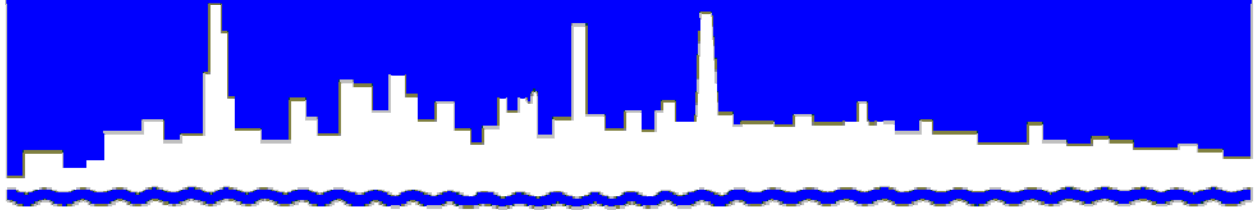


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***MONITORING AND RESEARCH
DEPARTMENT***

REPORT NO. 16-01

***COMPILATION OF GROUNDWATER QUALITY MONITORING
DATA FOR THE TUNNEL AND RESERVOIR PLAN
COLLECTED FROM MONITORING WELLS
FROM 1995 - 2013***

January 2016

Metropolitan Water Reclamation District of Greater Chicago
100 East Erie Street Chicago, Illinois 60611-2803 312-751-5600

**COMPILATION OF GROUNDWATER QUALITY MONITORING
DATA FOR THE TUNNEL AND RESERVOIR PLAN
COLLECTED FROM MONITORING WELLS
FROM 1995 - 2013**

By

Dominic Brose
Associate Environmental Soil Scientist

Pauline Lindo
Associate Environmental Soil Scientist

Lakhwinder Hundal
Supervising Environmental Soil Scientist

Albert Cox
Environmental Monitoring and Research Manager

Heng Zhang
Assistant Director of Monitoring and Research

Thomas C. Granato
Director of Monitoring and Research

TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES	ii
LIST OF FIGURES	xi
LIST OF ACRONYMS	xii
ACKNOWLEDGMENTS	xiii
DISCLAIMER	xiii
SUMMARY	xiv
INTRODUCTION	1
MATERIALS AND METHODS	1
RESULTS	4
REFERENCES	5
APPENDICES	
APPENDIX A: Schematic for Monitoring Well	A-1
APPENDIX B: Standard Operating Procedure for Sampling Tunnel and Reservoir Plan Wells	B-1

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
1	Tunnel and Reservoir Plan System Tunnel Lengths, Volume, and Diameters	2
2-1	Groundwater Quality Data for Well QM-53 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	6
2-2	Groundwater Quality Data for Well QM-56 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	8
2-3	Groundwater Quality Data for Well QM-58 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	10
2-4	Groundwater Quality Data for Well QM-61 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	12
2-5	Groundwater Quality Data for Well QM-62 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	15
2-6	Groundwater Quality Data for Well QM-63 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	17
2-7	Groundwater Quality Data for Well QM-64 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	20
2-8	Groundwater Quality Data for Well QM-65 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	23
2-9	Groundwater Quality Data for Well QM-66 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	26
2-10	Groundwater Quality Data for Well QM-67 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	27
2-11	Groundwater Quality Data for Well QM-68 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	31
2-12	Groundwater Quality Data for Well QM-69 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	33
2-13	Groundwater Quality Data for Well QM-70 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	36

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
2-14	Groundwater Quality Data for Well QM-71 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	38
2-15	Groundwater Quality Data for Well QM-72 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	40
2-16	Groundwater Quality Data for Well QM-73 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	43
2-17	Groundwater Quality Data for Well QM-74 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	45
2-18	Groundwater Quality Data for Well QM-75 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	47
2-19	Groundwater Quality Data for Well QM-76 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	49
2-20	Groundwater Quality Data for Well QM-77 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	51
2-21	Groundwater Quality Data for Well QM-78 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	53
2-22	Groundwater Quality Data for Well QM-79 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	56
2-23	Groundwater Quality Data for Well QM-80 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	58
2-24	Groundwater Quality Data for Well QM-81 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	60
2-25	Groundwater Quality Data for Well QM-82 in the Mainstream Tunnel System of the Tunnel and Reservoir Plan	63
3-1	Groundwater Quality Data for Well QC-1 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	65
3-2	Groundwater Quality Data for Well QC-2 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	72

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
3-3	Groundwater Quality Data for Well QC-2.1 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	80
3-4	Groundwater Quality Data for Well QC-2.2 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	86
3-5	Groundwater Quality Data for Well QC-3 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	89
3-6	Groundwater Quality Data for Well QC-4 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	91
3-7	Groundwater Quality Data for Well QC-5 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	94
3-8	Groundwater Quality Data for Well QC-6 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	97
3-9	Groundwater Quality Data for Well QC-7 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	100
3-10	Groundwater Quality Data for Well QC-9 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	103
3-11	Groundwater Quality Data for Well QC-10 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	105
3-12	Groundwater Quality Data for Well QC-11 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	108
3-13	Groundwater Quality Data for Well QC-12 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	110
3-14	Groundwater Quality Data for Well QC-13 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	112
3-15	Groundwater Quality Data for Well QC-14 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	114
3-16	Groundwater Quality Data for Well QC-15 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	116

LIST OF TABLES (Continued)

Table No.		Page
3-17	Groundwater Quality Data for Well QC-16 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	118
3-18	Groundwater Quality Data for Well QC-17 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	121
3-19	Groundwater Quality Data for Well QC-18 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	123
3-20	Groundwater Quality Data for Well QC-19 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	125
3-21	Groundwater Quality Data for Well QC-20 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	128
3-22	Groundwater Quality Data for Well QC-21 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	130
3-23	Groundwater Quality Data for Well QC-22 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	132
3-24	Groundwater Quality Data for Well QC-23 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	134
3-25	Groundwater Quality Data for Well QC-24 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	136
3-26	Groundwater Quality Data for Well QC-25 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	138
3-27	Groundwater Quality Data for Well QC-26 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	140
3-28	Groundwater Quality Data for Well QC-27 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	142
3-29	Groundwater Quality Data for Well QC-28 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	144

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
3-30	Groundwater Quality Data for Well QC-29 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	146
3-31	Groundwater Quality Data for Well QC-30 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	148
3-32	Groundwater Quality Data for Well QC-31 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	150
3-33	Groundwater Quality Data for Well QC-32 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	152
3-34	Groundwater Quality Data for Well QC-33 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	153
3-35	Groundwater Quality Data for Well QC-34 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	154
3-36	Groundwater Quality Data for Well QC-35 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	155
3-37	Groundwater Quality Data for Well QC-36 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	156
3-38	Groundwater Quality Data for Well QC-37 in the Calumet Tunnel System of the Tunnel and Reservoir Plan	157
4-1	Groundwater Quality Data for Well MW-1 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	158
4-2	Groundwater Quality Data for Well MW-2 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	161
4-3	Groundwater Quality Data for Well MW-3 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	163
4-4	Groundwater Quality Data for Well MW-4 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	167

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
4-5	Groundwater Quality Data for Well MW-5 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	170
4-6	Groundwater Quality Data for Well MW-6 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	173
4-7	Groundwater Quality Data for Well MW-7 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	176
4-8	Groundwater Quality Data for Well MW-8 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	179
4-9	Groundwater Quality Data for Well MW-9 in the Upper Des Plaines Tunnel System of the Tunnel and Reservoir Plan	182
5-1	Groundwater Quality Data for Well QD-21 in the Des Plaines System of the Tunnel System and Reservoir Plan	185
5-2	Groundwater Quality Data for Well QD-22 in the Des Plaines System of the Tunnel System and Reservoir Plan	188
5-3	Groundwater Quality Data for Well QD-23 in the Des Plaines System of the Tunnel System and Reservoir Plan	191
5-4	Groundwater Quality Data for Well QD-24 in the Des Plaines System of the Tunnel System and Reservoir Plan	194
5-5	Groundwater Quality Data for Well QD-25 in the Des Plaines System of the Tunnel System and Reservoir Plan	197
5-6	Groundwater Quality Data for Well QD-26 in the Des Plaines System of the Tunnel System and Reservoir Plan	200
5-7	Groundwater Quality Data for Well QD-27 in the Des Plaines System of the Tunnel System and Reservoir Plan	203
5-8	Groundwater Quality Data for Well QD-28 in the Des Plaines System of the Tunnel System and Reservoir Plan	206

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
5-9	Groundwater Quality Data for Well QD-29 in the Des Plaines System of the Tunnel System and Reservoir Plan	209
5-10	Groundwater Quality Data for Well QD-30 in the Des Plaines System of the Tunnel System and Reservoir Plan	212
5-11	Groundwater Quality Data for Well QD-31 in the Des Plaines System of the Tunnel System and Reservoir Plan	215
5-12	Groundwater Quality Data for Well QD-32 in the Des Plaines System of the Tunnel System and Reservoir Plan	218
5-13	Groundwater Quality Data for Well QD-33 in the Des Plaines System of the Tunnel System and Reservoir Plan	221
5-14	Groundwater Quality Data for Well QD-34 in the Des Plaines System of the Tunnel System and Reservoir Plan	224
5-15	Groundwater Quality Data for Well QD-35 in the Des Plaines System of the Tunnel System and Reservoir Plan	226
5-16	Groundwater Quality Data for Well QD-36 in the Des Plaines System of the Tunnel System and Reservoir Plan	229
5-17	Groundwater Quality Data for Well QD-37 in the Des Plaines System of the Tunnel System and Reservoir Plan	232
5-18	Groundwater Quality Data for Well QD-38 in the Des Plaines System of the Tunnel System and Reservoir Plan	235
5-19	Groundwater Quality Data for Well QD-39 in the Des Plaines System of the Tunnel System and Reservoir Plan	238
5-20	Groundwater Quality Data for Well QD-40 in the Des Plaines System of the Tunnel System and Reservoir Plan	240
5-21	Groundwater Quality Data for Well QD-41 in the Des Plaines System of the Tunnel System and Reservoir Plan	242

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
5-22	Groundwater Quality Data for Well QD-42 in the Des Plaines System of the Tunnel System and Reservoir Plan	244
5-23	Groundwater Quality Data for Well QD-43 in the Des Plaines System of the Tunnel System and Reservoir Plan	246
5-24	Groundwater Quality Data for Well QD-44 in the Des Plaines System of the Tunnel System and Reservoir Plan	248
5-25	Groundwater Quality Data for Well QD-45 in the Des Plaines System of the Tunnel System and Reservoir Plan	250
5-26	Groundwater Quality Data for Well QD-46 in the Des Plaines System of the Tunnel System and Reservoir Plan	252
5-27	Groundwater Quality Data for Well QD-47 in the Des Plaines System of the Tunnel System and Reservoir Plan	255
5-28	Groundwater Quality Data for Well QD-48 in the Des Plaines System of the Tunnel System and Reservoir Plan	257
5-29	Groundwater Quality Data for Well QD-49 in the Des Plaines System of the Tunnel System and Reservoir Plan	259
5-30	Groundwater Quality Data for Well QD-50 in the Des Plaines System of the Tunnel System and Reservoir Plan	261
5-31	Groundwater Quality Data for Well QD-51 in the Des Plaines System of the Tunnel System and Reservoir Plan	264
5-32	Groundwater Quality Data for Well QD-52 in the Des Plaines System of the Tunnel System and Reservoir Plan	267
5-33	Groundwater Quality Data for Well QD-53 in the Des Plaines System of the Tunnel System and Reservoir Plan	270
5-34	Groundwater Quality Data for Well QD-54 in the Des Plaines System of the Tunnel System and Reservoir Plan	273
5-35	Groundwater Quality Data for Well QD-55 in the Des Plaines System of the Tunnel System and Reservoir Plan	276

LIST OF TABLES (Continued)

<u>Table No.</u>		<u>Page</u>
5-36	Groundwater Quality Data for Well QD-56 in the Des Plaines System of the Tunnel System and Reservoir Plan	279
5-37	Groundwater Quality Data for Well QD-57 in the Des Plaines System of the Tunnel System and Reservoir Plan	282
5-38	Groundwater Quality Data for Well QD-58 in the Des Plaines System of the Tunnel System and Reservoir Plan	284
5-39	Groundwater Quality Data for Well QD-59 in the Des Plaines System of the Tunnel System and Reservoir Plan	286
5-40	Groundwater Quality Data for Well QD-60 in the Des Plaines System of the Tunnel System and Reservoir Plan	289

LIST OF FIGURES

<u>Figure No.</u>		<u>Page</u>
1	The Metropolitan Water Reclamation District of Greater Chicago's Tunnel and Reservoir Plan System.	3
A-1	Schematic for Monitoring Well	A-1

LIST OF ACRONYMS

Abbreviation/Acronym	Definition
ALD	Analytical Laboratory Division
AMBS	Analytical Microbiology and Biomonitoring Section
CSO	combined sewer overflow
District	Metropolitan Water Reclamation District of Greater Chicago
FC	fecal coliform
IEPA	Illinois Environmental Protection Agency
TARP	Tunnel and Reservoir Plan
TDS	total dissolved solids
TOC	total organic carbon
USGS	U.S. Geological Survey

ACKNOWLEDGMENTS

The authors appreciate the assistance of the following Pollution Control Technicians and Environmental Specialists for collecting the Tunnel and Reservoir Plan (TARP) monitoring samples: Julia Beaupain (deceased), Henry Bryant (deceased), Robert Chmela (retired), John Dakuras (retired), Janis Dickerson, Maureen Farnan, John Foley (retired), Brian Gembara, Ryan Kirkland, Robert Lawrence (deceased), LaVerne Lewis, Paul Poongbunkor (retired), James Rivera, Patricia Sandrik, Chiman Shah (retired), Dorothea Skipton, Patrick Tyrrel (deceased), and David Zintak (retired). The authors also thank the technical staff of the Wastewater Treatment Process Research Section (Section 122) for processing and submitting samples to the Analytical Laboratory Division (ALD) for analysis, technical staff of the Analytical Microbiology and Biomonitoring Section (AMBS) (Section 124) for fecal coliform analysis, and the technical staff of the ALD for performing chemical analysis of water samples. The authors thank Mr. Doug Yeskis and Mr. Robert Kay of the U.S. Geological Survey (USGS) for their assistance with data compilation. Special thanks to Kevin Fitzpatrick, Supervising Civil Engineer, and his staff for providing water elevation data and historical information about the TARP system. Also, special thanks go to Dr. Zainul Abedin, Biostatistician, for organizing and formatting the data and Coleen Maurovich, Administrative Specialist, for formatting the report.

DISCLAIMER

Mention of proprietary equipment or chemicals in this report does not constitute endorsement by the Metropolitan Water Reclamation District of Greater Chicago (District). Data tabulated in this report were compiled and processed by the USGS staff for performing statistical analysis (e.g., removing statistical outliers, addressing typographical errors, etc.) and may not be identical to data previously reported in TARP monitoring reports.

SUMMARY

Managing stormwater has been a persistent issue for the District due mainly to the city of Chicago and many older suburbs having a combined sewer system that conveys sanitary sewage and stormwater through the same series of sewer conduits during a rain event. As more land in the combined sewer area was developed and paved, the amount of stormwater entering the combined sewer system also significantly increased and led to extensive flooding. The District's TARP was selected in 1972 as a major public works plan to protect Lake Michigan and local waterways from combined sewer overflow (CSO) pollution and to provide an outlet for floodwaters in order to reduce street backup and basement flooding.

