <0.03	<0.03
	Total Manganese	0.021 – 0.044	0.032
	Total Mercury (µg/L)	All values <0.20	<0.20
	Total Nickel	All values <0.01	<0.01
	Total Silver	All values <0.003	<0.003
	Total Zinc	All values <0.07	<0.07
Dresden Island	Total Arsenic	All values <0.05	<0.05
	Total Cadmium	All values <0.01	<0.01
	Total Chromium	All values <0.01	<0.01
	Total Copper	All values <0.02	<0.02
	Total Iron	0.3 – 1.3	0.6
	Total Lead	All values <0.03	<0.03
	Total Manganese	0.020 – 0.048	0.034
	Total Mercury (µg/L)	All values <0.20	<0.20
	Total Nickel	All values <0.01	<0.01
	Total Silver	All values <0.003	<0.003
	Total Zinc	All values <0.07	<0.07

TABLE 5 (CONTINUED): SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

Navigational Pool	Constituents ^a	Range	Average
Marseilles	Total Arsenic	All values <0.05	<0.05
	Total Cadmium	All values <0.01	<0.01
	Total Chromium	All values <0.01	<0.01
	Total Copper	All values <0.02	<0.02
	Total Iron	0.2 – 1.1	0.6
	Total Lead	All values <0.03	<0.03
	Total Manganese	0.020 – 0.057	0.040
	Total Mercury (µg/L)	All values <0.20	<0.20
	Total Nickel	<0.01 – 0.01	0.01
	Total Silver	All values <0.003	<0.003
	Total Zinc	<0.018 – 0.132	0.038
	Starved Rock	Total Arsenic	All values <0.05
Total Cadmium		All values <0.01	<0.01
Total Chromium		All values <0.01	<0.01
Total Copper		All values <0.02	<0.02
Total Iron		0.3 – 3.6	0.7
Total Lead		All values <0.03	<0.03
Total Manganese		0.025 – 0.157	0.046
Total Mercury (µg/L)		All values <0.20	<0.20
Total Nickel		<0.01 – 0.01	0.01
Total Silver		All values <0.003	<0.003
Total Zinc		All values <0.07	<0.07
Upper Peoria		Total Arsenic	All values <0.05
	Total Cadmium	All values <0.01	<0.01
	Total Chromium	<0.01 – 0.02	0.01
	Total Copper	All values <0.02	<0.02
	Total Iron	0.5 – 4.0	1.5
	Total Lead	All values <0.03	<0.03
	Total Manganese	0.034 – 0.160	0.073
	Total Mercury (µg/L)	All values <0.20	<0.20
	Total Nickel	All values <0.01	<0.01
	Total Silver	All values <0.003	<0.003
	Total Zinc	All values <0.07	<0.07

TABLE 5 (CONTINUED): SUMMARY OF METALS CONCENTRATIONS FROM THE LOCKPORT, BRANDON ROAD, DRESDEN ISLAND, MARSEILLES, STARVED ROCK, AND PEORIA POOLS OF THE ILLINOIS WATERWAY DURING MAY, AUGUST, AND OCTOBER 2010

Navigational Pool	Constituents ^a	Range	Average
Lower Peoria	Total Arsenic	All values <0.05	<0.05
	Total Cadmium	All values <0.01	<0.01
	Total Chromium	All values <0.01	<0.01
	Total Copper	All values <0.02	<0.02
	Total Iron	0.7 – 4.4	2.2
	Total Lead	All values <0.03	<0.03
	Total Manganese	0.052 – 0.181	0.102
	Total Mercury (µg/L)	All values <0.20	<0.20
	Total Nickel	All values <0.01	<0.01
	Total Silver	All values <0.003	<0.003
	Total Zinc	All values <0.07	<0.07

^aExpressed in mg/L except where noted.

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). 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 Indigenous Aquatic Life Use minimum DO standard is 4.0 mg/L. The Indigenous Aquatic Life Use Standard was consistently achieved during each of the sampling periods. The General Use minimum DO standard is 5.0 mg/L during March – July, and 3.5 mg/L during August – February, and it was achieved for all sampling periods throughout the sampling reach. The General Use DO standards also include a 7-day mean of minima and a 30-day mean of means, which cannot be assessed with the limited DO data that was collected for this study.

Fecal Coliform. During May all samples exhibited FC counts below the General Use Standard. During October FC counts exceeded the General Use Standard of 400 cfu/100 mL at stations 47 and 48 (440, and 1,000 cfu/100 mL respectively). More than one third (39%) of the samples taken during the August trip were in excess of the 400 cfu/100 mL General Use Standard. The majority of these high FC concentrations were recorded on the third sampling day and corresponded to an August 3 wet weather event that produced over three inches of rain and flash flooding across parts of northern Illinois. These FC counts ranged from 4,200 to 44,000 cfu/100 mL at Stations 27-34 during the first half of the day, and dropped to a range of 10 to 590 cfu/100mL at Stations 35-42 during the second half of the day. It is likely that the District survey crew traveled downstream away from the influence of this event, since the FC concentrations measured after Station 34 were within expected range. The Secondary Contact Use Waters have 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 dates at all of the stations were less than the LOQ (0.20 µg/L), but compliance with the Human Health Standard for mercury cannot be assessed.

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.

Sediment samples were not collected in 2010. Sediment quality data has been reported for previous survey years as recently as 2009.

APPENDIX AI

WATER QUALITY AT STATION 1 IN THE CHICAGO SANITARY AND
SHIP CANAL DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AI-1: WATER QUALITY AT STATION 1 IN THE CHICAGO SANITARY AND SHIP CANAL DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	21.0	26.4	22.6
Total Suspended Solids	7	12	8
Turbidity (NTU) ^b	9	11	6
Conductivity (µS/cm) ^b	1,181	805	743
Five-Day BOD	3	3	5
Dissolved Oxygen ^b	4.3	4.1	5.4
pH (units) ^b	7.1	7.1	7.3
Ammonia Nitrogen	0.61	0.32	0.24
Un-ionized Ammonia	0.003	0.003	0.002
Total Kjeldahl Nitrogen	1.89	0.51	0.61
Nitrite plus Nitrate Nitrogen	6.69	2.55	5.57
Total Nitrogen	8.58	3.06	6.18
Total Phosphorus	1.29	0.65	1.08
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.2	0.4	0.2
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.033	0.025	0.017
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.028	0.023	<0.07
Fecal Coliform (cfu/100 mL)	170	2,200	72
E.coli (cfu/100 mL)	45	820	18

^aExpressed in mg/L except where noted.

^bField measurement.