Phase I of TARP was completed in 2006 and includes 109 miles of deep tunnels with a volume of over two billion gallons. In implementing Phase I of the TARP system, the District incorporated an extensive network of monitoring wells. The USGS compiled available data for each well from District TARP monitoring reports. A total of 106 wells had complete or nearly complete data sets. This report is a compilation and tabulation of all available data from the long-term monitoring of TARP groundwater-quality wells. Long-term monitoring data are challenging to acquire due to the need for stability and consistency in a monitoring program, which the District provided for the TARP system for over 20 years. Such data are a useful resource for other municipalities and agencies establishing new tunnel systems to manage stormwater and reduce CSO pollution to their local waterways.

INTRODUCTION

Managing stormwater has been a persistent issue for the District due mainly to the city of Chicago and many older suburbs having a combined sewer system. In a combined sewer system, the sanitary sewage and stormwater are conveyed through the same series of sewer conduits during a rain event. As more land in the combined sewer area was developed and paved, the amount of stormwater entering the combined sewer system also significantly increased. During rain events, the combined sewer system could not accommodate the additional flow, and CSO to local waterways would occur. During heavy rain events, the water level in local waterways rose significantly, and reversing flow to Lake Michigan had to take place in order to prevent flooding and basement backup in homes and businesses in the area. The District's TARP was selected in 1972 as a major public works plan to protect Lake Michigan and local waterways from CSO pollution and to provide an outlet for floodwaters in order to reduce street and basement backup flooding. Phase I of TARP was completed in 2006 and includes 109 miles of deep tunnels with a storage capacity of over 2 billion gallons ([Table 1](#)). Phase I of the entire TARP system is in operation and captures approximately 85 percent of the CSO from the system's service area. The TARP system is comprised of four separate tunnel systems: Mainstream, Calumet, Upper Des Plaines, and Des Plaines ([Figure 1](#)).

MATERIALS AND METHODS

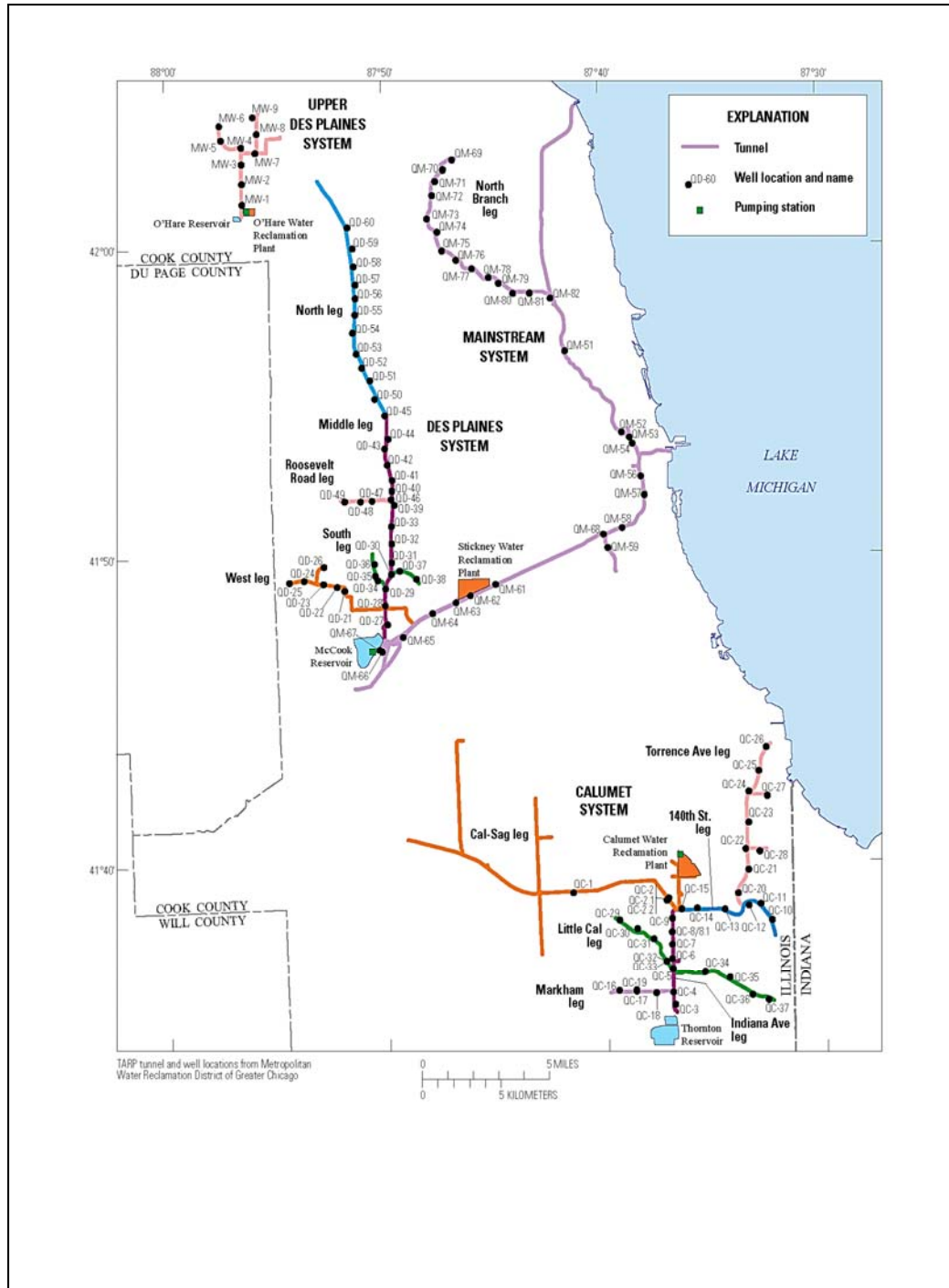
In implementing Phase I of the TARP system, the District incorporated an extensive network of monitoring wells to determine possible impacts the system may have on the surrounding Silurian dolomite aquifer underlying Cook County. Beginning in the early 1990s, the District has performed ongoing, periodic sampling for approximately 120 monitoring wells located within 200 feet from the center line of the tunnel ([Figure 1](#)). Samples are collected approximately every two to six months, depending on the well, and analyzed for pH, temperature, electrical conductivity, total dissolved solids (TDS), hardness, ammonia, total organic carbon (TOC), chloride, sulfate, and fecal coliform (FC). These parameters are considered potential indicators of intercepted CSO migration into groundwater.

Monitoring wells are located alongside tunnel segments at depths corresponding to tunnel depths. Each well is separated from the tunnel by a distance of 20 to 85 ft. The well design consists of a borehole encased in steel pipe, an instrument vault housing the electrical receptacles, and a one-L/s capacity Red Jacket submersible sampling pump connected to a surface discharge pipe ([Appendix A](#)). Also included in each well was a 0.75-inch diameter PVC pipe extending from the vault to the bottom of the pump for manually determining groundwater level with a depth gauge. Each instrument vault was located above ground level except those in the Upper Des Plaines tunnel system, which were flush with the ground surface. An inner waterproof compartment protected the wells from surface water intrusion and contamination.

TABLE 1: TUNNEL AND RESERVOIR PLAN SYSTEM TUNNEL LENGTHS,
VOLUME, AND DIAMETERS

TARP System	Tunnel Length	Tunnel Volume	Tunnel Diameter
	--- miles ---	--- million gallons ---	--- feet ---
Mainstream	40.5	1,200	8 to 33
Calumet	36.7	630	9 to 30
Upper Des Plaines	6.6	70	9 to 20
Des Plaines	25.6	405	10 to 33
Total	109.4	2,305	

FIGURE 1: THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO'S TUNNEL AND RESERVOIR PLAN SYSTEM¹



¹Figure courtesy of U.S. Geological Survey.

Monitoring well sample collection followed the District's Standard Operating Procedure (SOP) for well sampling ([Appendix B](#)) and began with measurement of the water level in the well. Depth to water is reported relative to the city of Chicago datum. Temperature was measured at the well head immediately prior to sample collection. Electrical conductivity and pH were measured at the site immediately after collecting samples (Standard Methods for the Examination of Water and Wastewater, Online Edition). Water samples were poured into appropriate containers and transported on ice to the laboratory where, with the exception of FC, the samples were filtered with a 0.45-micron filter. Aliquots were poured into individual bottles containing the appropriate preservative and submitted to the District's ALD for analysis. Ammonia and sulfate were analyzed using standard methods described by the U.S. Environmental Protection Agency (1993a,b). Chloride, TDS, hardness, and TOC were analyzed using standard methods and FC was analyzed by the District's AMBS with Method 9222D: Fecal Coliform Membrane Filter Procedure (Standard Methods for the Examination of Water and Wastewater, Online Edition). The ALD and AMBS laboratories are certified by the National Environmental Laboratory Accreditation Conference and by the Illinois Department of Public Health, respectively.

The USGS compiled available data for each well within each tunnel system from the District's TARP monitoring reports submitted to the Illinois Environmental Protection Agency (IEPA) that were available on the District's website. Monitoring for some wells was discontinued, with approval from the IEPA, due to lack of access or damage to the well. A total of 106 wells had complete or nearly complete data sets. Statistical outliers and typographical errors in the data were removed as the data were tabulated. The USGS conducted a comprehensive evaluation of the monitoring data and is in the process of publishing the final report, which will be available on the District's website.

RESULTS

This report is a compilation and tabulation of available data for the long-term monitoring of groundwater-quality wells for the Mainstream, Calumet, Upper Des Plaines, and Des Plaines tunnel systems of the District's Phase I of the TARP system for the period 1995 - 2013 ([Tables 2 through 5](#)). The data are also available for download as Microsoft Excel spreadsheets from the District's website. The tables are organized by each monitoring well within each of the four tunnel systems. Long-term monitoring data are challenging to acquire due to the need for stability and consistency in a monitoring program, which the District provided for the TARP system for over 20 years. Such data are a useful resource for other municipalities and agencies establishing new tunnel systems to manage stormwater and reduce CSO pollution to their local waterways.

REFERENCES

Standard Methods for the Examination of Water and Wastewater (Online Ed.). Available: www.standardmethods.org

U.S. Environmental Protection Agency. (1993a). *Method 250.1 Determination of Ammonia Nitrogen by Semi-Automated Colorimetry, revision 2.0*. Cincinnati, Ohio, U.S. Environmental Protection Agency Environmental Monitoring System Laboratory Office of Research and Development, p. 15.

U. S. Environmental Protection Agency. (1993b). *Method 250.1 Determination of Sulfate by Automated Colorimetry, revision 2.0*. Cincinnati, Ohio, U.S. Environmental Protection Agency Environmental Monitoring System Laboratory Office of Research and Development, p. 13.

TABLE 2-1: GROUNDWATER QUALITY DATA FOR WELL QM-53 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/11/1995	8.6	31	186	1.0	13	38	0.04	123	<1.0	11	-46
03/08/1995	8.5	28	202	1.0	16	43	0.09	146	<1.0	11	-41
05/10/1995	8.1	32	192	2.0	15	32	0.13	100	<1.0	11	-43
07/19/1995	8.1	31	226	1.0	11	37	0.13	151	<1.0	12	-62
09/27/1995	8.1	34	232	2.0	14	41	<0.01	161	<1.0	13	-61
11/01/1995	8.0	29	12	3.0	12	40	0.11	155	<1.0	11	-41
01/03/1996	9.1	32	496	2.0	10	43	0.12	139	<1.0	10	-41
02/27/1996	8.4	31	238	3.0	11	31	0.11	153	<1.0	11	-42
05/02/1996	8.4	28	234	3.0	17	27	0.11	160	<1.0	13	-43
07/02/1996	8.7	40	308	5.0	13	38	0.10	164	<1.0	13	-43
09/04/1996	8.3	30	284	3.0	15	58	0.11	158	<1.0	13	-42
05/07/1997	8.2	32	218	2.0	13	41	0.01	159	<1.0	9.0	-44
05/05/1999	8.1	28	188	1.0	15	34	0.20	153	<1.0	15	-42
11/10/1999	7.9	29	208	1.0	15	50	0.17	136	<1.0	14	-41
05/23/2000	8.2	35	220	2.0	14	36	0.14	151	<1.0	12	-40
12/21/2000	8.3	35	150	1.0	15	36	0.15	139	<1.0	10	-35
01/24/2001	8.8	39	196	1.0	15	30	0.15	136	<1.0	10	-36
07/11/2001	8.2	33	182	1.0	15	38	0.10	154	<1.0	12	-40
01/02/2002	8.9	44	220	2.0	20	37	0.43	126	<1.0	11	-38
07/24/2002	6.9	36	346	2.0	20	44	0.10	142	<1.0	12	-45
01/08/2003	6.8	31	220	2.0	19	59	0.36	165	<1.0	11	-39
07/02/2003	7.4	31	292	1.0	16	50	0.09	132	<1.0	12	-41
01/21/2004	7.5	19	178	1.0	14	37	0.10	117	<1.0	11	-37
07/14/2004	6.8	22	500	2.0	15	33	0.09	127	<1.0	12	-41
01/19/2005	7.1	24	246	1.0	17	33	0.08	129	<1.0	10	-22
04/13/2005	7.4	26	186	1.0	15	34	0.08	134	<1.0	12	-38
09/28/2005	8.2	26	208	0.50	15	34	0.09	122	<1.0	12	-39
01/30/2006	8.1	24	166	0.70	14	35	0.08	122	<1.0	11	-46
04/26/2006	7.4	15	180	0.50	14	37	0.06	122	<1.0	11	-44
07/06/2006	7.7	20	296	0.50	20	35	0.04	132	<1.0	12	-33
12/13/2006	-	-	194	0.60	15	34	0.05	-	<1.0	-	-
02/28/2007	7.9	21	164	0.60	15	31	0.02	127	<1.0	11	-39
05/08/2007	7.8	21	184	0.40	15	41	0.05	122	<1.0	12	-39
07/26/2007	7.4	23	236	0.50	15	30	0.08	135	<1.0	13	-39
12/20/2007	-	-	244	0.40	19	39	0.18	-	<1.0	-	-
04/02/2008	7.4	19	154	0.40	15	43	0.07	134	<1.0	11	-40
07/24/2008	7.6	30	228	0.30	14	39	0.12	138	<1.0	12	-35
12/18/2008	7.9	20	234	<1.0	14	34	0.07	128	<1.0	10	-40

TABLE 2-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-53 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
04/09/2009	8.3	23	204	1.3	20	35	0.09	118	<1.0	12	-38
06/04/2009	7.8	27	212	<1.0	21	35	0.07	131	<1.0	12	-42
08/13/2009	8.2	23	270	2.1	15	35	0.08	127	<1.0	13	-40
09/24/2009	-	-	250	<1.0	16	35	0.06	-	<1.0	-	-
05/13/2010	7.7	21	234	<1.0	<15	35	0.08	142	<1.0	11	-39
10/28/2010	7.5	20	162	<1.0	<15	34	0.07	140	<1.0	11	-40
12/09/2010	7.8	19	186	<1.0	15	36	0.06	131	<1.0	9.0	-41
03/23/2011	8.3	22	190	<1.0	35	39	0.06	134	<1.0	11	-39
05/05/2011	8.1	22	202	<1.0	13	33	0.09	137	<1.0	12	-39
07/29/2011	8.0	21	330	3.5	17	35	0.07	140	<1.0	13	-42
04/18/2012	8.0	29	202	<1.0	15	37	<0.10	139	<1.0	12	-38
06/07/2012	8.1	32	248	<1.0	15	37	0.11	141	<1.0	13	-41
08/09/2012	8.3	18	226	14	14	36	<0.10	141	<1.0	13	-39
09/26/2012	8.0	19	216	1.0	14	35	<0.10	134	<1.0	12	-40
04/04/2013	7.9	41	198	<1.0	19	34	0.12	152	<1.0	12	-37
06/13/2013	7.4	51	226	<1.0	14	36	0.10	150	<1.0	12	-33
10/09/2013	8.2	25	186	<1.0	15	33	<0.10	150	<1.0	12	-40

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-2: GROUNDWATER QUALITY DATA FOR WELL QM-56 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/11/1995	8.1	42	212	1.0	33	21	0.37	97	<1.0	13	-75
03/08/1995	8.4	39	188	1.0	35	13	0.40	98	<1.0	13	-76
05/10/1995	7.8	39	226	2.0	31	37	0.46	145	<1.0	14	-73
07/19/1995	8.5	40	240	2.0	30	13	0.46	104	<1.0	14	-73
09/27/1995	8.1	41	258	2.0	35	13	0.42	114	<1.0	15	-73
11/01/1995	7.9	39	246	5.0	31	16	0.45	103	<1.0	14	-71
01/03/1996	8.2	38	242	4.0	35	13	0.44	113	<1.0	13	-72
03/27/1996	8.4	40	238	3.0	31	11	0.43	109	<1.0	13	-73
05/02/1996	8.2	38	356	4.0	36	12	0.44	109	<1.0	14	-73
07/02/1996	8.3	45	298	4.0	35	9.0	0.41	111	<1.0	17	-76
09/04/1996	8.0	31	294	4.0	34	11	0.43	106	<1.0	15	-76
05/07/1997	8.1	35	246	2.0	36	28	0.41	112	<1.0	10	-78
05/05/1999	7.9	44	242	1.0	36	11	0.51	113	<1.0	16	-77
11/10/1999	7.0	42	238	3.0	29	10	0.54	125	<1.0	15	-76
05/23/2000	8.1	29	266	4.0	36	11	0.46	117	<1.0	14	-76
12/21/2000	8.0	33	364	1.0	37	11	0.49	127	<1.0	10	-78
01/24/2001	8.2	34	264	2.0	37	6.0	0.51	128	<1.0	12	-76
07/11/2001	7.9	41	196	2.0	35	3.0	0.45	126	<1.0	14	-76
01/02/2002	8.2	34	242	2.0	37	4.0	0.47	125	<1.0	13	-78
07/24/2002	7.8	38	358	2.0	41	16	0.47	133	<1.0	14	-78
01/08/2003	6.6	46	280	2.0	38	18	0.45	130	<1.0	13	-79
07/02/2003	7.5	34	302	3.0	37	3.0	0.43	116	<1.0	14	-76
01/21/2004	7.3	30	262	2.0	38	16	0.45	124	<1.0	12	-76
07/14/2004	6.8	44	462	2.0	39	13	0.52	122	<1.0	14	-71
01/19/2005	7.8	37	277	2.0	40	15	0.47	132	<1.0	12	-76
04/13/2005	7.2	38	304	2.0	47	12	0.47	128	<1.0	13	-76
09/28/2005	8.0	40	296	0.60	39	7.0	0.47	121	<1.0	14	-75
01/30/2006	7.7	38	244	0.70	40	11	0.50	125	<1.0	12	-75
04/26/2006	7.4	22	276	0.60	37	15	0.44	121	<1.0	13	-76
07/06/2006	7.6	25	292	0.60	38	18	0.41	131	<1.0	14	-76
12/13/2006	-	-	268	0.60	38	9.0	0.43	-	<1.0	-	-
02/28/2007	8.1	29	220	0.60	39	11	0.41	129	<1.0	12	-77
05/08/2007	7.9	31	270	0.50	40	13	0.43	124	1.0	14	-78
07/26/2007	7.5	37	290	0.50	38	11	0.46	124	<1.0	14	-76
12/20/2007	-	-	264	0.60	35	18	0.43	-	<1.0	-	-
04/02/2008	7.7	28	264	0.40	37	19	0.47	130	<1.0	13	-77
07/24/2008	7.4	42	292	0.30	34	16	0.48	127	<1.0	14	-75
12/18/2008	7.6	26	298	<1.0	34	15	0.50	117	<1.0	14	-77
08/13/2009	7.8	30	274	<1.0	37	17	0.49	121	<1.0	15	-77

TABLE 2-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-56
 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	-----		mg/L	-----			MPN/ 100 mL	°C	ft ²
10/08/2009	7.6	51	292	<1.0	36	12	0.48	127	<1.0	13	-76

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-3: GROUNDWATER QUALITY DATA FOR WELL QM-58 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/25/1995	8.0	70	478	2.0	22	186	1.0	274	<1.0	12	-120
03/22/1995	8.0	69	496	2.0	19	178	1.0	277	<1.0	13	-122
05/17/1995	8.0	68	492	2.0	15	212	1.0	293	<1.0	13	-124
07/26/1995	8.1	70	476	3.0	13	195	1.0	318	<1.0	14	-118
09/28/1995	7.9	69	556	3.0	16	184	1.0	317	<1.0	12	-120
11/14/1995	8.0	63	540	4.0	13	191	1.0	298	<1.0	11	-102
01/04/1996	8.5	90	496	5.0	13	196	1.0	324	<1.0	12	-119
01/30/1996	8.0	62	458	4.0	14	169	1.1	278	<1.0	12	-114
03/06/1996	8.3	61	202	3.0	19	39	0.53	165	<1.0	11	-119
05/30/1996	8.7	47	510	6.0	17	185	0.98	317	<1.0	14	-113
07/02/1996	8.1	62	498	3.0	15	214	0.95	308	<1.0	15	-111
09/19/1996	8.1	65	494	2.0	14	212	0.99	315	<1.0	14	-122
11/21/1996	8.5	59	494	6.0	14	190	1.0	304	<1.0	12	-114
01/30/1997	8.0	62	458	4.0	14	169	1.1	278	<1.0	12	-114
03/20/1997	7.8	64	480	2.0	14	170	1.0	306	<1.0	14	-119
05/15/1997	7.7	65	468	2.0	14	173	1.0	313	<1.0	11	-118
07/17/1997	7.3	71	506	2.0	13	178	0.91	305	<1.0	15	-114
09/25/1997	7.9	63	482	4.0	12	176	1.0	299	<1.0	14	-113
11/20/1997	7.8	72	484	3.0	14	166	0.99	302	<1.0	13	-113
01/29/1998	8.3	63	472	4.0	13	189	1.0	305	<1.0	12	-112
03/25/1998	8.1	54	482	3.0	13	170	1.0	295	<1.0	13	-109
05/14/1998	8.2	52	598	3.0	14	173	1.0	304	<1.0	16	-103
07/23/1998	8.1	68	460	3.0	13	196	1.0	300	<1.0	16	-112
09/24/1998	7.8	56	506	3.0	16	190	1.0	311	<1.0	12	-108
11/05/1998	7.9	61	468	2.0	16	192	1.0	303	<1.0	13	-106
01/28/1999	8.5	52	428	2.0	16	167	1.0	294	<1.0	13	-74
03/18/1999	7.9	65	462	2.0	15	178	0.95	301	<1.0	13	-114
05/26/1999	8.3	72	434	2.0	15	161	0.94	296	<1.0	13	-115
07/29/1999	7.0	65	578	2.0	14	179	1.0	323	<1.0	14	-113
09/22/1999	8.7	65	464	2.0	14	187	0.98	281	<1.0	13	-109
11/24/1999	8.6	62	446	3.0	13	183	0.97	314	<1.0	12	-105
01/26/2000	8.3	70	472	3.0	16	181	1.0	305	<1.0	11	-104
03/22/2000	8.2	57	458	2.0	15	173	1.0	312	<1.0	13	-103
05/23/2000	7.9	66	466	4.0	14	183	0.98	298	<1.0	14	-108
07/13/2000	7.6	70	464	4.0	13	172	0.97	283	<1.0	14	-177
09/13/2000	7.5	71	488	2.0	25	175	1.1	311	<1.0	13	-104
01/04/2001	7.1	73	492	2.0	14	177	1.0	294	<1.0	12	-115
05/17/2001	8.7	65	460	2.0	14	164	0.99	299	<1.0	13	-101
07/26/2001	8.4	65	566	2.0	35	166	0.96	299	<1.0	14	-102

TABLE 2-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-58 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/17/2002	8.1	67	220	2.0	56	161	1.1	280	<1.0	12	-120
01/30/2003	7.5	60	448	3.0	18	162	1.1	247	<1.0	12	-104
07/17/2003	7.3	55	450	3.0	18	194	0.99	216	<1.0	13	-110
01/15/2004	7.8	23	442	3.0	16	175	1.1	269	<1.0	11	-104
07/15/2004	7.1	66	464	2.0	17	149	1.0	261	<1.0	14	-101
01/13/2005	7.8	53	426	2.0	16	158	0.96	268	<1.0	13	-100
06/30/2005	7.3	54	480	1.2	22	170	0.96	265	<1.0	14	-100
09/29/2005	7.5	53	474	1.0	16	169	1.0	271	<1.0	13	-107
06/22/2006	7.4	22	540	0.90	19	184	0.88	258	<1.0	14	-105
07/13/2006	7.5	26	480	1.0	18	169	0.97	277	<1.0	14	-103
10/26/2006	7.6	46	454	0.80	16	180	0.88	268	<1.0	13	-106
11/08/2007	7.7	36	464	0.90	19	168	1.0	126	<1.0	13	-109
07/24/2008	7.7	55	448	0.70	16	169	1.1	260	<1.0	13	-99
11/08/2008	7.5	54	464	0.90	19	168	1.0	256	<1.0	13	-63

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-4: GROUNDWATER QUALITY DATA FOR WELL QM-61 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/18/1995	8.1	96	578	3.0	139	81	0.37	195	440	13	-154
03/15/1995	8.1	101	588	3.0	138	73	0.27	195	3.0	14	-168
05/24/1995	8.0	96	614	3.0	123	69	0.44	205	<1.0	14	-165
07/26/1995	8.3	97	564	4.0	126	66	0.41	212	<1.0	14	-167
09/27/1995	8.0	97	602	3.0	121	61	0.42	241	<1.0	15	-170
11/21/1995	7.5	91	576	6.0	117	71	0.39	192	150	13	-164
01/23/1996	7.5	102	576	8.0	115	53	0.33	193	<1.0	12	-173
05/07/1996	7.8	99	542	6.0	106	50	0.37	184	<1.0	13	-171
07/15/1996	8.0	98	736	8.0	126	61	0.32	205	130	14	-167
09/05/1996	8.0	107	556	8.0	113	57	0.30	177	<1.0	14	-170
11/20/1996	8.2	86	512	4.0	93	44	0.30	168	<1.0	13	-173
01/23/1997	7.5	102	576	8.0	115	53	0.33	193	<1.0	12	-173
03/11/1997	7.8	115	534	4.0	101	51	0.29	177	48	10	-169
05/01/1997	7.8	90	494	3.0	97	46	0.36	180	<1.0	11	-172
07/30/1997	8.0	101	490	6.0	89	39	0.27	177	<1.0	15	-171
09/24/1997	8.2	119	456	7.0	91	45	0.33	180	<1.0	15	-172
11/13/1997	7.8	91	474	3.0	91	38	0.32	320	<1.0	13	-174
01/14/1998	7.9	85	552	4.0	116	50	0.44	216	<1.0	10	-172
03/04/1998	8.0	94	472	4.0	97	39	0.36	183	<1.0	13	-173
05/27/1998	7.9	77	448	5.0	84	46	0.33	171	39	16	-170
07/22/1998	8.3	71	436	2.0	81	35	0.31	162	<1.0	16	-174
09/16/1998	8.4	77	458	2.0	100	40	0.31	173	<1.0	15	-172
11/04/1998	7.8	78	468	2.0	100	47	0.49	176	<1.0	13	-172
01/21/1999	7.8	102	434	2.0	85	34	0.22	157	<1.0	12	-175
03/02/1999	7.8	124	388	2.0	76	19	0.35	158	33	14	-174
05/10/1999	7.9	67	406	3.0	64	26	0.21	153	48	15	-174
07/28/1999	8.3	57	368	1.0	66	33	0.28	151	<1.0	14	-176
09/08/1999	8.2	56	338	3.0	61	21	0.24	129	<1.0	13	-178
11/24/1999	8.2	54	306	2.0	50	12	0.28	130	<1.0	14	-177
01/12/2000	8.0	59	364	5.0	64	22	0.30	133	<1.0	13	-172
03/22/2000	8.1	49	350	2.0	63	17	0.33	139	<1.0	13	-178
05/25/2000	8.2	68	304	3.0	47	13	0.28	122	14	13	-175
07/12/2000	8.2	50	302	3.0	44	14	0.27	120	<1.0	14	-175
09/07/2000	7.4	53	362	1.0	45	13	0.30	121	<1.0	14	-178
11/15/2000	7.3	49	312	4.0	50	15	0.32	127	<1.0	13	-177
01/18/2001	8.7	64	318	2.0	55	6.0	0.32	132	<1.0	13	-178
03/01/2001	8.3	53	262	1.0	48	9.0	0.30	147	<1.0	10	-175
07/10/2001	7.9	47	316	2.0	50	9.0	0.52	120	<1.0	15	-173
09/06/2001	7.8	55	400	2.0	61	15	0.59	148	12000	15	-158
09/12/2001	7.0	58	332	2.0	61	11	0.31	143	1200	14	-166