APPENDIX AII

WATER QUALITY AT STATIONS 2-4 IN THE CHICAGO SANITARY AND SHIP CANAL
AND THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AII-1: WATER QUALITY AT STATION 2 IN THE CHICAGO SANITARY AND SHIP CANAL DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	21.4	26.3	22.3
Total Suspended Solids	8	22	14
Turbidity (NTU) ^b	11	19	10
Conductivity (µS/cm) ^b	1,180	814	749
Five-Day BOD	4	<2	<2
Dissolved Oxygen ^b	4.7	5.0	5.5
pH (units) ^b	7.2	7.1	7.4
Ammonia Nitrogen	0.55	0.26	0.22
Un-ionized Ammonia	0.004	0.002	0.003
Total Kjeldahl Nitrogen	1.42	0.63	0.60
Nitrite plus Nitrate Nitrogen	6.67	2.58	5.59
Total Nitrogen	8.09	3.21	6.19
Total Phosphorus	1.22	0.70	1.10
Chlorophyll <i>a</i> (µg/L)	3	8	3
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.2	0.6	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.033	0.033	0.021
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.025	0.029	<0.07
Fecal Coliform (cfu/100 mL)	140	2,700	36
E.coli (cfu/100 mL)	<10	1,000	45

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AII-2: WATER QUALITY AT STATION 3 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	21.0	25.8	20.9
Total Suspended Solids	17	24	13
Turbidity (NTU) ^b	17	12	11
Conductivity (µS/cm) ^b	1,209	810	821
Five-Day BOD	4	<2	<2
Dissolved Oxygen ^b	5.9	4.9	6.3
pH (units) ^b	7.4	7.2	7.4
Ammonia Nitrogen	0.36	0.23	0.17
Un-ionized Ammonia	0.004	0.002	0.002
Total Kjeldahl Nitrogen	1.30	0.61	0.64
Nitrite plus Nitrate Nitrogen	5.66	2.41	6.12
Total Nitrogen	6.96	3.02	6.76
Total Phosphorus	0.91	0.61	1.14
Chlorophyll <i>a</i> (µg/L)	30	11	3
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.4	0.7	0.5
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.044	0.037	0.024
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.024	0.026	<0.07
Fecal Coliform (cfu/100 mL)	81	2,100	180
E.coli (cfu/100 mL)	10	1,400	360

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AII-3: WATER QUALITY AT STATION 4 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.8	25.7	21.0
Total Suspended Solids	10	21	9
Turbidity (NTU) ^b	13	22	9
Conductivity (µS/cm) ^b	1,207	830	808
Five-Day BOD	3	<2	<2
Dissolved Oxygen ^b	6.0	4.8	6.4
pH (units) ^b	7.4	7.2	7.3
Ammonia Nitrogen	0.36	0.26	0.19
Un-ionized Ammonia	0.004	0.003	0.002
Total Kjeldahl Nitrogen	1.20	0.98	0.72
Nitrite plus Nitrate Nitrogen	5.71	2.48	6.21
Total Nitrogen	6.91	3.46	6.93
Total Phosphorus	0.85	0.64	1.22
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.3	0.8	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.035	0.038	0.021
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.022	0.026	<0.07
Fecal Coliform (cfu/100 mL)	240	2,000	550
E.coli (cfu/100 mL)	18	910	350

^aExpressed in mg/L except where noted.

^bField measurement.

APPENDIX AIII

WATER QUALITY AT STATIONS 5-11 IN THE DES PLAINES RIVER
AND THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AIII-1: WATER QUALITY AT STATION 5 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.7	26.0	21.3
Total Suspended Solids	13	39	14
Turbidity (NTU) ^b	14	26	23
Conductivity (µS/cm) ^b	1,211	837	851
Five-Day BOD	4	3	3
Dissolved Oxygen ^b	9.2	7.9	9.9
pH (units) ^b	7.5	7.3	8.0
Ammonia Nitrogen	0.34	0.26	0.13
Un-ionized Ammonia	0.005	0.003	0.006
Total Kjeldahl Nitrogen	1.66	1.08	0.57
Nitrite plus Nitrate Nitrogen	5.75	2.77	6.43
Total Nitrogen	7.41	3.85	7.00
Total Phosphorus	0.85	0.78	1.24
Chlorophyll <i>a</i> (µg/L)	21	9	4
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.005	<0.01
Total Copper	<0.007	0.008	<0.02
Total Iron	0.4	1.3	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.039	0.048	0.024
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.024	0.041	<0.07
Fecal Coliform (cfu/100 mL)	170	640	380
E.coli (cfu/100 mL)	27	1,300	220

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIII-2: WATER QUALITY AT STATION 6 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	21.4	28.2	25.4
Total Suspended Solids	10	15	10
Turbidity (NTU) ^b	14	19	11
Conductivity (µS/cm) ^b	1,212	864	820
Five-Day BOD	4	<2	<2
Dissolved Oxygen ^b	9.5	7.9	8.3
pH (units) ^b	7.6	7.3	7.6
Ammonia Nitrogen	0.34	0.25	0.12
Un-ionized Ammonia	0.006	0.004	0.003
Total Kjeldahl Nitrogen	1.41	1.40	0.45
Nitrite plus Nitrate Nitrogen	5.72	2.62	6.29
Total Nitrogen	7.13	4.02	6.74
Total Phosphorus	0.85	0.62	1.16
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.3	0.5	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.035	0.029	0.021
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.019	0.020	<0.07
Fecal Coliform (cfu/100 mL)	40	1,000	430
E.coli (cfu/100 mL)	<10	640	310

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIII-3: WATER QUALITY AT STATION 7 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.9	27.5	24.0
Total Suspended Solids	11	15	32
Turbidity (NTU) ^b	14	18	23
Conductivity (µS/cm) ^b	1,188	862	796
Five-Day BOD	4	<2	4
Dissolved Oxygen ^b	8.5	7.8	7.9
pH (units) ^b	7.6	7.3	7.7
Ammonia Nitrogen	0.36	0.24	0.12
Un-ionized Ammonia	0.006	0.003	0.003
Total Kjeldahl Nitrogen	1.35	0.81	0.54
Nitrite plus Nitrate Nitrogen	5.49	2.66	6.16
Total Nitrogen	6.84	3.47	6.70
Total Phosphorus	0.79	0.63	1.22
Chlorophyll <i>a</i> (µg/L)	15	9	4
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.004	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.3	0.8	1.0
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.035	0.039	0.037
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.018	0.029	<0.07
Fecal Coliform (cfu/100 mL)	90	1,200	340
E.coli (cfu/100 mL)	<10	450	150

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIII-4: WATER QUALITY AT STATION 8 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	21.2	27.1	22.8
Total Suspended Solids	11	24	24
Turbidity (NTU) ^b	14	23	19
Conductivity (µS/cm) ^b	1,174	876	829
Five-Day BOD	4	<2	3
Dissolved Oxygen ^b	8.3	7.1	7.7
pH (units) ^b	7.6	7.3	7.8
Ammonia Nitrogen	0.33	0.24	0.10
Un-ionized Ammonia	0.006	0.003	0.003
Total Kjeldahl Nitrogen	1.41	0.85	0.75
Nitrite plus Nitrate Nitrogen	5.63	2.73	6.16
Total Nitrogen	7.04	3.58	6.91
Total Phosphorus	0.97	0.68	1.27
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.4	0.7	0.9
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.033	0.036	0.036
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	0.025	<0.07
Fecal Coliform (cfu/100 mL)	170	1,000	240
E.coli (cfu/100 mL)	<10	270	81

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIII-5: WATER QUALITY AT STATION 9 IN THE DES PLAINES RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	21.5	27.1	22.4
Total Suspended Solids	12	20	10
Turbidity (NTU) ^b	16	26	11
Conductivity (µS/cm) ^b	1,194	884	846
Five-Day BOD	13	3	3
Dissolved Oxygen ^b	8.3	7.1	7.7
pH (units) ^b	7.6	7.3	7.7
Ammonia Nitrogen	0.32	0.23	0.11
Un-ionized Ammonia	0.006	0.003	0.003
Total Kjeldahl Nitrogen	1.26	0.81	0.47
Nitrite plus Nitrate Nitrogen	5.76	2.79	6.03
Total Nitrogen	7.02	3.60	6.50
Total Phosphorus	1.01	0.70	1.09
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.004	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.4	1.1	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.032	0.045	0.023
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.019	0.034	<0.07
Fecal Coliform (cfu/100 mL)	120	1,600	54
E.coli (cfu/100 mL)	<10	640	63

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIII-6: WATER QUALITY AT STATION 10 IN THE DES PLAINES RIVER DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.8	26.7	20.9
Total Suspended Solids	22	22	13
Turbidity (NTU) ^b	21	36	15
Conductivity (µS/cm) ^b	1,193	822	857
Five-Day BOD	7	3	<2
Dissolved Oxygen ^b	8.1	6.5	8.0
pH (units) ^b	7.6	7.4	8.3
Ammonia Nitrogen	0.32	0.18	0.16
Un-ionized Ammonia	0.005	0.003	0.013
Total Kjeldahl Nitrogen	1.24	0.85	0.70
Nitrite plus Nitrate Nitrogen	5.34	2.27	6.13
Total Nitrogen	6.58	3.12	6.83
Total Phosphorus	0.89	0.71	1.20
Chlorophyll <i>a</i> (µg/L)	15	8	5
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.004	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.6	0.9	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.037	0.039	0.021
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.022	0.028	<0.07
Fecal Coliform (cfu/100 mL)	99	600	72
E.coli (cfu/100 mL)	10	600	10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIII-7: WATER QUALITY AT STATION 11 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.9	26.8	20.4
Total Suspended Solids	15	5	9
Turbidity (NTU) ^b	20	33	10
Conductivity (µS/cm) ^b	1,147	833	850
Five-Day BOD	6	<2	<2
Dissolved Oxygen ^b	8.1	6.7	7.7
pH (units) ^b	7.6	7.4	8.3
Ammonia Nitrogen	0.32	0.19	0.12
Un-ionized Ammonia	0.005	0.003	0.010
Total Kjeldahl Nitrogen	1.14	0.69	0.73
Nitrite plus Nitrate Nitrogen	5.26	2.32	5.66
Total Nitrogen	6.40	3.01	6.39
Total Phosphorus	0.86	0.61	1.09
Chlorophyll <i>a</i> (µg/L)	16	8	7
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.005	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.5	1.2	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.036	0.045	0.020
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.019	0.035	<0.07
Fecal Coliform (cfu/100 mL)	36	540	10
E.coli (cfu/100 mL)	<10	300	27

^aExpressed in mg/L except where noted.

^bField measurement.

APPENDIX AIV

WATER QUALITY AT STATIONS 12-21 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AIV-1: WATER QUALITY AT STATION 12 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.8	27.4	19.5
Total Suspended Solids	18	4	13
Turbidity (NTU) ^b	22	17	14
Conductivity (µS/cm) ^b	966	803	830
Five-Day BOD	5	<2	3
Dissolved Oxygen ^b	9.3	7.9	8.9
pH (units) ^b	7.9	7.5	8.5
Ammonia Nitrogen	0.22	0.18	<0.10
Un-ionized Ammonia	0.007	0.004	0.010
Total Kjeldahl Nitrogen	0.95	0.80	0.75
Nitrite plus Nitrate Nitrogen	4.58	1.93	4.63
Total Nitrogen	5.53	2.73	5.38
Total Phosphorus	0.57	0.52	0.88
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.6	0.6	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.044	0.055	0.024
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	0.019	<0.07
Fecal Coliform (cfu/100 mL)	36	230	18
E.coli (cfu/100 mL)	<10	200	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-2: WATER QUALITY AT STATION 13 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.9	27.5	19.3
Total Suspended Solids	19	5	18
Turbidity (NTU) ^b	21	16	17
Conductivity (µS/cm) ^b	971	816	816
Five-Day BOD	3	<2	3
Dissolved Oxygen ^b	9.3	7.5	8.8
pH (units) ^b	7.9	7.5	8.6
Ammonia Nitrogen	0.21	0.20	<0.10
Un-ionized Ammonia	0.007	0.004	0.012
Total Kjeldahl Nitrogen	0.91	0.82	0.72
Nitrite plus Nitrate Nitrogen	4.65	2.08	4.11
Total Nitrogen	5.56	2.90	4.83
Total Phosphorus	0.62	0.52	0.79
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.6	0.6	0.7
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.043	0.050	0.037
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	0.01
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	0.019	0.132
Fecal Coliform (cfu/100 mL)	18	330	18
E.coli (cfu/100 mL)	<10	180	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-3: WATER QUALITY AT STATION 14 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.9	27.6	19.6
Total Suspended Solids	19	4	37
Turbidity (NTU) ^b	20	18	28
Conductivity (µS/cm) ^b	928	827	824
Five-Day BOD	4	3	3
Dissolved Oxygen ^b	9.1	7.6	8.6
pH (units) ^b	8.0	7.5	8.5
Ammonia Nitrogen	0.22	0.20	0.15
Un-ionized Ammonia	0.009	0.004	0.017
Total Kjeldahl Nitrogen	0.99	0.71	0.63
Nitrite plus Nitrate Nitrogen	4.63	2.18	4.18
Total Nitrogen	5.62	2.89	4.81
Total Phosphorus	0.57	0.55	0.87
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.6	0.6	1.1
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.045	0.051	0.051
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	0.019	<0.07
Fecal Coliform (cfu/100 mL)	36	310	<10
E.coli (cfu/100 mL)	<10	260	10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-4: WATER QUALITY AT STATION 15 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.0	27.5	19.8
Total Suspended Solids	21	4	11
Turbidity (NTU) ^b	26	14	10
Conductivity (µS/cm) ^b	956	821	834
Five-Day BOD	4	3	3
Dissolved Oxygen ^b	9.0	7.6	8.7
pH (units) ^b	7.9	7.6	8.5
Ammonia Nitrogen	0.23	0.19	0.21
Un-ionized Ammonia	0.007	0.005	0.024
Total Kjeldahl Nitrogen	0.92	0.88	0.59
Nitrite plus Nitrate Nitrogen	4.71	2.15	4.07
Total Nitrogen	5.63	3.03	4.66
Total Phosphorus	0.62	0.56	0.77
Chlorophyll <i>a</i> (µg/L)	15	10	10
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.6	0.7	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.044	0.054	0.022
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	0.020	<0.07
Fecal Coliform (cfu/100 mL)	45	270	<10
E.coli (cfu/100 mL)	<10	140	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-5: WATER QUALITY AT STATION 16 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.0	27.5	19.7
Total Suspended Solids	20	18	21
Turbidity (NTU) ^b	19	17	17
Conductivity (µS/cm) ^b	968	817	821
Five-Day BOD	5	4	3
Dissolved Oxygen ^b	9.0	7.5	8.7
pH (units) ^b	7.9	7.6	8.6
Ammonia Nitrogen	0.23	0.24	0.18
Un-ionized Ammonia	0.007	0.007	0.025
Total Kjeldahl Nitrogen	1.06	1.03	0.56
Nitrite plus Nitrate Nitrogen	4.84	2.12	3.85
Total Nitrogen	5.90	3.15	4.41
Total Phosphorus	0.62	0.57	0.76
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.7	0.7	0.6
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.046	0.056	0.035
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	0.003
Total Zinc	<0.018	0.021	<0.07
Fecal Coliform (cfu/100 mL)	10	270	10
E.coli (cfu/100 mL)	<10	160	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-6: WATER QUALITY AT STATION 17 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	27.5	19.5
Total Suspended Solids	24	5	14
Turbidity (NTU) ^b	22	9	13
Conductivity (µS/cm) ^b	943	816	837
Five-Day BOD	4	3	3
Dissolved Oxygen ^b	8.8	7.2	8.6
pH (units) ^b	7.9	7.6	8.6
Ammonia Nitrogen	0.21	0.18	0.18
Un-ionized Ammonia	0.006	0.005	0.025
Total Kjeldahl Nitrogen	0.95	0.99	0.66
Nitrite plus Nitrate Nitrogen	4.82	2.11	4.15
Total Nitrogen	5.77	3.10	4.81
Total Phosphorus	0.61	0.55	0.79
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.7	0.7	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.050	0.057	0.026
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	0.018	<0.07
Fecal Coliform (cfu/100 mL)	36	440	<10
E.coli (cfu/100 mL)	<10	230	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-7: WATER QUALITY AT STATION 18 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.3	27.6	19.5
Total Suspended Solids	21	3	16
Turbidity (NTU) ^b	20	14	15
Conductivity (µS/cm) ^b	972	817	838
Five-Day BOD	4	<2	4
Dissolved Oxygen ^b	8.8	7.2	8.8
pH (units) ^b	7.9	7.6	8.6
Ammonia Nitrogen	0.14	0.14	0.13
Un-ionized Ammonia	0.004	0.004	0.018
Total Kjeldahl Nitrogen	1.17	0.50	0.70
Nitrite plus Nitrate Nitrogen	4.97	2.12	4.12
Total Nitrogen	6.14	2.62	4.82
Total Phosphorus	0.64	0.51	0.78
Chlorophyll <i>a</i> (µg/L)	21	20	13
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.7	0.2	0.5
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.049	0.027	0.028
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	<0.018	<0.07
Fecal Coliform (cfu/100 mL)	54	150	81
E.coli (cfu/100 mL)	10	130	45