TABLE 2-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-61 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
11/01/2001	7.5	45	424	3.0	78	21	0.61	161	1300	14	-150
01/02/2002	7.3	51	346	2.0	55	14	0.28	137	<1.0	12	-171
03/26/2002	7.2	54	474	3.0	57	13	0.44	124	<1.0	12	ft. ²
05/15/2002	8.2	78	494	5.0	98	45	0.98	216	6000	14	-130
07/02/2002	7.4	47	336	2.0	52	22	0.37	129	2.0	15	-171
05/07/2003	7.1	56	310	3.0	60	32	0.41	121	4700	14	-146
09/10/2003	8.0	55	328	2.0	50	18	0.24	110	<1.0	14	-178
11/05/2003	8.0	42	344	4.0	64	21	0.31	125	<1.0	13	-163
03/10/2004	7.8	60	336	2.0	59	15	0.31	139	<1.0	13	-179
05/25/2004	7.9	46	354	2.0	61	21	0.35	123	<1.0	14	-167
07/28/2004	7.3	50	396	2.0	52	11	0.30	117	<1.0	14	-178
09/15/2004	7.3	53	386	4.0	53	18	0.24	123	<1.0	14	-177
12/02/2004	7.6	37	397	2.0	74	13	0.97	119	<1.0	11	-178
06/15/2005	7.6	53	316	1.0	47	26	0.25	108	<1.0	13	-180
07/27/2005	7.5	23	296	0.60	50	8.0	0.24	113	<1.0	14	-175
09/28/2005	8.0	44	296	0.70	45	6.0	0.27	108	<1.0	15	-179
01/30/2006	7.6	38	272	0.90	56	9.0	0.24	118	<1.0	13	-179
04/26/2006	7.3	22	338	0.70	60	22	0.24	119	<1.0	13	-179
7/6/2006	7.9	60	378	0.70	57	16	0.20	126	<1.0	15	-178
02/28/2007	7.8	33	274	0.90	53	11	0.21	123	<1.0	12	-178
05/08/2007	8.0	34	354	0.70	70	27	0.20	130	114	14	-180
08/23/2007	7.9	32	320	1.3	53	20	0.32	126	20000	14	-154
02/05/2008	7.8	65	422	1.1	132	52	0.40	184	12400	12	-186
09/04/2008	8.0	109	414	<1.0	63	28	0.23	142	110	14	-79
12/10/2008	7.8	36	356	<1.0	58	17	0.26	122	2.0	13	-171
02/19/2009	7.5	40	382	1.0	70	24	0.23	132	2.0	12	-173
04/02/2009	7.5	64	528	1.3	163	28	1.0	168	27	12	-159
03/29/2010	7.5	44	502	1.3	151	8.0	1.1	151	<1.0	12	-180
08/05/2010	6.8	35	318	2.8	59	36	1.1	139	20000	15	-111
09/09/2010	7.6	40	282	1.3	45	22	0.37	116	440	14	-166
11/09/2010	-	-	284	1.1	41	6.0	0.29	-	<1.0	-	-
01/06/2011	7.2	30	288	<1.0	46	5.0	0.32	116	<1.0	12	-176
04/20/2011	-	-	308	<1.0	49	8.0	0.19	-	10	-	-
07/07/2011	7.6	43	378	1.0	60	20	0.44	123	70	14	-129
11/09/2011	7.3	34	296	2.0	46	25	0.41	125	20000	14	-177
01/04/2012	7.7	37	304	1.2	53	13	0.37	118	4.0	7.0	-179
02/23/2012	7.0	45	346	1.0	57	16	0.28	121	<1.0	13	-168
04/25/2012	7.0	47	334	<1.0	57	20	0.27	125	<1.0	14	-178
09/06/2012	7.4	31	358	1.2	58	20	0.29	127	500	24	-172
11/07/2012	7.8	37	346	<1.0	61	18	0.27	126	<1.0	13	-172

TABLE 2-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-61 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	⁰ C	ft ²
01/02/2013	7.3	28	336	1.4	60	21	0.27	138	110	8.0	-174
05/13/2013	7.6	47	378	2.3	67	23	0.60	147	28	14	-164
09/04/2013	8.1	51	306	1.2	45	6.0	0.31	114	<1.0	14	-164

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-5: GROUNDWATER QUALITY DATA FOR WELL QM-62 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/18/1995	7.6	57	368	2.0	54	65	0.46	147	47000	13	-174
03/15/1995	8.3	57	360	2.0	44	65	0.36	146	34	14	-187
05/24/1995	8.4	54	374	3.0	41	56	0.47	146	15	14	-175
07/26/1995	8.4	50	334	2.0	43	28	0.43	149	<1.0	15	-186
09/13/1995	7.8	59	398	3.0	50	31	0.42	157	<1.0	15	-188
11/21/1995	7.6	57	344	5.0	41	32	0.48	141	600	12	-184
01/17/1996	8.0	56	344	5.0	52	25	0.26	143	<1.0	13	-193
01/23/1996	7.4	72	404	9.0	55	31	0.51	168	<1.0	12	-194
03/06/1996	8.5	53	364	5.0	59	26	0.44	153	<1.0	12	-119
05/07/1996	8.0	57	370	4.0	51	24	0.42	152	<1.0	13	-194
07/25/1996	7.9	59	388	6.0	36	43	0.41	149	2600	16	-191
09/05/1996	8.5	51	356	3.0	36	40	0.38	143	420	14	-191
11/06/1996	8.2	56	372	7.0	42	33	0.32	150	<1.0	13	-192
01/23/1997	7.4	72	404	9.0	55	31	0.51	168	<1.0	12	-194
03/11/1997	7.8	88	524	4.0	137	35	0.83	166	3200	10	-186
05/01/1997	7.8	62	372	3.0	51	31	0.47	158	3.0	12	-190
07/30/1997	7.9	49	386	6.0	49	26	0.30	153	<1.0	14	-190
09/24/1997	7.8	49	370	7.0	43	27	0.42	149	810	15	-190
11/13/1997	8.1	62	384	4.0	54	28	0.38	165	<1.0	12	-194
01/14/1998	8.2	60	402	3.0	57	24	0.60	180	<1.0	12	-194
03/04/1998	7.9	66	356	3.0	51	18	0.41	149	<1.0	13	-194
05/27/1998	7.9	61	394	4.0	42	43	0.50	171	950	16	-190
07/22/1998	8.3	63	390	3.0	49	42	0.44	159	7.0	17	-194
09/16/1998	8.2	55	398	3.0	55	33	0.54	169	<1.0	16	-192
11/04/1998	7.7	63	388	2.0	54	41	0.53	870	23000	14	-195
01/21/1999	7.6	60	1238	3.0	49	689	1.6	642	<1.0	12	-197
03/02/1999	7.8	114	652	3.0	254	34	0.86	206	170	15	-196
05/10/1999	7.7	40	416	3.0	37	40	0.41	176	600	16	-194
07/01/1999	7.1	56	354	2.0	33	42	0.39	158	8.0	18	-196
09/08/1999	8.0	62	360	3.0	38	39	0.40	149	<1.0	14	-197
11/24/1999	7.8	57	352	3.0	42	25	0.43	154	<1.0	14	-197
01/12/2000	7.9	50	374	5.0	50	41	0.46	145	<1.0	13	-200
03/22/2000	7.8	50	342	3.0	43	18	0.42	142	<1.0	14	-199
05/25/2000	7.8	68	364	7.0	36	35	0.49	154	140	14	-201
07/12/2000	7.9	66	362	4.0	42	33	3.8	160	<1.0	15	-196
09/07/2000	7.1	65	1230	2.0	40	29	0.52	161	<1.0	14	-198
11/15/2000	7.2	74	358	2.0	44	22	0.46	147	<1.0	13	-199
03/01/2001	8.1	45	384	2.0	49	21	0.51	168	<1.0	12	-197
05/23/2001	7.9	45	340	2.0	40	17	0.44	132	<1.0	14	-196
07/10/2001	8.0	56	414	2.0	46	18	0.55	136	<1.0	15	-194

TABLE 2-5 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-62 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
09/06/2001	7.9	46	404	3.0	42	46	0.44	177	720000	14	-187
09/12/2001	7.1	45	422	2.0	39	43	0.42	170	3500	15	-191
03/26/2002	9.2	41	450	4.0	62	20	1.2	201	1.0	13	ft. ²
05/15/2002	7.9	59	350	5.0	75	53	0.77	209	6000	15	-142
07/02/2002	7.7	42	388	4.0	57	44	1.1	183	210	16	-190
05/14/2009	7.6	73	460	1.3	93	45	0.68	165	89	14	-180
09/03/2009	7.4	41	446	1.6	68	35	0.65	168	1.0	14	-192
12/03/2009	8.1	58	428	1.3	56	30	0.59	158	77	13	-200
01/14/2010	7.7	40	360	1.4	45	36	0.49	163	2.0	13	-199
09/26/2012	7.9	59	432	1.5	67	34	1.2	182	260	14	-191
10/31/2012	7.0	56	350	1.1	50	27	0.84	163	5.0	14	-190
11/29/2012	7.6	32	400	1.2	50	29	0.58	157	<1.0	13	-191
12/13/2012	7.7	48	252	1.3	27	39	0.52	153	<1.0	13	-192
03/27/2013	6.9	57	430	1.2	100	33	0.82	189	2200	14	-191
05/15/2013	7.2	60	396	1.2	57	36	0.67	188	23	15	-182
08/22/2013	7.8	51	412	3.2	47	43	0.64	188	11	14	-188
09/18/2013	7.8	52	428	1.2	47	43	0.49	183	1.0	14	-86
10/10/2013	7.6	44	370	1.1	46	41	0.52	177	870	14	-191
11/07/2013	7.5	49	394	1.2	43	40	0.62	171	14000	13	-163

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-6: GROUNDWATER QUALITY DATA FOR WELL QM-63 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/18/1995	8.0	131	1342	3.0	55	734	1.4	666	380	14	-169
03/15/1995	7.8	152	1358	3.0	55	689	1.6	714	2.0	13	-180
05/24/1995	8.0	145	1348	3.0	44	607	1.5	697	<1.0	13	-174
07/26/1995	8.1	160	1344	4.0	48	736	1.6	747	<1.0	14	-183
09/13/1995	8.0	157	1428	3.0	50	723	1.5	699	<1.0	14	-183
11/21/1995	7.6	94	1380	4.0	48	657	1.5	715	250	13	-179
01/17/1996	8.3	116	1164	4.0	54	546	1.0	563	<1.0	13	-185
01/23/1996	7.4	153	1622	7.0	53	813	1.6	855	<1.0	11	-186
03/06/1996	7.6	123	1424	4.0	51	746	1.5	753	<1.0	11	-184
05/07/1996	7.7	160	1514	5.0	48	722	0.03	779	<1.0	13	-183
07/15/1996	7.8	168	1702	5.0	52	812	0.89	856	6.0	15	-189
09/05/1996	7.8	112	1742	5.0	55	707	1.6	844	4.0	13	-187
11/06/1996	7.8	153	478	8.0	52	72	2.7	253	<1.0	13	-185
01/23/1997	7.4	153	1622	7.0	53	813	1.6	855	<1.0	11	-186
03/11/1997	7.6	149	1396	4.0	50	697	1.6	669	96	10	-184
05/01/1997	7.4	151	1460	4.0	51	699	1.5	745	<1.0	10	-187
07/30/1997	7.6	119	1476	4.0	45	697	1.7	748	<1.0	14	-183
11/13/1997	7.4	176	1368	3.0	47	655	1.7	768	<1.0	12	-185
01/14/1998	7.8	177	1704	4.0	52	793	1.6	928	<1.0	10	-186
03/04/1998	7.6	150	1204	3.0	46	617	1.4	644	<1.0	13	-184
05/27/1998	7.9	111	1406	4.0	46	583	1.5	739	91	16	-184
07/22/1998	8.0	161	1448	3.0	48	773	1.5	764	<1.0	16	-186
09/16/1998	7.8	177	1626	3.0	53	871	2.0	901	-	16	-183
11/04/1998	7.5	176	1632	3.0	56	875	1.6	156	26	13	-183
01/21/1999	8.1	121	394	2.0	55	30	0.36	158	<1.0	12	-178
03/02/1999	7.5	154	1410	2.0	52	748	1.6	779	6.0	13	-184
05/10/1999	7.6	174	1736	4.0	48	837	2.0	928	23	15	-188
07/01/1999	7.3	173	1494	3.0	49	741	1.6	826	<1.0	17	-187
09/08/1999	7.9	170	1528	3.0	49	743	<0.01	772	<1.0	14	-183
11/24/1999	7.6	173	1636	4.0	52	751	1.6	904	<1.0	14	-183
01/12/2000	7.7	132	1444	5.0	47	758	1.6	740	<1.0	13	-184
03/22/2000	7.7	152	1514	3.0	52	647	1.6	784	<1.0	13	-173
05/25/2000	7.2	163	1490	5.0	49	722	1.6	751	5.0	14	-183
07/12/2000	7.7	166	470	3.0	54	51	2.0	250	<1.0	14	-185
09/07/2000	7.1	178	476	3.0	46	695	1.6	736	<1.0	15	-182
11/28/2000	7.6	160	1514	3.0	48	848	2.0	780	<1.0	13	-179
01/18/2001	7.8	129	1278	3.0	46	708	1.4	721	<1.0	12	-178
03/01/2001	8.0	136	1466	3.0	45	803	1.6	877	<1.0	13	-175
05/23/2001	7.6	145	1124	3.0	46	621	1.5	600	<1.0	13	-172
07/10/2001	7.8	123	1316	3.0	49	647	1.4	619	<1.0	15	-169

TABLE 2-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-63 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----					MPN/ 100 mL	°C	ft ²	
09/06/2001	7.7	120	1066	4.0	46	426	0.99	519	6000	13	ft. ²
09/12/2001	7.3	121	840	3.0	38	460	0.88	565	910	15	-148
11/01/2001	7.5	135	1346	3.0	53	696	1.2	714	710	14	-158
01/02/2002	7.6	123	1006	4.0	47	534	1.1	611	30	13	-176
03/26/2002	9.1	174	1512	4.0	55	790	1.7	838	<1.0	13	-182
05/15/2002	8.0	134	1110	4.0	59	525	1.3	535	6000	14	-138
07/02/2002	7.6	120	832	3.0	52	426	1.3	448	20	13	-182
09/04/2002	7.1	69	1616	3.0	48	690	1.8	820	2000	14	-150
11/13/2002	7.3	123	1272	4.0	50	639	1.4	620	24	14	-161
01/08/2003	7.5	124	1270	4.0	47	590	1.3	616	<1.0	13	-167
03/12/2003	7.4	145	1194	4.0	47	606	1.2	574	<1.0	13	-173
05/07/2003	6.8	124	1138	4.0	47	627	1.2	608	5500	13	-162
07/02/2003	6.8	146	1886	4.0	50	810	1.5	853	3.0	15	-195
09/10/2003	7.5	173	1628	4.0	53	806	1.4	763	<1.0	16	-189
11/05/2003	7.6	133	1462	4.0	53	871	1.6	880	<1.0	13	-161
01/14/2004	7.8	183	1458	4.0	50	755	1.6	756	<1.0	12	-190
03/10/2004	7.4	198	1460	3.0	59	804	1.5	818	<1.0	13	-191
05/05/2004	7.0	69	1528	3.0	57	762	1.5	744	<1.0	14	-192
07/28/2004	7.2	135	1848	.0	9	899	1.8	928	<1.0	14	-188
09/01/2004	7.2	136	1584	3.0	49	833	1.8	755	<1.0	14	-186
12/02/2004	7.4	99	1708	4.0	54	908	1.9	940	<1.0	13	-185
01/05/2005	7.2	32	1878	4.0	60	900	2.1	996	<1.0	13	-167
04/13/2005	7.6	164	1618	3.0	64	796	1.8	885	<1.0	13	-191
05/25/2005	7.4	101	1838	4.0	52	1008	1.8	937	<1.0	13	-189
07/27/2005	7.3	75	1578	1.8	51	912	1.6	845	<1.0	14	-181
09/08/2005	7.2	64	1744	2.0	54	913	1.7	872	<1.0	14	-183
11/08/2005	7.6	145	1642	2.1	52	934	1.9	812	<1.0	14	-191
01/19/2006	7.1	221	1574	2.1	47	4277	1.7	901	<1.0	13	-184
02/16/2006	7.0	210	1588	2.0	51	1137	2.0	879	<1.0	11	-182
04/27/2006	7.7	164	1800	2.0	52	967	2.0	903	<1.0	14	-182
07/06/2006	7.9	191	1720	1.6	52	877	1.8	881	<1.0	16	-179
10/05/2006	7.7	75	1234	1.8	46	619	1.6	566	20000	13	-139
10/24/2006	7.7	186	1570	1.7	50	804	1.7	786	2800	12	-186
01/23/2007	7.7	160	1514	1.9	48	2266	1.7	766	<1.0	12	-190
03/14/2007	7.8	160	1574	1.8	48	768	1.9	787	<1.0	14	-193
07/26/2007	7.8	74	1840	1.9	52	882	2.1	905	<1.0	14	-178
10/31/2007	7.8	61	1558	1.7	52	922	1.6	801	<1.0	14	-172
02/07/2008	7.5	51	1664	1.8	53	885	1.9	881	2.0	12	-189
05/01/2008	7.8	80	1720	1.9	54	889	2.0	905	<1.0	13	-192