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-8: WATER QUALITY AT STATION 19 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	27.5	19.7
Total Suspended Solids	21	2	11
Turbidity (NTU) ^b	20	6	10
Conductivity (µS/cm) ^b	960	819	832
Five-Day BOD	4	3	4
Dissolved Oxygen ^b	8.8	7.2	8.8
pH (units) ^b	7.9	7.6	8.7
Ammonia Nitrogen	0.13	0.16	0.11
Un-ionized Ammonia	0.004	0.004	0.019
Total Kjeldahl Nitrogen	1.00	0.74	0.69
Nitrite plus Nitrate Nitrogen	4.95	2.11	4.13
Total Nitrogen	5.95	2.85	4.82
Total Phosphorus	0.63	0.53	0.76
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.7	0.3	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.045	0.034	0.021
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.018	<0.018	<0.07
Fecal Coliform (cfu/100 mL)	36	640	18
E.coli (cfu/100 mL)	<10	140	27

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-9: WATER QUALITY AT STATION 20 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.6	27.5	19.4
Total Suspended Solids	19	4	12
Turbidity (NTU) ^b	20	26	40
Conductivity (µS/cm) ^b	939	824	821
Five-Day BOD	3	<2	<2
Dissolved Oxygen ^b	8.9	7.4	8.7
pH (units) ^b	7.9	7.6	8.7
Ammonia Nitrogen	0.12	0.12	<0.10
Un-ionized Ammonia	0.004	0.003	0.012
Total Kjeldahl Nitrogen	0.95	0.65	0.61
Nitrite plus Nitrate Nitrogen	4.96	2.22	3.77
Total Nitrogen	5.91	2.87	4.38
Total Phosphorus	0.59	0.56	0.70
Chlorophyll <i>a</i> (µg/L)	19	23	12
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.007	<0.007	<0.02
Total Iron	0.6	0.7	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.042	0.048	0.022
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.018	0.018	<0.07
Fecal Coliform (cfu/100 mL)	<10	380	10
E.coli (cfu/100 mL)	<10	140	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AIV-10: WATER QUALITY AT STATION 21 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.8	27.4	19.6
Total Suspended Solids	15	9	14
Turbidity (NTU) ^b	18	26	17
Conductivity (µS/cm) ^b	925	866	839
Five-Day BOD	3	<2	3
Dissolved Oxygen ^b	9.2	7.3	9.1
pH (units) ^b	8.1	7.7	8.6
Ammonia Nitrogen	<0.10	0.13	0.11
Un-ionized Ammonia	0.002	0.004	0.015
Total Kjeldahl Nitrogen	0.79	0.73	0.87
Nitrite plus Nitrate Nitrogen	4.91	2.30	3.92
Total Nitrogen	5.70	3.03	4.79
Total Phosphorus	0.56	0.53	0.80
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	0.5	0.6	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.033	0.044	0.020
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.02	<0.07
Fecal Coliform (cfu/100 mL)	10	140	<10
E.coli (cfu/100 mL)	<10	72	10

^aExpressed in mg/L except where noted.

^bField measurement.

APPENDIX AV

WATER QUALITY AT STATIONS 22-27 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AV-1: WATER QUALITY AT STATION 22 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.1	27.9	19.9
Total Suspended Solids	23	5	16
Turbidity (NTU) ^b	24	15	14
Conductivity (µS/cm) ^b	935	834	816
Five-Day BOD	3	<2	3
Dissolved Oxygen ^b	9.4	8.0	10.2
pH (units) ^b	8.0	7.7	8.4
Ammonia Nitrogen	<0.10	0.12	<0.10
Un-ionized Ammonia	0.004	0.004	0.003
Total Kjeldahl Nitrogen	0.87	0.70	0.73
Nitrite plus Nitrate Nitrogen	4.99	2.14	3.64
Total Nitrogen	5.86	2.84	4.37
Total Phosphorus	0.61	0.54	0.71
Chlorophyll <i>a</i> (µg/L)	21	27	11
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	0.8	0.6	0.5
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.051	0.047	0.026
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.02	<0.07
Fecal Coliform (cfu/100 mL)	72	450	110
E.coli (cfu/100 mL)	<10	240	36

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AV-2: WATER QUALITY AT STATION 23 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	20.2	27.8	19.5
Total Suspended Solids	28	3	28
Turbidity (NTU) ^b	27	10	14
Conductivity (µS/cm) ^b	929	828	822
Five-Day BOD	3	<2	3
Dissolved Oxygen ^b	9.5	8.2	9.2
pH (units) ^b	8.0	7.7	8.7
Ammonia Nitrogen	0.10	0.11	<0.10
Un-ionized Ammonia	0.004	0.004	0.007
Total Kjeldahl Nitrogen	1.06	1.22	0.75
Nitrite plus Nitrate Nitrogen	5.03	2.15	3.68
Total Nitrogen	6.09	3.37	4.43
Total Phosphorus	0.63	0.56	0.75
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	0.9	0.4	0.8
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.056	0.036	0.038
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.02	<0.07
Fecal Coliform (cfu/100 mL)	10	81	54
E.coli (cfu/100 mL)	<10	72	36

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AV-3: WATER QUALITY AT STATION 24 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.9	27.0	18.4
Total Suspended Solids	22	4	16
Turbidity (NTU) ^b	21	25	14
Conductivity (µS/cm) ^b	909	780	854
Five-Day BOD	5	<2	4
Dissolved Oxygen ^b	9.6	8.3	10.1
pH (units) ^b	8.1	7.9	9.1
Ammonia Nitrogen	<0.10	<0.10	<0.10
Un-ionized Ammonia	0.004	0.003	0.016
Total Kjeldahl Nitrogen	0.98	0.99	1.12
Nitrite plus Nitrate Nitrogen	4.45	1.84	3.14
Total Nitrogen	5.43	2.83	4.26
Total Phosphorus	0.49	0.43	0.67
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	0.8	0.5	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.053	0.042	0.027
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.02	<0.07
Fecal Coliform (cfu/100 mL)	72	410	45
E.coli (cfu/100 mL)	<10	340	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AV-4: WATER QUALITY AT STATION 25 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.6	27.1	18.9
Total Suspended Solids	31	20	14
Turbidity (NTU) ^b	27	15	13
Conductivity (µS/cm) ^b	903	789	857
Five-Day BOD	4	<2	4
Dissolved Oxygen ^b	9.5	8.4	11.6
pH (units) ^b	8.1	7.9	9.0
Ammonia Nitrogen	<0.10	<0.10	<0.10
Un-ionized Ammonia	0.003	0.004	0.011
Total Kjeldahl Nitrogen	1.01	1.19	0.86
Nitrite plus Nitrate Nitrogen	4.45	1.71	3.42
Total Nitrogen	5.46	2.90	4.28
Total Phosphorus	0.52	0.39	0.70
Chlorophyll <i>a</i> (µg/L)	33	34	43
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	0.9	0.5	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.060	0.042	0.025
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	0.01
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.02	<0.07
Fecal Coliform (cfu/100 mL)	110	360	63
E.coli (cfu/100 mL)	<10	310	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AV-5: WATER QUALITY AT STATION 26 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.7	27.2	19.0
Total Suspended Solids	19	15	17
Turbidity (NTU) ^b	20	12	15
Conductivity (µS/cm) ^b	904	791	859
Five-Day BOD	3	<2	5
Dissolved Oxygen ^b	9.6	8.6	12.4
pH (units) ^b	8.1	8.0	9.1
Ammonia Nitrogen	<0.10	<0.10	<0.10
Un-ionized Ammonia	0.002	0.003	0.013
Total Kjeldahl Nitrogen	0.81	0.88	1.26
Nitrite plus Nitrate Nitrogen	4.44	1.71	3.37
Total Nitrogen	5.25	2.59	4.63
Total Phosphorus	0.50	0.40	0.70
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	0.5	0.3	0.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.041	0.033	0.028
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.02	<0.07
Fecal Coliform (cfu/100 mL)	18	200	36
E.coli (cfu/100 mL)	<10	130	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AV-6: WATER QUALITY AT STATION 27 IN THE ILLINOIS RIVER DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	26.5	18.0
Total Suspended Solids	17	72	17
Turbidity (NTU) ^b	19	61	17
Conductivity (µS/cm) ^b	922	698	863
Five-Day BOD	8	5	5
Dissolved Oxygen ^b	9.3	7.1	11.2
pH (units) ^b	8.2	7.7	8.8
Ammonia Nitrogen	<0.10	0.17	<0.10
Un-ionized Ammonia	0.004	0.006	0.011
Total Kjeldahl Nitrogen	0.84	1.67	0.97
Nitrite plus Nitrate Nitrogen	4.03	1.67	3.31
Total Nitrogen	4.87	3.34	4.28
Total Phosphorus	0.45	0.64	0.68
Chlorophyll <i>a</i> (µg/L)	34	21	46
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.007	<0.01
Total Copper	<0.01	0.01	<0.02
Total Iron	0.4	3.6	0.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.038	0.157	0.029
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.046	<0.07
Fecal Coliform (cfu/100 mL)	36	37,000	10
E.coli (cfu/100 mL)	10	4,500	18

^aExpressed in mg/L except where noted.

^bField measurement.

APPENDIX AVI

WATER QUALITY AT STATIONS 28-41 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AVI-1: WATER QUALITY AT STATION 28 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.2	26.7	17.8
Total Suspended Solids	25	58	27
Turbidity (NTU) ^b	24	101	24
Conductivity (µS/cm) ^b	917	721	865
Five-Day BOD	5	5	5
Dissolved Oxygen ^b	9.2	7.0	11.1
pH (units) ^b	8.2	7.6	8.8
Ammonia Nitrogen	<0.10	0.22	<0.10
Un-ionized Ammonia	0.004	0.006	0.009
Total Kjeldahl Nitrogen	0.81	1.34	0.99
Nitrite plus Nitrate Nitrogen	4.27	1.80	3.29
Total Nitrogen	5.08	3.14	4.28
Total Phosphorus	0.50	0.66	0.70
Chlorophyll <i>a</i> (µg/L)	37	24	48
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.003	0.008	<0.01
Total Copper	<0.01	0.01	<0.02
Total Iron	0.7	3.6	0.6
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.050	0.146	0.039
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.044	<0.07
Fecal Coliform (cfu/100 mL)	18	29,000	18
E.coli (cfu/100 mL)	<10	1,300	27