TABLE 2-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-63 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	⁰ C	ft ²
09/11/2008	7.4	202	1756	1.5	47	938	2.0	885	4.0	14	-189
10/23/2008	7.4	132	1674	1.6	48	846	7.9	813	16	13	-200
12/04/2008	7.3	85	1712	1.6	47	908	2.0	830	<1.0	12	-195
01/29/2009	7.4	82	1690	2.3	56	870	1.9	840	3.0	13	-197
04/02/2009	7.5	80	1746	2.3	78	827	2.0	830	8.0	13	-168
05/14/2009	7.7	122	1652	2.2	60	924	1.9	818	64	14	-180
06/04/2009	7.5	88	1662	2.2	58	786	1.9	812	2.0	14	-183
09/03/2009	7.3	81	1720	2.3	54	936	2.0	847	<1.0	14	-186
11/18/2009	7.2	193	1630	2.3	50	837	2.1	862	3.0	13	-207
01/14/2010	8.1	74	1604	2.3	49	857	2.0	886	<1.0	13	-187
03/18/2010	7.5	172	1518	2.2	44	846	1.9	928	<1.0	13	-185
05/13/2010	7.6	190	1682	2.5	47	871	2.0	896	<1.0	14	-211
07/22/2010	7.5	74	1678	2.2	46	785	1.7	716	59	16	-210
10/14/2010	7.6	85	1448	2.4	44	795	1.7	863	<1.0	14	-214
11/17/2010	6.9	109	1654	2.1	52	871	10	878	<1.0	12	-178
03/23/2011	7.7	86	1758	2.2	52	736	1.9	984	5.0	13	-187
05/05/2011	7.8	95	1732	2.4	50	852	2.1	926	620	14	-185
07/29/2011	7.1	106	1534	3.7	68	506	1.7	632	20000	15	-68
09/16/2011	7.0	65	2004	2.7	53	955	1.9	941	11	13	-75
11/30/2011	7.3	125	1806	1.4	53	967	2.1	983	370	13	-166
12/15/2011	7.3	88	1830	3.1	53	968	2.0	988	2.0	13	-171
02/09/2012	7.5	98	1786	2.7	51	1009	2.1	959	<1.0	12	-191
04/18/2012	7.4	160	1834	2.3	53	1063	2.2	998	130	14	-188
06/07/2012	7.2	159	2070	2.4	50	964	2.3	984	6.0	14	-188
08/09/2012	7.1	58	1928	12	50	936	2.2	1006	<1.0	15	-188
09/26/2012	7.2	65	1630	2.3	49	871	1.9	832	520	16	-214
12/13/2012	7.4	97	1808	2.7	47	1178	2.3	984	<1.0	16	-191
02/28/2013	7.2	103	1812	2.5	49	1002	2.2	1051	<1.0	14	-191
05/15/2013	7.4	198	1862	2.4	48	982	2.4	945	15	14	-186
08/22/2013	7.6	164	1988	2.6	50	993	2.3	949	<1.0	14	-188
09/18/2013	7.5	79	1902	2.5	52	1023	2.4	946	<1.0	15	-192
10/10/2013	7.6	159	1748	2.3	50	935	2.2	920	380	13	-217
11/07/2013	7.6	151	1658	2.3	47	849	2.4	834	3300	13	-194

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-7: GROUNDWATER QUALITY DATA FOR WELL QM-64 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/18/1995	7.8	74	502	2.0	72	98	1.7	264	46	13	-153
03/22/1995	7.7	81	484	3.0	81	81	2.2	249	<1.0	13	-160
05/24/1995	7.9	54	508	3.0	63	85	2.2	267	1.0	13	-159
07/26/1995	7.7	74	476	4.0	60	57	2.3	271	<1.0	15	-159
09/27/1995	8.0	78	500	4.0	58	62	2.0	270	<1.0	15	-158
11/21/1995	7.5	72	532	7.0	60	64	2.2	273	11	13	-156
01/23/1996	7.5	99	524	10	60	57	2.0	272	<1.0	12	-186
01/25/1996	7.6	77	448	7.0	51	48	2.1	236	<1.0	12	-162
03/06/1996	7.5	77	488	4.0	69	61	2.3	267	<1.0	12	-160
05/07/1996	7.6	79	496	4.0	61	54	2.2	279	<1.0	13	-160
07/15/1996	7.6	74	484	5.0	58	67	2.2	252	<1.0	18	-171
09/05/1996	7.8	65	502	5.0	60	67	2.0	251	<1.0	14	-165
11/06/1996	7.7	75	162	9.0	50	238	1.7	860	<1.0	13	-161
01/23/1997	7.5	99	524	10	60	57	2.0	272	<1.0	12	-186
03/11/1997	7.6	78	512	4.0	64	55	2.6	250	77	10	-166
05/01/1997	7.6	76	472	4.0	62	51	2.1	255	9.0	11	-165
07/30/1997	7.7	63	482	9.0	58	45	2.2	250	<1.0	14	-162
09/24/1997	7.5	66	486	8.0	57	42	2.2	243	<1.0	15	-167
11/13/1997	7.6	83	500	4.0	54	46	2.2	267	<1.0	13	-163
01/14/1998	7.8	78	496	4.0	58	58	2.0	326	<1.0	12	-165
03/04/1998	7.5	84	446	3.0	56	48	2.0	248	<1.0	13	-162
05/27/1998	7.6	69	474	4.0	60	50	2.4	256	14	16	-163
07/22/1998	7.7	76	482	4.0	56	56	2.1	250	2.0	16	-164
09/16/1998	7.8	80	490	4.0	62	54	2.3	270	-	15	-162
11/04/1998	7.6	76	480	3.0	59	46	2.2	246	<1.0	14	-163
01/21/1999	8.1	70	468	3.0	64	49	2.5	253	4.0	12	-160
03/02/1999	7.5	66	492	3.0	66	48	2.4	277	14	14	-173
05/10/1999	7.5	79	516	4.0	57	44	2.5	269	30	15	-166
07/01/1999	7.1	74	462	3.0	58	50	2.2	225	<1.0	18	-166
09/08/1999	7.7	83	478	3.0	55	62	2.0	236	3.0	14	-199
11/24/1999	7.5	72	450	3.0	53	38	1.9	233	<1.0	14	-163
01/12/2000	7.6	61	584	7.0	56	47	2.2	245	7.0	13	-162
03/22/2000	7.7	63	484	3.0	61	49	2.3	258	<1.0	14	-162
05/25/2000	7.5	88	486	7.0	61	45	2.3	247	4.0	14	-165
07/12/2000	7.6	85	1424	4.0	47	763	1.7	782	<1.0	14	-164
09/07/2000	7.7	87	262	3.0	61	51	2.2	269	<1.0	14	-162
11/28/2000	7.0	87	488	2.0	62	46	2.2	249	<1.0	14	-160
01/18/2001	7.8	61	494	3.0	70	41	2.6	294	<1.0	13	-159
03/01/2001	7.7	61	446	2.0	63	42	2.7	303	<1.0	13	-159
05/23/2001	7.5	61	468	3.0	63	39	2.4	247	<1.0	14	-157

TABLE 2-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-64 IN THE
 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
07/10/2001	7.5	63	456	3.0	68	39	2.4	253	<1.0	16	-156
09/06/2001	7.7	61	544	3.0	66	29	2.5	258	6000	15	-168
09/12/2001	7.7	65	830	3.0	66	32	2.5	272	8400	14	-172
11/01/2001	7.4	61	606	4.0	60	36	2.2	225	6000	15	-152
01/02/2002	7.2	73	518	3.0	62	41	2.6	239	1.0	13	-179
03/26/2002	7.2	74	470	5.0	59	37	2.2	216	<1.0	13	-176
05/15/2002	7.8	54	572	5.0	79	52	2.2	225	6000	14	-143
07/02/2002	7.3	73	492	3.0	63	48	2.9	248	60	15	-171
09/04/2002	7.2	66	352	4.0	54	41	2.9	244	10000	15	-174
11/13/2002	7.2	67	444	4.0	47	35	2.2	190	1.0	14	-177
01/08/2003	7.6	65	524	4.0	50	35	2.2	198	<1.0	13	-172
03/12/2003	7.8	65	490	4.0	46	33	1.9	207	3.0	13	-172
05/07/2003	7.2	73	504	4.0	48	44	1.7	191	<1.0	13	-154
07/02/2003	7.1	71	802	4.0	48	53	2.2	200	6.0	15	-181
09/10/2003	7.6	64	538	3.0	52	42	1.9	200	<1.0	16	-176
11/05/2003	7.8	57	418	4.0	47	357	2.2	206	<1.0	13	-164
01/14/2004	7.7	72	552	3.0	48	59	1.7	200	3.0	13	-169
03/10/2004	7.3	76	542	2.0	51	56	1.8	207	1.0	13	-167
05/05/2004	7.2	48	538	2.0	51	68	1.8	209	<1.0	14	-170
07/28/2004	7.2	66	548	.0	48	8	1.7	189	<1.0	15	-168
09/01/2004	7.5	64	544	4.0	45	42	1.9	205	<1.0	14	-165
12/02/2004	7.8	50	559	3.0	47	37	1.9	188	<1.0	14	-164
01/05/2005	7.4	46	458	3.0	53	37	2.0	212	<1.0	13	-184
04/13/2005	7.9	59	494	2.0	58	34	1.6	197	<1.0	13	-168
05/25/2005	7.5	42	594	2.0	52	41	1.8	201	<1.0	14	-165
07/27/2005	7.2	36	540	1.0	52	41	1.8	200	<1.0	14	-163
09/08/2005	7.3	32	588	1.3	53	44	1.9	225	<1.0	14	-164
11/08/2005	7.5	62	530	1.3	56	40	2.2	206	<1.0	14	-168
01/19/2006	7.0	83	534	1.2	55	38	1.9	203	<1.0	13	-163
02/16/2006	7.2	87	470	1.3	58	45	2.2	233	1.0	12	-160
04/26/2006	7.2	28	444	1.2	59	38	1.9	214	<1.0	14	-161
07/06/2006	7.6	80	564	1.2	62	33	2.1	228	<1.0	16	-161
10/05/2006	7.6	35	492	1.4	55	40	1.9	198	20000	15	-126
10/24/2006	7.7	78	518	1.2	61	40	2.1	222	2300	13	-164
01/23/2007	7.8	67	506	1.1	53	38	1.9	200	6.0	13	-169
03/14/2007	7.8	70	574	1.1	53	41	1.9	199	2.0	14	-173
06/06/2007	7.7	51	514	1.1	65	41	1.6	200	<1.0	14	-165
08/23/2007	7.6	41	422	1.2	52	41	1.6	195	3600	16	-152
11/15/2007	7.6	33	474	1.0	51	42	1.7	179	<1.0	13	-169

TABLE 2-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-64 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/21/2008	7.3	77	502	1.1	151	49	1.8	205	6000	12	-160
04/30/2008	7.3	63	520	1.2	66	52	2.2	235	4.0	12	-170
06/17/2008	7.7	49	448	0.90	60	44	2.0	213	<1.0	14	-165
09/04/2008	7.8	68	446	<1.0	53	42	1.9	212	55	14	-170
12/10/2008	7.9	44	396	1.0	47	34	1.8	182	1.0	13	-162
02/19/2009	7.6	44	428	1.3	61	41	1.8	190	19	13	-165
09/10/2009	7.7	61	432	1.4	74	33	1.7	162	<1.0	14	-167
11/04/2009	7.5	63	454	1.3	55	45	1.7	187	460	14	-162
12/09/2009	7.6	71	458	1.5	58	35	1.7	188	2.0	12	-170
03/29/2010	7.6	41	448	1.4	59	38	1.9	217	<1.0	13	-168
08/05/2010	7.7	47	428	1.7	46	47	1.6	187	3900	17	-107
09/09/2010	7.7	43	408	1.6	57	33	1.9	197	15	15	-176
10/26/2010	8.2	40	682	1.4	132	37	1.9	199	1.0	15	-174
11/09/2010	7.6	64	434	1.4	50	44	1.9	214	2.0	15	-171
01/06/2011	7.7	46	430	1.5	50	36	2.0	202	<1.0	12	-172
04/20/2011	7.7	43	442	1.3	51	31	1.6	189	30	13	-165
05/25/2011	7.5	52	434	1.5	56	38	1.9	223	38	14	-167
07/07/2011	7.5	71	458	1.5	65	34	2.0	214	38	16	-167
09/23/2011	7.8	53	370	1.5	57	24	1.8	206	2.0	14	-177
11/09/2011	7.5	43	420	1.5	49	43	1.9	206	4.0	14	-160
01/04/2012	7.5	49	406	1.5	53	30	1.9	185	22	11	-160
02/23/2012	7.2	48	618	1.3	52	38	1.8	193	<1.0	14	-156
04/25/2012	7.4	67	408	1.4	52	39	1.8	195	<1.0	13	-170
09/06/2012	7.7	41	420	1.3	51	35	1.7	181	9.0	14	-168
10/10/2012	7.1	64	422	1.4	48	42	1.6	185	<1.0	13	-171
11/07/2012	7.6	46	410	1.5	49	39	1.6	187	2.0	13	-172
01/02/2013	7.7	42	424	1.4	50	41	1.6	209	22	11	-174
05/13/2013	7.2	54	428	1.8	56	34	1.7	203	36	14	-161
08/05/2013	7.4	62	468	1.5	48	41	1.7	239	51	14	-171
09/04/2013	7.8	56	408	1.4	48	30	1.5	189	1.0	15	-166
10/23/2013	7.6	53	414	1.5	52	37	1.6	193	27	13	-168
11/25/2013	7.6	57	430	1.5	54	38	1.7	203	240	14	-166