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-2: WATER QUALITY AT STATION 29 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	26.8	17.6
Total Suspended Solids	28	47	22
Turbidity (NTU) ^b	25	67	21
Conductivity (µS/cm) ^b	911	724	864
Five-Day BOD	6	5	6
Dissolved Oxygen ^b	9.2	6.9	10.8
pH (units) ^b	8.1	7.7	8.8
Ammonia Nitrogen	<0.10	0.17	<0.10
Un-ionized Ammonia	0.003	0.006	0.009
Total Kjeldahl Nitrogen	0.86	1.66	0.92
Nitrite plus Nitrate Nitrogen	4.41	1.82	3.24
Total Nitrogen	5.27	3.48	4.16
Total Phosphorus	0.51	0.60	0.67
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.005	<0.01
Total Copper	<0.01	0.01	<0.02
Total Iron	0.7	2.9	0.5
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.053	0.125	0.034
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.032	<0.07
Fecal Coliform (cfu/100 mL)	10	38,000	10
E.coli (cfu/100 mL)	<10	1,200	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-3: WATER QUALITY AT STATION 30 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	27.0	17.6
Total Suspended Solids	27	59	29
Turbidity (NTU) ^b	26	88	30
Conductivity (µS/cm) ^b	900	736	867
Five-Day BOD	4	5	5
Dissolved Oxygen ^b	9.1	6.9	10.5
pH (units) ^b	8.2	7.7	8.8
Ammonia Nitrogen	<0.10	0.16	<0.10
Un-ionized Ammonia	0.004	0.005	0.013
Total Kjeldahl Nitrogen	0.79	1.27	1.00
Nitrite plus Nitrate Nitrogen	4.41	1.83	3.20
Total Nitrogen	5.20	3.10	4.20
Total Phosphorus	0.49	0.57	0.68
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.007	<0.01
Total Copper	<0.01	0.01	<0.02
Total Iron	0.8	3.8	0.8
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.052	0.160	0.043
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.043	<0.07
Fecal Coliform (cfu/100 mL)	<10	29,000	10
E.coli (cfu/100 mL)	<10	1,500	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-4: WATER QUALITY AT STATION 31 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.3	27.0	18.0
Total Suspended Solids	23	59	32
Turbidity (NTU) ^b	26	NA	27
Conductivity (µS/cm) ^b	883	739	866
Five-Day BOD	4	4	5
Dissolved Oxygen ^b	8.9	6.8	11.0
pH (units) ^b	8.2	7.7	8.9
Ammonia Nitrogen	<0.10	0.22	<0.10
Un-ionized Ammonia	0.005	0.007	0.011
Total Kjeldahl Nitrogen	0.82	1.37	1.05
Nitrite plus Nitrate Nitrogen	4.42	1.87	3.28
Total Nitrogen	5.24	3.24	4.33
Total Phosphorus	0.46	0.59	0.68
Chlorophyll <i>a</i> (µg/L)	34	26	35
Total Cyanide	<0.005	<0.005	<0.005
Phenols	5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.007	<0.01
Total Copper	<0.01	0.01	<0.02
Total Iron	0.7	3.4	0.8
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.048	0.141	0.044
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.037	<0.07
Fecal Coliform (cfu/100 mL)	<10	34,000	54
E.coli (cfu/100 mL)	<10	1,900	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-5: WATER QUALITY AT STATION 32 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	27.0	18.0
Total Suspended Solids	26	68	37
Turbidity (NTU) ^b	25	107	31
Conductivity (µS/cm) ^b	885	659	865
Five-Day BOD	5	6	5
Dissolved Oxygen ^b	9.1	6.9	10.6
pH (units) ^b	8.2	7.7	8.8
Ammonia Nitrogen	0.13	0.20	<0.10
Un-ionized Ammonia	0.008	0.007	0.013
Total Kjeldahl Nitrogen	0.71	1.28	0.98
Nitrite plus Nitrate Nitrogen	4.40	1.82	3.28
Total Nitrogen	5.11	3.10	4.26
Total Phosphorus	0.45	0.57	0.68
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.004	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	0.8	2.4	0.9
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.049	0.106	0.050
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.030	<0.07
Fecal Coliform (cfu/100 mL)	10	44,000	10
E.coli (cfu/100 mL)	<10	1,200	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-6: WATER QUALITY AT STATION 33 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.5	27.2	17.7
Total Suspended Solids	26	81	66
Turbidity (NTU) ^b	21	58	53
Conductivity (µS/cm) ^b	892	666	869
Five-Day BOD	6	6	7
Dissolved Oxygen ^b	9.1	7.1	10.0
pH (units) ^b	8.2	7.8	8.8
Ammonia Nitrogen	<0.10	0.15	<0.10
Un-ionized Ammonia	0.002	0.006	0.013
Total Kjeldahl Nitrogen	0.84	1.72	1.18
Nitrite plus Nitrate Nitrogen	4.38	1.82	3.18
Total Nitrogen	5.22	3.54	4.36
Total Phosphorus	0.47	0.69	0.71
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.006	<0.01
Total Copper	<0.01	0.01	<0.02
Total Iron	0.8	4.0	1.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.052	0.159	0.061
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.036	<0.07
Fecal Coliform (cfu/100 mL)	<10	5,900	72
E.coli (cfu/100 mL)	<10	1,700	27

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-7: WATER QUALITY AT STATION 34 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.3	27.4	17.8
Total Suspended Solids	21	64	32
Turbidity (NTU) ^b	25	68	29
Conductivity (µS/cm) ^b	905	679	863
Five-Day BOD	5	4	6
Dissolved Oxygen ^b	9.1	7.3	10.7
pH (units) ^b	8.1	7.9	8.8
Ammonia Nitrogen	<0.10	0.14	<0.10
Un-ionized Ammonia	0.003	0.007	0.011
Total Kjeldahl Nitrogen	0.73	1.49	1.07
Nitrite plus Nitrate Nitrogen	4.42	1.77	2.98
Total Nitrogen	5.15	3.26	4.05
Total Phosphorus	0.46	0.58	0.62
Chlorophyll <i>a</i> (µg/L)	32	32	47
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.018	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	0.8	2.4	0.7
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.048	0.102	0.049
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.027	<0.07
Fecal Coliform (cfu/100 mL)	45	4,200	36
E.coli (cfu/100 mL)	<10	1,000	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-8: WATER QUALITY AT STATION 35 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	27.6	18.2
Total Suspended Solids	24	59	9
Turbidity (NTU) ^b	27	35	29
Conductivity (µS/cm) ^b	919	695	868
Five-Day BOD	5	5	5
Dissolved Oxygen ^b	9.0	7.4	9.9
pH (units) ^b	8.1	7.9	8.9
Ammonia Nitrogen	<0.10	0.16	<0.10
Un-ionized Ammonia	0.003	0.009	0.011
Total Kjeldahl Nitrogen	0.71	1.67	0.98
Nitrite plus Nitrate Nitrogen	4.41	1.75	2.67
Total Nitrogen	5.12	3.42	3.65
Total Phosphorus	0.49	0.58	0.54
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.004	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	0.7	2.6	0.9
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.045	0.108	0.056
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.025	<0.07
Fecal Coliform (cfu/100 mL)	45	240	10
E.coli (cfu/100 mL)	10	370	10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-9: WATER QUALITY AT STATION 36 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.3	27.9	18.4
Total Suspended Solids	44	47	35
Turbidity (NTU) ^b	28	42	39
Conductivity (µS/cm) ^b	913	705	862
Five-Day BOD	6	3	5
Dissolved Oxygen ^b	9.2	7.7	10.0
pH (units) ^b	8.2	7.9	9.0
Ammonia Nitrogen	<0.10	0.12	<0.10
Un-ionized Ammonia	0.004	0.007	0.016
Total Kjeldahl Nitrogen	0.93	1.44	0.98
Nitrite plus Nitrate Nitrogen	4.36	1.76	2.70
Total Nitrogen	5.29	3.20	3.68
Total Phosphorus	0.50	0.50	0.53
Chlorophyll <i>a</i> (µg/L)	37	39	41
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	1.3	1.6	1.2
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.065	0.076	0.063
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.027	<0.07
Fecal Coliform (cfu/100 mL)	10	210	10
E.coli (cfu/100 mL)	10	160	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-10: WATER QUALITY AT STATION 37 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.6	28.2	18.6
Total Suspended Solids	44	67	55
Turbidity (NTU) ^b	29	31	89
Conductivity (µS/cm) ^b	902	717	866
Five-Day BOD	8	3	6
Dissolved Oxygen ^b	9.4	7.8	9.5
pH (units) ^b	8.2	8.0	8.9
Ammonia Nitrogen	<0.10	0.17	<0.10
Un-ionized Ammonia	0.002	0.012	0.016
Total Kjeldahl Nitrogen	0.88	1.29	1.13
Nitrite plus Nitrate Nitrogen	4.27	1.77	2.75
Total Nitrogen	5.15	3.06	3.88
Total Phosphorus	0.49	0.46	0.64
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	1.0	1.0	2.6
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.055	0.056	0.106
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.018	<0.07
Fecal Coliform (cfu/100 mL)	10	590	27
E.coli (cfu/100 mL)	<10	81	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-11: WATER QUALITY AT STATION 38 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.4	28.1	19.0
Total Suspended Solids	46	55	16
Turbidity (NTU) ^b	34	41	54
Conductivity (µS/cm) ^b	895	725	879
Five-Day BOD	6	4	4
Dissolved Oxygen ^b	9.2	7.6	8.9
pH (units) ^b	8.3	7.9	8.9
Ammonia Nitrogen	<0.10	0.13	0.11
Un-ionized Ammonia	0.004	0.007	0.026
Total Kjeldahl Nitrogen	0.85	1.14	0.92
Nitrite plus Nitrate Nitrogen	4.09	1.82	2.93
Total Nitrogen	4.94	2.96	3.85
Total Phosphorus	0.44	0.53	0.57
Chlorophyll <i>a</i> (µg/L)	48	44	36
Total Cyanide	<0.005	<0.005	<0.005
Phenols	5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	1.6	1.5	1.9
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.068	0.065	0.087
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.018	<0.07
Fecal Coliform (cfu/100 mL)	<10	<10	36
E.coli (cfu/100 mL)	10	90	10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-12: WATER QUALITY AT STATION 39 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.2	28.0	18.7
Total Suspended Solids	52	50	12
Turbidity (NTU) ^b	57	35	39
Conductivity (µS/cm) ^b	891	734	877
Five-Day BOD	6	3	5
Dissolved Oxygen ^b	8.9	7.0	8.5
pH (units) ^b	8.4	7.9	8.8
Ammonia Nitrogen	<0.10	0.23	0.10
Un-ionized Ammonia	0.005	0.013	0.019
Total Kjeldahl Nitrogen	1.18	1.25	0.84
Nitrite plus Nitrate Nitrogen	3.71	1.87	3.07
Total Nitrogen	4.89	3.12	3.91
Total Phosphorus	0.46	0.49	0.53
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	13	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	0.003	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	1.8	2.0	1.2
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.081	0.083	0.064
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	0.027	<0.07
Fecal Coliform (cfu/100 mL)	18	<10	10
E.coli (cfu/100 mL)	<10	10	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-13: WATER QUALITY AT STATION 40 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.3	28.4	19.1
Total Suspended Solids	41	69	11
Turbidity (NTU) ^b	39	38	32
Conductivity (µS/cm) ^b	902	736	874
Five-Day BOD	6	<2	4
Dissolved Oxygen ^b	9.3	7.4	8.4
pH (units) ^b	8.3	8.0	8.8
Ammonia Nitrogen	<0.10	0.22	0.13
Un-ionized Ammonia	0.004	0.016	0.026
Total Kjeldahl Nitrogen	1.03	1.12	0.81
Nitrite plus Nitrate Nitrogen	3.88	1.84	2.96
Total Nitrogen	4.91	2.96	3.77
Total Phosphorus	0.44	0.42	0.52
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	<0.003	<0.003	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	1.3	0.9	1.2
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.066	0.057	0.063
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.018	<0.07
Fecal Coliform (cfu/100 mL)	18	45	54
E.coli (cfu/100 mL)	18	18	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVI-14: WATER QUALITY AT STATION 41 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.2	28.5	18.9
Total Suspended Solids	49	51	11
Turbidity (NTU) ^b	48	45	27
Conductivity (µS/cm) ^b	901	742	872
Five-Day BOD	6	3	4
Dissolved Oxygen ^b	9.3	7.4	8.3
pH (units) ^b	8.3	8.0	8.5
Ammonia Nitrogen	<0.10	0.21	0.14
Un-ionized Ammonia	0.004	0.015	0.015
Total Kjeldahl Nitrogen	0.96	1.07	0.91
Nitrite plus Nitrate Nitrogen	3.80	1.85	2.95
Total Nitrogen	4.76	2.92	3.86
Total Phosphorus	0.45	0.45	0.51
Chlorophyll <i>a</i> (µg/L)	55	35	31
Total Cyanide	<0.005	<0.005	<0.005
Phenols	5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.003	<0.003	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	1.5	1.4	0.8
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.073	0.072	0.050
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.02	<0.018	<0.07
Fecal Coliform (cfu/100 mL)	18	99	10
E.coli (cfu/100 mL)	<10	10	10

^aExpressed in mg/L except where noted.

^bField measurement.

APPENDIX AVII

WATER QUALITY AT STATIONS 42-49 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

TABLE AVII-1: WATER QUALITY AT STATION 42 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.1	28.7	18.5
Total Suspended Solids	90	53	8
Turbidity (NTU) ^b	57	73	26
Conductivity (µS/cm) ^b	895	750	872
Five-Day BOD	6	3	3
Dissolved Oxygen ^b	9.2	7.2	8.1
pH (units) ^b	8.3	8.0	8.8
Ammonia Nitrogen	<0.10	0.21	0.13
Un-ionized Ammonia	0.004	0.015	0.025
Total Kjeldahl Nitrogen	1.22	1.26	0.89
Nitrite plus Nitrate Nitrogen	3.67	1.88	2.94
Total Nitrogen	4.89	3.14	3.83
Total Phosphorus	0.48	0.47	0.50
Chlorophyll <i>a</i> (µg/L)	64	33	25
Total Cyanide	<0.005	<0.005	<0.005
Phenols	5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.004	0.004	<0.01
Total Copper	<0.01	<0.007	<0.02
Total Iron	2.4	2.1	0.7
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.105	0.094	0.055
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.022	0.021	<0.07
Fecal Coliform (cfu/100 mL)	10	<10	10
E.coli (cfu/100 mL)	10	18	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-2: WATER QUALITY AT STATION 43 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	19.0	27.9	18.0
Total Suspended Solids	69	7	41
Turbidity (NTU) ^b	64	58	49
Conductivity (µS/cm) ^b	879	716	874
Five-Day BOD	4	5	4
Dissolved Oxygen ^b	8.9	6.2	7.0
pH (units) ^b	8.3	7.8	8.5
Ammonia Nitrogen	<0.10	0.11	0.16
Un-ionized Ammonia	0.004	0.005	0.016
Total Kjeldahl Nitrogen	1.15	0.89	0.76
Nitrite plus Nitrate Nitrogen	3.73	1.70	3.00
Total Nitrogen	4.88	2.59	3.76
Total Phosphorus	0.43	0.46	0.55
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.004	0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	2.2	2.0	1.3
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.098	0.085	0.065
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.021	0.019	<0.07
Fecal Coliform (cfu/100 mL)	10	72	10
E.coli (cfu/100 mL)	<10	45	18