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-8: GROUNDWATER QUALITY DATA FOR WELL QM-65 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/26/1995	7.9	186	1258	9.0	289	152	4.5	593	21	12	-202
03/22/1995	7.5	196	1196	10	346	255	5.8	610	2.0	13	-209
05/17/1995	7.7	171	1140	9.0	283	208	5.4	478	5.0	13	-206
07/26/1995	7.9	238	1200	11	297	177	6.3	529	1.0	14	-195
09/28/1995	7.6	227	1686	13	390	248	5.7	731	<1.0	12	-201
11/16/1995	7.7	191	1442	17	373	191	10	593	80	12	-174
01/04/1996	8.1	335	1544	22	446	210	13	659	1.0	12	-214
01/30/1996	7.3	256	1576	31	444	191	13	624	<1.0	12	-212
03/06/1996	7.3	234	1574	18	445	189	13	651	<1.0	11	-203
05/30/1996	7.4	123	1464	30	399	191	12	595	8700	13	-197
07/25/1996	7.4	173	1548	12	393	237	8.5	638	14	14	-186
09/19/1996	7.4	196	1572	18	431	219	9.2	682	<1.0	13	-202
11/20/1996	7.5	162	1324	16	332	208	7.3	587	<1.0	12	-200
01/30/1997	7.3	256	1576	31	444	191	13	624	<1.0	12	-212
03/20/1997	8.0	187	1152	9.0	283	178	6.0	515	21	14	-119
05/15/1997	7.0	253	1294	12	325	184	7.4	579	1.0	9.0	-208
07/30/1997	7.2	191	1726	13	424	190	9.7	654	<1.0	15	-183
09/25/1997	7.7	248	1486	20	411	198	7.4	671	4.0	14	-204
11/20/1997	6.7	277	1334	9.0	349	197	6.3	565	<1.0	12	-204
01/29/1998	7.1	26	1328	13	324	217	6.7	573	<1.0	12	-204
03/25/1998	7.1	185	1612	16	413	215	9.0	633	<1.0	13	-193
05/14/1998	7.1	242	1650	17	419	180	12	618	140	15	-178
07/23/1998	7.2	190	1568	16	425	211	8.6	671	<1.0	16	-199
09/24/1998	7.4	257	1688	20	484	191	12	651	<1.0	13	-194
11/05/1998	6.9	249	1374	18	401	202	8.8	571	<1.0	13	-191
01/07/1999	8.0	191	1288	9.0	330	200	6.6	563	<1.0	10	-210
03/18/1999	7.9	197	1350	12	360	221	9.8	557	14	12	-207
05/26/1999	7.5	203	1580	20	463	152	13	595	<1.0	13	-200
07/29/1999	7.6	169	1564	12	384	210	8.5	650	<1.0	14	-194
09/22/1999	7.1	211	1388	11	385	202	7.4	589	<1.0	13	-198
11/24/1999	7.3	271	1542	16	449	171	10	670	<1.0	12	-197
01/26/2000	7.1	191	1380	11	341	191	6.7	617	<1.0	10	-212
03/22/2000	7.2	173	1372	11	369	200	8.1	608	<1.0	13	-198
05/04/2000	7.1	206	1316	13	340	205	7.5	537	22	13	-193
07/13/2000	7.3	115	1552	21	411	196	10	615	<1.0	14	-187
09/13/2000	7.0	195	1584	16	447	186	14	659	<1.0	13	-192
11/15/2000	7.1	215	1520	17	419	210	10	657	<1.0	12	-190
01/04/2001	7.4	271	1700	13	449	199	11	632	<1.0	12	-200
03/29/2001	7.4	222	1452	12	393	200	10	648	<1.0	12	-194
05/17/2001	7.3	188	1438	14	389	184	10	656	<1.0	14	-186

TABLE 2-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-65 IN THE
IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
07/26/2001	7.0	206	1736	15	510	172	13	650	<1.0	14	-170
09/20/2001	7.1	202	1536	14	418	186	11	616	34	13	ft. ²
11/15/2001	7.0	184	1288	10	348	202	7.3	526	83	13	-181
01/17/2002	7.0	194	834	12	370	186	8.8	592	<1.0	12	-199
03/14/2002	7.3	123	1454	15	363	185	9.4	611	<1.0	13	-186
05/02/2002	7.0	178	174	15	433	216	9.2	587	<1.0	13	-193
07/11/2002	8.0	142	1462	17	453	187	11	615	<1.0	14	-177
09/26/2002	7.2	195	1474	14	387	194	9.3	614	3.0	14	-198
11/21/2002	6.6	178	1432	13	393	206	8.8	574	<1.0	13	-194
01/30/2003	7.7	189	1340	14	365	215	7.3	572	<1.0	12	-202
03/27/2003	7.2	193	1326	14	335	197	8.0	547	<1.0	13	-201
05/22/2003	7.1	187	1298	12	353	198	7.3	572	2.0	13	-184
07/17/2003	7.7	171	1592	13	490	236	12	598	<1.0	14	-194
09/25/2003	7.3	205	1382	12	391	230	8.7	582	<1.0	13	-191
11/06/2003	7.0	205	1484	16	440	195	12	635	<1.0	12	-181
01/15/2004	7.8	88	1384	12	388	262	8.8	569	<1.0	11	-194
03/11/2004	7.7	122	1546	13	463	246	10	580	<1.0	12	-183
05/27/2004	7.4	73	1406	11	368	256	8.1	566	<1.0	13	-173
07/15/2004	7.0	252	1316	8.0	334	195	5.0	488	<1.0	14	-190
09/23/2004	7.3	203	1254	8.0	310	218	0.85	546	<1.0	13	-189
12/02/2004	7.4	129	1331	-	350	204	6.7	547	<1.0	12	-182
12/16/2004	-	-	-	-	378	216	6.3	-	<1.0	-	-
12/22/2004	-	-	-	-	424	205	8.1	-	<1.0	-	-
01/13/2005	7.1	210	1494	12	456	182	9.0	609	3.0	13	-190
03/24/2005	7.5	111	1374	8.0	362	218	6.3	570	<1.0	13	-199
05/12/2005	7.5	105	1440	9.0	382	218	6.7	562	<1.0	13	-195
06/30/2005	7.2	202	1462	6.6	387	216	7.1	559	<1.0	14	-190
07/21/2005	7.2	76	1504	6.5	444	205	8.2	568	<1.0	14	-183
09/29/2005	7.6	203	1360	6.4	377	206	7.1	545	<1.0	13	-183
10/20/2005	-	-	1420	6.1	388	214	6.4	-	<1.0	-	-
12/22/2005	-	-	1370	5.3	363	203	5.9	-	<1.0	-	-
02/01/2006	7.0	53	1392	6.3	395	222	7.1	589	<1.0	13	-187
03/23/2006	7.2	58	1178	4.2	295	219	4.2	559	<1.0	13	-189
06/22/2006	7.5	74	1362	5.4	347	237	5.8	582	<1.0	14	-185
07/13/2006	7.5	57	1442	6.0	377	212	6.3	581	<1.0	12	-182
08/03/2006	7.2	215	1416	6.7	385	93	7.1	590	<1.0	15	-178
10/18/2006	6.9	192	1306	5.0	339	229	5.2	538	10	14	-103
03/08/2007	7.8	114	1610	7.3	505	175	11	573	<1.0	13	-204
06/14/2007	8.0	116	1352	4.7	373	209	6.1	539	<1.0	14	-195

TABLE 2-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-65 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
10/31/2007	7.5	82	1394	4.9	348	232	5.8	558	<1.0	13	-196
12/19/2007	7.1	135	1344	4.4	360	209	6.0	562	<1.0	12	-193
02/07/2008	7.5	106	1376	5.1	366	188	6.7	559	<1.0	12	-190
05/01/2008	7.7	137	1248	4.8	364	196	6.7	534	<1.0	13	-194
07/02/2008	7.0	270	1478	5.7	433	196	9.0	559	<1.0	15	-192
09/11/2008	7.2	272	1478	5.8	416	181	8.8	560	1.0	14	-190
10/23/2008	7.6	217	1488	6.0	415	175	7.9	515	14	13	-194
12/04/2008	7.5	140	1586	6.8	476	173	11	551	<1.0	12	-196
01/29/2009	7.2	128	1482	6.7	461	205	13	530	2.0	12	-202
04/02/2009	7.4	75	502	2.2	84	50	2.0	221	330	11	-182
05/14/2009	7.0	197	1416	6.7	435	183	11	492	2.0	14	-174
06/04/2009	7.3	119	1464	7.5	465	160	11	526	<1.0	14	-196
09/03/2009	-	-	1524	7.1	509	176	12	-	<1.0	-	-
11/18/2009	7.5	201	1436	6.2	445	176	10	510	3.0	13	-192
12/30/2009	6.8	148	1588	7.5	524	166	13	563	<1.0	13	-198
01/14/2010	7.0	123	1586	7.6	485	158	12	600	<1.0	13	-197
03/18/2010	7.1	191	1552	7.3	390	161	12	594	<1.0	13	-191
05/13/2010	7.7	200	1292	7.0	316	161	10	474	<1.0	14	-198
07/22/2010	7.3	112	1356	6.4	380	165	11	426	<1.0	16	-202
10/14/2010	7.2	162	1470	6.7	446	170	11	555	<1.0	14	-206

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-9: GROUNDWATER QUALITY DATA FOR WELL QM-66 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
05/11/2006	7.1	77	99	1.3	264	1068	0.45	20	<1.0	13	-304
08/03/2006	7.6	359	55	1.7	258	1746	1.9	5.0	<1.0	18	-305
01/29/2009	11	312	209	2.6	194	1984	1.8	9.0	<1.0	11	-315
03/18/2010	11	304	133	2.8	197	1806	2.0	9.0	<1.0	13	-311
04/04/2013	10	89	149	<1.0	184	1244	1.0	3.0	<1.0	13	-312
06/13/2013	8.2	72	235	1.4	-	1184	0.92	19	8.0	13	-316
10/10/2013	11	283	174	<1.0	167	1400	0.67	4.0	<1.0	14	-309

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-10: GROUNDWATER QUALITY DATA FOR WELL QM-67 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/26/1995	7.3	148	1110	6.0	145	238	0.36	704	53	10	-152
03/22/1995	7.5	156	1104	6.0	142	244	0.35	668	29	13	-162
05/17/1995	7.9	154	1068	6.0	128	236	0.03	644	12	14	-164
07/26/1995	7.7	164	1138	7.0	124	234	0.04	665	30	15	-166
09/28/1995	7.1	156	1110	6.0	145	248	0.33	719	<1.0	15	-164
11/16/1995	8.3	115	994	12	98	244	1.0	610	3100	12	-156
01/04/1996	9.0	150	970	3.0	108	198	0.08	586	6.0	11	-178
01/30/1996	8.1	120	1132	14	118	285	<0.01	682	<1.0	12	-163
03/06/1996	7.4	154	1060	6.0	117	230	0.06	653	<1.0	11	-166
05/30/1996	7.2	129	1144	7.0	139	226	0.07	712	19	14	-167
07/25/1996	7.6	151	1190	9.0	138	260	0.49	692	2700	14	-163
09/19/1996	7.8	166	1116	7.0	128	237	0.29	689	370	14	-177
11/20/1996	8.2	125	1052	10	118	238	<0.01	617	89	12	-165
01/30/1997	8.1	120	1132	14	118	285	<0.10	682	<1.0	12	-163
03/20/1997	7.3	177	1236	6.0	221	200	0.92	668	87	15	-167
05/15/1997	7.0	170	1116	7.0	201	191	1.2	652	2.0	9.0	-163
07/17/1997	7.2	149	1726	13	183	190	9.7	654	<1.0	14	-202
09/25/1997	7.0	161	1126	10	148	194	0.07	699	530	15	-167
11/20/1997	7.0	175	1166	9.0	143	239	0.02	676	<1.0	13	-164
01/29/1998	7.0	117	1166	9.0	155	219	0.08	689	<1.0	12	-164
03/25/1998	7.3	160	1200	8.0	169	188	0.33	643	94	13	-160
05/14/1998	7.1	145	1190	8.0	166	162	0.80	624	<1.0	16	-158
07/23/1998	7.1	137	1118	9.0	156	189	<0.01	704	<1.0	18	-165
09/24/1998	7.8	118	1136	10	120	178	<0.01	596	-	14	-162
11/05/1998	6.9	151	1072	6.0	120	211	0.19	646	<1.0	14	-181
01/07/1999	7.4	136	1010	7.0	118	166	0.27	630	<1.0	12	-158
03/18/1999	7.6	159	966	12	308	40	7.3	438	6600	14	-149
05/26/1999	7.1	147	964	7.0	263	71	7.1	444	46	14	-166
07/29/1999	7.9	145	1354	6.0	190	198	<0.01	683	16	15	-166
09/22/1999	7.2	133	1130	4.0	152	202	0.08	656	4.0	15	-164
11/24/1999	7.3	164	1096	8.0	134	174	0.23	688	15	13	-156
01/26/2000	7.0	124	1110	11	132	156	0.14	690	<1.0	11	-167
03/22/2000	6.9	133	1148	7.0	168	153	0.24	715	15	14	-166
05/04/2000	6.9	137	1160	11	179	167	0.41	663	6.0	15	-163
07/13/2000	7.1	174	1146	12	157	157	1.5	659	<1.0	17	-167
09/13/2000	7.0	127	1116	8.0	149	145	2.6	624	4.0	15	-165
11/15/2000	7.2	178	1172	6.0	149	212	0.62	696	2500	13	-162
01/04/2001	7.4	188	1272	6.0	18	217	0.29	687	58	12	-163
03/29/2001	7.2	151	1322	5.0	257	200	0.13	836	<1.0	13	-164

TABLE 2-10 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-67 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
05/17/2001	7.2	151	1298	5.0	250	180	1.2	689	180	14	-164
07/26/2001	7.0	129	1110	4.0	171	169	0.11	641	<1.0	14	-174
09/20/2001	7.1	123	1090	4.0	154	156	0.11	619	3.0	14	ft. ²
11/15/2001	7.1	124	980	5.0	148	166	0.05	589	21	15	-60
01/17/2002	7.1	120	986	4.0	135	149	0.14	631	17	13	-163
03/14/2002	7.2	123	982	6.0	163	147	0.12	634	<1.0	14	-157
05/02/2002	7.0	122	330	8.0	205	154	1.1	610	<1.0	14	-167
07/11/2002	7.6	126	1158	6.0	227	151	1.5	617	<1.0	15	-167
09/26/2002	7.2	112	1128	8.0	187	137	1.2	621	<1.0	16	-154
11/21/2002	6.6	135	1096	7.0	179	132	1.1	592	<1.0	14	-155
01/30/2003	7.5	136	1142	7.0	187	137	1.2	589	<1.0	12	-153
03/27/2003	7.1	147	1066	8.0	180	127	1.7	580	1.0	14	-151
05/22/2003	7.0	131	1072	8.0	238	102	2.8	579	2000	14	-142
07/17/2003	7.5	122	992	6.0	192	112	3.7	502	5.0	14	-145
09/25/2003	7.2	125	1060	6.0	210	130	3.3	569	14	14	-151
11/06/2003	7.1	120	1092	8.0	200	103	3.3	554	33	13	-152
01/15/2004	7.6	78	1012	2.0	187	133	4.1	522	4.0	13	-154
03/11/2004	7.3	85	1053	6.0	214	117	4.1	529	4.0	12	-149
05/27/2004	7.1	69	1048	5.0	252	103	6.0	495	17	14	-149
07/15/2004	-	-	1030	8.0	230	61	6.5	424	34	-	-
09/23/2004	7.2	138	973	6.0	182	62	7.1	431	<1.0	14	-151
12/02/2004	7.3	92	980	6.0	195	115	7.2	381	130	12	-157
12/16/2004	-	-	-	-	175	116	7.2	-	230	-	-
12/22/2004	-	-	-	-	184	114	7.4	-	330	-	-
01/13/2005	7.0	122	996	5.0	189	105	7.4	424	260	13	-167
03/24/2005	7.2	100	1000	5.0	252	57	7.6	409	3500	13	-168
05/12/2005	7.4	65	994	6.0	269	33	8.1	374	190	13	-174
07/21/2005	7.4	73	920	3.4	242	38	8.4	387	54	16	-159
09/29/2005	7.4	124	902	4.0	204	31	9.5	362	47	14	-157
10/20/2005	7.4	117	840	4.1	171	31	9.1	347	1200	14	-163
12/22/2005	-	-	796	3.5	174	36	9.4	-	1100	-	-
02/01/2006	7.2	60	838	3.5	218	43	9.5	360	3300	13	-163
03/23/2006	7.0	57	878	3.1	230	36	8.8	341	2000	13	-170
05/11/2006	7.7	59	862	3.0	224	39	8.1	334	260	13	-168
06/22/2006	7.6	56	874	3.1	217	39	8.5	300	160	14	-170
07/13/2006	7.7	57	870	3.3	211	30	8.7	287	220	15	-171
08/03/2006	7.4	144	890	3.5	186	2.0	8.2	281	210	15	-167
03/08/2007	8.1	82	818	3.2	211	29	7.2	324	2000	12	-169
06/14/2007	7.9	95	860	2.6	279	19	7.7	337	35	15	-173

TABLE 2-10 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-67 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/26/2007	7.4	118	780	3.2	215	17	8.2	285	1600	15	156
08/30/2007	8.0	63	662	3.2	177	10	8.4	272	3300	14	-161
10/31/2007	7.6	68	736	2.9	181	11	7.9	253	2400	14	-165
12/19/2007	7.4	101	748	2.8	198	22	8.8	263	860	13	-166
02/07/2008	7.6	75	870	2.4	272	20	8.3	315	210	11	-167
05/01/2008	7.9	96	942	2.1	324	26	8.7	327	41	13	-165
07/02/2008	7.5	181	898	2.1	279	21	8.1	303	58	16	-165
09/11/2008	7.6	157	792	2.1	233	25	7.4	282	86	16	-163
10/23/2008	7.7	119	704	2.4	190	15	7.7	227	250	13	-164
12/04/2008	7.9	79	670	2.3	166	16	7.7	222	20	12	-166
01/29/2009	7.2	76	716	2.9	212	10	8.5	251	920	12	-167
04/02/2009	7.5	86	808	3.0	247	11	8.8	257	2000	14	-160
05/14/2009	7.6	198	794	2.8	255	9.0	8.7	254	270	14	-174
06/04/2009	7.8	98	788	3.5	255	26	7.8	239	210	15	-157
08/20/2009	7.4	109	708	2.7	213	1.0	8.8	250	120	14	-172
09/03/2009	7.4	99	660	3.0	185	13	8.7	205	350	15	-158
01/14/2010	7.6	69	680	3.4	185	13	8.9	245	260	12	-160
03/18/2010	7.5	146	848	3.5	243	13	10	302	710	14	-159
05/20/2010	7.1	91	850	3.5	267	5.0	10	297	200	15	-149
07/22/2010	7.5	91	752	3.9	226	4.0	10	224	300	16	-160
10/14/2010	7.5	111	700	3.2	195	2.0	10	245	2.0	14	-163
11/17/2010	6.9	84	624	4.3	163	17	11	242	1200	13	-155
03/23/2011	7.5	84	694	3.3	214	12	11	273	140	12	-161
05/05/2011	8.6	75	768	2.9	249	8.0	12	266	45	13	-163
07/29/2011	7.4	102	732	<1.0	235	11	9.9	260	350	15	-172
09/16/2011	7.4	77	662	3.1	183	14	9.7	219	210	13	-177
11/30/2011	7.1	78	598	1.9	161	10	9.9	226	300	13	-169
12/15/2011	7.2	75	606	3.1	149	10	10	218	270	13	-173
02/09/2012	7.1	80	626	3.6	151	13	10	236	48	11	-157
04/18/2012	7.4	116	710	4.2	215	13	11	273	4200	14	-150
06/07/2012	7.3	115	746	3.1	197	9.0	12	282	2000	14	-154
08/09/2012	7.4	74	648	12	167	6.0	11	273	4100	16	-148
10/31/2012	7.3	69	572	3.8	139	9.0	11	238	830	13	-157
12/13/2012	7.1	66	552	3.5	123	<5.0	11	233	24	11	-155
02/28/2013	7.0	90	622	8.5	157	<5.0	12	294	1300	12	-153
04/04/2013	7.0	92	748	6.6	221	7.0	13	324	370	13	-150
06/13/2013	7.3	83	744	3.0	311	8.0	12	289	2600	12	-151
08/29/2013	7.4	106	714	2.9	190	<5.0	12	270	11	15	-151
09/18/2013	7.6	98	668	3.1	161	11	11	243	85	14	-153

TABLE 2-10 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-67 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	-----		mg/L	-----			MPN/ 100 mL	°C	ft ²
10/10/2013	7.5	87	576	3.3	139	13	11	230	570	14	-155

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-11: GROUNDWATER QUALITY DATA FOR WELL QM-68 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/26/1995	8.1	34	232	3.0	20	61	0.52	142	11	12	-119
05/17/1995	7.9	33	206	2.0	14	44	0.54	153	6.0	12	-119
07/26/1995	8.2	28	178	2.0	14	42	0.56	157	<1.0	14	-126
09/28/1995	6.8	32	232	2.0	20	45	0.54	171	<1.0	13	-125
11/16/1995	8.9	34	264	3.0	13	39	0.60	158	400	11	-111
01/04/1996	9.0	42	230	3.0	12	44	0.59	165	<1.0	12	-128
01/30/1996	7.8	32	232	2.0	13	42	1.0	152	<1.0	11	-132
05/30/1996	8.2	26	244	6.0	14	41	0.46	170	530	15	-128
07/25/1996	8.4	32	300	2.0	13	40	0.48	164	2300	14	-122
09/19/1996	8.4	33	238	3.0	13	40	0.39	164	<1.0	14	-132
11/20/1996	8.2	33	232	10	13	42	0.52	162	<1.0	12	-132
01/30/1997	7.8	32	232	2.0	13	42	1.0	152	<1.0	11	-132
03/20/1997	7.6	32	238	1.0	13	38	0.56	165	4.0	13	-131
05/15/1997	8.0	34	214	1.0	15	38	0.62	162	<1.0	10	-132
07/17/1997	7.3	32	268	1.0	14	36	0.23	161	<1.0	16	-166
09/25/1997	8.2	32	192	2.0	13	35	0.61	161	<1.0	13	-133
11/20/1997	8.0	37	288	2.0	20	34	0.54	158	<1.0	13	-134
01/29/1998	8.1	35	232	2.0	15	40	0.68	173	<1.0	12	-185
03/25/1998	8.7	32	256	2.0	14	30	0.64	156	<1.0	13	-130
05/14/1998	7.9	31	292	2.0	15	32	0.38	162	240	17	-118
07/23/1998	8.3	30	222	2.0	14	45	0.57	164	<1.0	16	-135
09/24/1998	7.6	28	242	2.0	16	41	0.33	162	-	13	-135
11/05/1998	7.8	33	224	1.0	16	44	0.71	160	<1.0	13	-133
01/07/1999	7.6	59	226	2.0	17	38	0.75	163	<1.0	10	-132
03/18/1999	7.8	17	196	2.0	18	35	0.51	159	5.0	12	-134
05/26/1999	8.0	27	224	2.0	17	54	0.62	148	2.0	13	-135
07/29/1999	7.6	34	268	1.0	14	52	0.49	176	<1.0	13	-135
09/22/1999	8.1	36	232	1.0	14	45	0.65	152	<1.0	13	-134
11/24/1999	8.3	35	222	2.0	13	35	0.68	166	<1.0	12	-132
01/26/2000	8.3	57	230	2.0	19	37	0.72	160	<1.0	11	-132
03/22/2000	8.2	54	230	2.0	18	39	0.74	164	<1.0	13	-132
05/04/2000	8.2	37	246	3.0	12	79	0.67	190	33	13	-131
07/13/2000	7.2	36	242	3.0	12	40	0.55	160	<1.0	14	-135
09/13/2000	7.6	38	256	2.0	13	41	0.64	158	<1.0	13	-135
07/26/2001	8.0	35	414	1.0	63	39	1.9	168	<1.0	13	-132
01/17/2002	7.8	27	550	2.0	14	51	0.72	160	<1.0	12	-130
07/11/2002	8.9	28	384	2.0	41	42	0.77	166	<1.0	14	-130
01/30/2003	7.4	27	350	2.0	44	38	0.66	180	<1.0	11	-132
07/17/2003	7.5	30	330	2.0	32	47	0.64	186	<1.0	13	-134
01/15/2004	7.7	23	342	2.0	46	45	0.94	200	<1.0	11	-133

TABLE 2-11 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-68 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/15/2004	7.2	48	350	3.0	47	33	0.73	205	<1.0	14	-133
05/12/2005	7.4	31	380	1.0	379	34	1.3	207	<1.0	13	-136
07/21/2005	7.1	24	328	0.60	55	38	1.2	202	<1.0	14	ft. ²
03/23/2006	7.0	38	278	0.60	42	0.60	0.53	204	<1.0	12	-132
06/22/2006	7.5	21	370	0.60	50	0.60	1.1	196	<1.0	14	-133
07/13/2006	7.6	23	376	0.50	50	0.50	1.3	197	<1.0	14	-132
03/08/2007	7.9	29	310	0.60	32	37	0.36	200	<1.0	12	-138
06/14/2007	7.8	30	284	0.50	31	36	0.48	186	<1.0	14	-139
08/30/2007	7.8	29	288	0.60	27	30	0.64	173	12	13	-116
04/02/2008	7.4	23	222	0.30	27	43	0.61	183	<1.0	12	-138
07/24/2008	7.5	36	316	0.30	24	36	0.60	178	7.0	14	-124
12/04/2008	7.2	31	254	<1.0	26	35	0.52	169	<1.0	12	-139
04/09/2009	7.6	30	280	<1.0	31	36	0.56	164	3.0	13	-134
06/04/2009	7.5	37	310	<1.0	35	35	0.59	171	3.0	13	-120
08/20/2009	7.6	40	290	<1.0	30	36	0.61	170	<1.0	14	-126
03/18/2010	7.7	41	264	<1.0	29	33	0.31	199	<1.0	13	-135
05/13/2010	6.7	50	330	1.1	28	32	0.52	192	<1.0	13	-136
08/19/2010	7.0	33	340	<1.0	27	34	0.60	187	8.0	14	-127
03/23/2011	-	-	252	<1.0	30	244	0.35	-	12	-	-
05/05/2011	7.2	28	296	<1.0	28	32	0.61	186	92	13	-134
07/29/2011	7.5	31	344	<1.0	29	37	0.52	188	100	15	-110
09/16/2011	7.9	32	324	<1.0	29	38	0.53	190	<1.0	14	-121
02/09/2012	7.9	30	284	1.0	31	37	0.62	198	<1.0	12	-133
04/18/2012	7.8	40	262	<1.0	29	38	0.57	192	<1.0	14	-128
06/07/2012	7.9	44	376	<1.0	28	37	0.67	191	1.0	14	-130
08/09/2012	7.7	67	310	12	27	38	0.55	199	<1.0	13	-131
11/29/2012	7.1	35	346	<1.0	28	41	0.61	194	<1.0	15	-132
04/04/2013	6.8	51	262	<1.0	31	39	0.62	212	17	14	-130
06/13/2013	7.1	41	306	<1.0	25	37	0.60	204	11	13	-126
10/09/2013	8.1	33	260	<1.0	26	33	0.63	196	570	14	-133

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-12: GROUNDWATER QUALITY DATA FOR WELL QM-69 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/05/1995	7.8	59	366	4.0	39	80	0.97	171	<1.0	10	-88
03/02/1995	8.3	59	352	3.0	47	78	1.0	156	<1.0	10	-54
05/11/1995	8.7	53	366	3.0	37	74	0.95	179	<1.0	12	-53
07/26/1995	8.1	56	356	3.0	36	68	0.96	187	460	12	-52
09/28/1995	7.9	60	470	3.0	38	71	0.89	195	<1.0	12	-16
11/30/1995	8.3	75	346	5.0	36	74	0.92	184	<1.0	11	-49
01/11/1996	8.0	58	360	4.0	34	68	0.92	180	<1.0	10	-49
01/30/1996	7.4	69	350	5.0	36	66	0.92	179	<1.0	9.0	-48
05/23/1996	8.1	53	350	6.0	36	65	0.93	188	<1.0	13	-48
07/11/1996	8.0	53	422	3.0	35	82	0.91	196	<1.0	12	-47
09/25/1996	8.4	34	380	3.0	35	64	0.93	185	<1.0	11	-48
11/14/1996	8.4	50	380	3.0	36	84	0.94	191	<1.0	10	-48
01/30/1997	7.4	69	350	5.0	36	66	0.92	179	<1.0	9.0	-48
03/13/1997	7.7	54	350	2.0	36	65	0.97	177	<1.0	12	-48
05/08/1997	8.1	54	378	2.0	36	63	0.96	189	<1.0	9.0	-46
07/17/1997	7.3	32	368	2.0	35	63	0.95	187	<1.0	15	-132
09/18/1997	8.1	48	334	5.0	34	54	0.90	182	<1.0	13	-46
01/29/1998	8.0	51	366	3.0	36	67	0.97	196	<1.0	10	-46
03/05/1998	8.8	53	354	2.0	35	59	0.96	189	<1.0	11	-46
05/21/1998	8.2	51	360	2.0	34	67	0.92	195	<1.0	13	-45
07/16/1998	8.3	51	342	4.0	35	83	0.96	178	<1.0	14	-46
09/24/1998	8.5	52	348	2.0	37	60	0.92	188	-	12	-47
11/19/1998	8.0	52	352	3.0	37	69	0.93	181	<1.0	11	-46
01/28/1999	8.1	54	326	2.0	40	60	0.96	185	<1.0	13	-36
03/11/1999	8.0	48	338	3.0	36	57	0.90	185	<1.0	12	-46
05/20/1999	7.7	61	370	2.0	36	68	0.95	185	<1.0	12	-51
07/28/1999	8.6	55	350	3.0	36	69	0.98	201	<1.0	13	-46
09/30/1999	8.0	60	348	3.0	35	70	0.95	175	<1.0	11	-46
11/18/1999	7.7	43	372	2.0	36	67	0.93	180	<1.0	11	-46
01/12/2000	8.2	40	356	4.0	35	54	0.94	181	<1.0	10	-45
03/23/2000	8.2	41	394	3.0	37	54	0.97	183	<1.0	11	-46
05/25/2000	8.5	41	360	6.0	36	59	0.93	181	<1.0	12	-44
07/26/2000	8.0	42	348	2.0	34	53	0.96	187	<1.0	11	-45
09/28/2000	8.4	39	352	3.0	34	55	0.90	180	<1.0	11	-44
11/16/2000	7.1	58	338	2.0	34	58	0.92	183	<1.0	11	-44
01/11/2001	8.0	40	348	2.0	33	53	0.89	188	<1.0	10	-44
03/29/2001	6.7	56	324	3.0	36	47	0.93	206	<1.0	11	-44
05/23/2001	7.6	40	360	2.0	42	52	0.89	189	<1.0	11	-42
07/26/2001	7.2	42	324	2.0	35	51	0.90	183	<1.0	12	-42
09/13/2001	7.3	42	404	2.0	49	51	0.89	183	<1.0	12	-43