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-3: WATER QUALITY AT STATION 44 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	18.1	27.8	17.6
Total Suspended Solids	96	9	46
Turbidity (NTU) ^b	97	68	48
Conductivity (µS/cm) ^b	885	733	856
Five-Day BOD	4	<2	4
Dissolved Oxygen ^b	8.5	5.7	7.4
pH (units) ^b	8.3	7.8	8.6
Ammonia Nitrogen	<0.10	0.12	0.15
Un-ionized Ammonia	0.003	0.005	0.018
Total Kjeldahl Nitrogen	1.02	0.96	0.66
Nitrite plus Nitrate Nitrogen	3.57	1.73	2.57
Total Nitrogen	4.59	2.69	3.23
Total Phosphorus	0.47	0.48	0.56
Chlorophyll <i>a</i> (µg/L)	77	28	33
Total Cyanide	<0.005	<0.005	<0.005
Phenols	7	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.005	<0.003	<0.01
Total Copper	0.01	<0.01	<0.02
Total Iron	2.7	1.9	1.4
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.120	0.092	0.060
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.025	0.018	<0.07
Fecal Coliform (cfu/100 mL)	10	10	10
E.coli (cfu/100 mL)	<10	18	10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-4: WATER QUALITY AT STATION 45 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	17.8	28.3	17.1
Total Suspended Solids	87	10	34
Turbidity (NTU) ^b	84	74	37
Conductivity (µS/cm) ^b	887	740	852
Five-Day BOD	5	3	5
Dissolved Oxygen ^b	8.7	5.7	8.6
pH (units) ^b	8.3	7.9	8.7
Ammonia Nitrogen	<0.10	0.16	<0.10
Un-ionized Ammonia	0.003	0.009	0.010
Total Kjeldahl Nitrogen	1.11	1.00	0.68
Nitrite plus Nitrate Nitrogen	3.56	1.60	2.11
Total Nitrogen	4.67	2.60	2.79
Total Phosphorus	0.46	0.50	0.49
Chlorophyll <i>a</i> (µg/L)	66	32	17
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.005	0.003	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	2.9	2.1	1.0
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.129	0.103	0.052
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.03	0.022	<0.07
Fecal Coliform (cfu/100 mL)	<10	<10	10
E.coli (cfu/100 mL)	<10	18	<10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-5: WATER QUALITY AT STATION 46 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	18.2	28.7	16.8
Total Suspended Solids	68	37	35
Turbidity (NTU) ^b	80	82	46
Conductivity (µS/cm) ^b	877	713	855
Five-Day BOD	4	3	5
Dissolved Oxygen ^b	9.2	5.7	8.5
pH (units) ^b	8.4	8.1	8.7
Ammonia Nitrogen	<0.10	0.12	<0.10
Un-ionized Ammonia	0.007	0.011	0.010
Total Kjeldahl Nitrogen	1.04	0.93	0.71
Nitrite plus Nitrate Nitrogen	3.40	1.13	2.19
Total Nitrogen	4.44	2.06	2.90
Total Phosphorus	0.39	0.51	0.57
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.004	0.004	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	2.1	2.5	1.2
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.108	0.131	0.056
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	<0.020	0.020	<0.07
Fecal Coliform (cfu/100 mL)	<10	10	10
E.coli (cfu/100 mL)	<10	36	10

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-6: WATER QUALITY AT STATION 47 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	18.3	28.6	17.9
Total Suspended Solids	138	10	29
Turbidity (NTU) ^b	111	94	41
Conductivity (µS/cm) ^b	874	734	868
Five-Day BOD	5	3	5
Dissolved Oxygen ^b	9.1	5.7	8.3
pH (units) ^b	8.4	7.9	8.7
Ammonia Nitrogen	<0.10	0.32	<0.10
Un-ionized Ammonia	0.003	0.019	0.012
Total Kjeldahl Nitrogen	1.24	0.96	0.70
Nitrite plus Nitrate Nitrogen	3.25	1.47	2.13
Total Nitrogen	4.49	2.43	2.83
Total Phosphorus	0.49	0.52	0.47
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.010	0.004	<0.01
Total Copper	0.01	<0.01	<0.02
Total Iron	4.4	3.1	0.9
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.181	0.132	0.053
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.036	0.022	<0.07
Fecal Coliform (cfu/100 mL)	10	110	440
E.coli (cfu/100 mL)	<10	10	570

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-7: WATER QUALITY AT STATION 48 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	18.4	28.7	17.1
Total Suspended Solids	116	11	35
Turbidity (NTU) ^b	96	101	43
Conductivity (µS/cm) ^b	872	729	869
Five-Day BOD	4	3	5
Dissolved Oxygen ^b	9.2	5.6	8.0
pH (units) ^b	8.2	8.0	8.6
Ammonia Nitrogen	<0.10	0.28	<0.10
Un-ionized Ammonia	0.003	0.020	0.011
Total Kjeldahl Nitrogen	1.07	0.76	0.69
Nitrite plus Nitrate Nitrogen	3.21	1.36	2.17
Total Nitrogen	4.28	2.12	2.86
Total Phosphorus	0.44	0.51	0.48
Chlorophyll <i>a</i> (µg/L)	91	39	17
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.006	0.005	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	3.5	3.3	1.1
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.159	0.144	0.058
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.029	0.033	<0.07
Fecal Coliform (cfu/100 mL)	45	18	1,000
E.coli (cfu/100 mL)	<10	10	820

^aExpressed in mg/L except where noted.

^bField measurement.

TABLE AVII-8: WATER QUALITY AT STATION 49 IN THE ILLINOIS RIVER
DURING MAY, AUGUST, AND OCTOBER 2010

Constituents ^a	May	August	October
Water Temperature (°C) ^b	18.6	28.9	16.8
Total Suspended Solids	120	15	34
Turbidity (NTU) ^b	105	105	44
Conductivity (µS/cm) ^b	870	732	867
Five-Day BOD	5	4	5
Dissolved Oxygen ^b	9.3	5.6	8.0
pH (units) ^b	8.4	7.9	8.6
Ammonia Nitrogen	<0.10	0.13	<0.10
Un-ionized Ammonia	0.005	0.008	0.009
Total Kjeldahl Nitrogen	1.16	0.95	0.62
Nitrite plus Nitrate Nitrogen	3.11	1.39	2.16
Total Nitrogen	4.27	2.34	2.78
Total Phosphorus	0.48	0.53	0.47
Chlorophyll <i>a</i> (µg/L)	No Data	No Data	No Data
Total Cyanide	<0.005	<0.005	<0.005
Phenols	<5	<5	<5
Total Arsenic	<0.05	<0.05	<0.04
Total Cadmium	<0.01	<0.01	<0.003
Total Chromium	0.006	0.005	<0.01
Total Copper	<0.01	<0.01	<0.02
Total Iron	3.6	3.3	1.1
Total Lead	<0.03	<0.03	<0.02
Total Manganese	0.161	0.149	0.059
Total Mercury (µg/L)	<0.20	<0.20	<0.20
Total Nickel	<0.01	<0.01	<0.008
Total Silver	<0.002	<0.002	<0.003
Total Zinc	0.028	0.03	<0.07
Fecal Coliform (cfu/100 mL)	10	54	360
E.coli (cfu/100 mL)	10	81	910

^aExpressed in mg/L except where noted.

^bField measurement.