TABLE 2-12 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-69 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
11/28/2001	8.4	38	342	2.0	36	54	1.0	178	<1.0	11	-42
01/24/2002	7.5	40	340	4.0	36	49	0.95	213	<1.0	11	-42
03/21/2002	8.1	40	352	4.0	48	52	0.86	177	<1.0	11	-42
05/23/2002	8.2	53	332	4.0	34	47	0.95	179	<1.0	11	-42
07/18/2002	7.3	33	368	3.0	39	57	1.0	174	<1.0	13	-42
09/12/2002	7.3	34	472	3.0	75	61	0.91	172	<1.0	12	-43
11/20/2002	8.0	36	398	3.0	33	49	1.1	167	<1.0	13	-42
01/23/2003	7.5	36	382	3.0	38	53	0.92	164	<1.0	9.0	-42
03/06/2003	6.6	58	374	4.0	36	45	0.90	169	<1.0	10	-42
05/14/2003	6.8	38	360	4.0	38	47	0.85	170	<1.0	11	-41
07/17/2003	7.9	39	328	4.0	37	63	0.90	161	<1.0	12	-42
09/11/2003	7.3	56	360	3.0	33	69	0.94	161	<1.0	12	-42
11/26/2003	8.2	54	330	3.0	34	64	1.0	153	<1.0	11	-42
01/08/2004	7.1	42	322	2.0	36	69	0.95	174	<1.0	10	-44
03/04/2004	7.7	56	358	3.0	37	70	0.94	174	<1.0	11	-39
05/13/2004	6.9	43	348	2.0	37	61	0.96	163	<1.0	12	-42
07/29/2004	7.5	47	352	2.0	37	48	0.84	167	<1.0	12	-40
09/23/2004	7.1	57	344	3.0	36	46	0.93	165	<1.0	12	-40
11/18/2004	7.2	31	382	2.0	33	47	0.94	155	<1.0	12	-41
01/27/2005	7.3	29	346	2.0	36	47	0.98	162	<1.0	10	-38
04/21/2005	7.5	40	382	2.0	35	52	0.90	161	<1.0	11	-39
06/22/2005	7.5	30	352	0.70	35	43	0.93	159	<1.0	12	-37
08/25/2005	-	-	340	1.1	35	46	0.91	-	<1.0	-	-
12/08/2005	-	-	336	1.1	34	46	0.83	-	<1.0	-	-
06/01/2006	7.3	25	302	0.90	35	45	0.85	161	<1.0	12	-37
08/10/2006	8.1	54	420	1.0	49	44	0.85	158	<1.0	13	-36
11/16/2006	8.1	55	316	0.90	33	49	0.81	154	<1.0	11	-35
06/07/2007	8.3	40	324	0.90	38	46	0.88	153	<1.0	13	-35
08/23/2007	8.2	54	350	1.0	38	40	0.93	159	9.0	14	-35
10/25/2007	7.6	48	326	0.90	38	42	0.93	152	<1.0	11	-38
03/27/2008	7.4	31	318	0.90	36	48	0.93	158	<1.0	12	-138
07/24/2008	7.5	54	324	0.60	32	42	0.96	155	<1.0	14	-124
10/22/2008	7.2	55	316	<1.0	33	42	0.91	139	<1.0	12	-139
04/30/2009	8.2	31	338	1.2	38	42	0.95	141	<1.0	12	-33
08/20/2009	7.7	29	310	1.2	37	43	0.99	142	<1.0	13	-33
10/22/2009	7.3	35	316	1.1	36	43	0.94	150	<1.0	11	-33
03/03/2010	8.1	27	322	1.3	35	38	0.94	145	<1.0	10	-34
07/22/2010	8.1	34	312	1.2	33	45	0.97	134	<1.0	12	-34
10/28/2010	7.7	31	332	1.4	35	40	0.88	155	<1.0	11	-38

TABLE 2-12 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-69 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
08/12/2011	8.1	35	326	1.3	36	44	0.89	158	<1.0	13	-29
11/10/2011	7.8	41	298	1.3	36	41	0.89	154	<1.0	11	-44
02/09/2012	8.2	31	300	1.3	35	36	0.97	134	<1.0	10	-38
04/19/2012	7.1	31	304	1.4	37	42	0.95	153	<1.0	14	-28
08/15/2012	7.9	25	302	11	35	42	0.93	153	1.0	13	-29
11/29/2012	7.9	31	318	1.0	37	37	0.94	141	<1.0	12	-35
02/07/2013	8.2	27	-	3.2	35	-	0.92	165	<1.0	11	-33
07/25/2013	7.7	32	302	1.9	34	40	0.95	159	<1.0	14	-23
09/19/2013	7.6	41	296	1.1	38	40	0.92	158	<1.0	11	-44

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-13: GROUNDWATER QUALITY DATA FOR WELL QM-70 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/05/1995	8.0	61	336	3.0	52	65	0.37	147	<1.0	10	-93
03/02/1995	8.4	60	356	2.0	59	63	0.35	160	<1.0	10	-87
05/11/1995	8.5	55	362	3.0	53	64	0.43	162	<1.0	12	-86
07/26/1995	7.7	55	342	2.0	52	69	0.39	170	<1.0	12	-86
09/28/1995	8.1	57	380	2.0	58	61	0.37	174	<1.0	12	-92
11/30/1995	8.8	74	336	4.0	50	59	0.38	165	<1.0	11	-86
01/11/1996	8.1	57	390	3.0	48	56	0.38	163	<1.0	10	-86
05/23/1996	8.0	51	322	4.0	49	60	0.37	169	<1.0	11	-87
07/11/1996	7.9	52	394	3.0	50	68	0.38	177	<1.0	12	-85
09/25/1996	8.1	35	364	3.0	48	58	0.38	168	<1.0	12	-85
05/08/1997	7.8	53	372	3.0	49	55	0.32	171	<1.0	9.0	-85
05/20/1999	7.5	58	352	2.0	47	57	0.33	146	<1.0	13	-83
11/18/1999	8.1	44	348	3.0	46	64	0.40	161	<1.0	11	-78
05/25/2000	8.2	40	350	8.0	47	55	0.38	181	<1.0	12	-77
05/23/2001	8.0	55	346	2.0	46	55	0.46	168	<1.0	12	-71
11/28/2001	8.3	55	348	2.0	49	56	0.41	158	<1.0	11	-80
05/23/2002	8.1	56	326	2.0	47	55	0.45	163	<1.0	12	-80
11/20/2002	8.2	55	412	2.0	47	55	0.56	154	<1.0	13	-72
05/14/2003	6.9	49	334	2.0	50	57	0.44	156	<1.0	12	-73
11/26/2003	8.3	53	334	2.0	46	71	0.50	140	<1.0	11	-75
05/13/2004	7.5	35	326	2.0	65	64	0.44	146	<1.0	13	-74
11/18/2004	6.8	30	334	2.0	52	52	0.47	145	<1.0	12	-70
04/07/2005	8.2	45	342	1.0	53	54	0.37	158	<1.0	12	-75
06/02/2005	7.6	30	316	2.0	47	56	0.34	154	<1.0	12	-70
09/22/2005	8.0	46	288	0.70	45	52	0.34	155	<1.0	13	-68
03/30/2006	7.8	55	328	0.70	49	54	0.30	154	<1.0	12	-70
10/22/2008	8.2	55	326	<1.0	45	51	0.37	141	<1.0	12	-64
11/13/2008	8.1	55	354	<1.0	48	54	0.37	131	3.0	11	-63
04/30/2009	8.0	33	368	<1.0	50	52	0.36	146	<1.0	12	-59
08/20/2009	7.6	37	318	<1.0	47	52	0.37	140	5.0	13	-63
10/22/2009	7.0	36	342	<1.0	50	53	0.40	149	<1.0	11	-64
03/03/2010	7.8	28	322	1.0	50	51	0.39	152	<1.0	11	-65
07/22/2010	8.0	36	348	<1.0	44	53	0.41	127	<1.0	12	-66
10/28/2010	8.1	34	332	<1.0	48	50	0.35	151	<1.0	12	-61
03/24/2011	7.6	44	320	1.1	55	53	0.57	161	<1.0	11	-70
08/12/2011	7.8	37	340	1.0	49	51	0.37	155	<1.0	13	-58
11/10/2011	7.6	38	324	<1.0	48	52	0.39	157	<1.0	11	-73
02/09/2012	7.9	33	318	<1.0	50	53	0.39	154	<1.0	11	-57
04/19/2012	7.6	34	316	<1.0	49	53	0.39	153	<1.0	12	-57
08/15/2012	-	-	218	10	48	51	0.41	-	1.0	-	-

TABLE 2-13 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-70 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
10/04/2012	7.0	49	328	<1.0	52	51	0.38	150	<1.0	13	-54
02/07/2013	8.1	24	-	1.0	47	-	0.39	162	<1.0	11	-52
07/25/2013	7.6	29	318	1.5	47	51	0.41	164	<1.0	19	-52
09/19/2013	7.4	38	318	<1.0	48	49	0.40	162	<1.0	11	-73

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-14: GROUNDWATER QUALITY DATA FOR WELL QM-71 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/05/1995	8.8	81	580	2.0	133	89	0.43	185	<1.0	10	-71
03/02/1995	8.2	83	490	2.0	142	84	0.42	212	<1.0	11	-81
05/11/1995	7.2	76	520	2.0	144	51	0.49	217	<1.0	12	-74
07/26/1995	7.5	77	488	2.0	130	81	0.47	229	<1.0	13	-73
09/28/1995	8.0	82	524	2.0	130	76	0.44	236	<1.0	14	-75
11/30/1995	9.2	96	474	4.0	123	78	0.46	223	<1.0	11	-74
01/11/1996	8.0	83	538	3.0	122	78	0.44	219	<1.0	10	-74
05/23/1996	8.1	75	532	4.0	127	80	0.45	229	<1.0	11	-70
07/11/1996	7.9	75	588	2.0	125	87	0.44	238	<1.0	13	-68
09/25/1996	8.0	48	576	2.0	128	82	0.45	225	<1.0	12	-67
05/08/1997	7.8	22	478	2.0	131	73	0.39	218	<1.0	9.0	-72
05/20/1999	7.6	29	562	2.0	123	75	0.39	215	<1.0	12	-63
11/18/1999	8.1	84	496	2.0	130	83	0.47	209	<1.0	11	-58
05/25/2000	8.0	82	516	5.0	133	76	0.45	219	<1.0	12	-59
12/21/2000	8.3	83	374	2.0	130	61	0.46	218	<1.0	11	-126
05/23/2001	7.5	58	494	2.0	126	74	0.46	228	<1.0	11	-54
11/28/2001	8.4	55	516	2.0	127	72	0.52	214	<1.0	11	-66
05/23/2002	8.1	78	486	2.0	128	73	0.46	213	<1.0	11	-62
11/20/2002	8.2	51	488	2.0	121	67	0.56	205	<1.0	13	-63
05/14/2003	6.8	57	504	3.0	124	72	0.44	212	<1.0	11	-66
11/26/2003	7.6	76	470	2.0	122	85	0.49	180	<1.0	11	-66
05/13/2004	7.4	43	508	2.0	121	81	0.45	194	<1.0	12	-64
11/18/2004	7.0	38	460	1.0	129	70	0.48	194	<1.0	12	-105
04/07/2005	7.6	47	478	2.0	130	69	0.44	201	<1.0	11	-66
06/02/2005	7.5	40	476	1.0	122	74	0.42	205	<1.0	12	-60
09/22/2005	7.9	64	412	0.90	118	71	0.43	205	<1.0	12	-56
03/30/2006	7.6	100	452	0.80	121	72	0.36	204	<1.0	11	-67
06/22/2006	7.8	84	502	0.80	124	79	0.39	205	<1.0	13	-52
12/21/2006	7.7	38	580	0.90	130	72	0.40	198	<1.0	11	-57
03/08/2007	8.0	59	496	0.80	128	67	0.40	205	<1.0	10	-55
06/14/2007	7.8	48	510	0.80	135	71	0.39	197	<1.0	12	-55
08/23/2007	7.8	83	512	0.70	117	62	0.51	207	1.0	13	-57
03/27/2008	7.5	44	456	0.60	133	73	0.44	207	<1.0	10	-59
07/24/2008	8.0	88	550	0.40	117	69	0.46	209	<1.0	12	-57
10/22/2008	8.0	36	482	<1.0	118	67	0.43	186	<1.0	11	-61
04/30/2009	7.9	41	510	<1.0	133	67	0.45	189	<1.0	15	-58
08/20/2009	7.9	49	510	<1.0	126	70	0.44	189	<1.0	13	-61
10/22/2009	7.4	48	486	<1.0	128	71	0.44	198	<1.0	11	-60
03/03/2010	6.8	37	434	1.0	124	33	0.43	183	<2.0	11	-60
07/22/2010	8.0	47	538	<1.0	122	64	0.47	160	<1.0	12	-63

TABLE 2-14 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-71 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/28/2010	8.1	46	388	<1.0	129	65	0.41	201	<1.0	12	-62
03/24/2011	7.7	90	314	1.0	48	53	0.24	159	<1.0	10	-61
08/12/2011	8.0	51	518	<1.0	128	68	0.43	195	<1.0	13	-63
11/10/2011	7.8	49	446	<1.0	131	65	0.34	191	<1.0	11	-62
02/09/2012	7.9	43	452	<1.0	127	67	0.47	192	<1.0	11	-60
04/19/2012	7.7	45	460	<1.0	131	69	0.45	202	<1.0	12	-55
08/15/2012	7.4	34	520	6.7	124	64	0.46	202	<1.0	13	-57
10/04/2012	7.1	85	464	<1.0	130	69	0.43	198	<1.0	11	-57
02/07/2013	7.7	30	-	<1.0	126	-	0.46	209	<1.0	11	-59
07/25/2013	7.7	38	482	<1.0	122	66	0.48	211	<1.0	14	-58
09/19/2013	7.6	38	506	<1.0	122	66	0.47	210	<1.0	10	-62

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-15: GROUNDWATER QUALITY DATA FOR WELL QM-72 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/05/1995	7.8	64	450	2.0	141	9.0	0.30	176	<1.0	10	-95
03/02/1995	8.2	65	398	1.0	140	15	0.30	214	<1.0	11	-95
05/11/1995	7.8	61	494	2.0	128	23	0.38	221	<1.0	12	-92
07/26/1995	7.4	61	470	2.0	121	16	0.35	233	<1.0	12	-84
09/28/1995	7.9	66	492	2.0	147	8.0	0.31	239	<1.0	14	-90
11/30/1995	9.4	70	384	2.0	134	11	0.32	225	<1.0	11	-89
01/11/1996	8.0	64	456	3.0	129	14	0.33	225	<1.0	10	-90
01/30/1996	7.4	90	446	4.0	129	7.0	0.35	223	<1.0	10	-91
05/23/1996	8.0	59	482	4.0	129	9.0	0.33	233	<1.0	11	-91
07/11/1996	8.2	61	560	3.0	132	15	0.32	244	<1.0	12	-90
09/25/1996	8.1	38	530	3.0	127	9.0	0.33	230	<1.0	12	-90
11/14/1996	8.3	64	420	3.0	131	16	0.25	236	<1.0	10	-92
01/30/1997	7.4	90	446	4.0	129	7.0	0.35	223	<1.0	10	-91
03/13/1997	7.7	63	478	1.0	125	8.0	0.32	225	<1.0	11	-90
05/08/1997	7.9	63	438	2.0	132	8.0	0.24	230	<1.0	9.0	-89
07/10/1997	7.3	60	500	2.0	130	12	0.40	232	<1.0	14	-86
09/18/1997	7.9	54	440	4.0	124	12	0.32	226	<1.0	13	-84
11/19/1997	7.7	66	274	1.0	133	18	<0.10	230	<1.0	11	-83
01/29/1998	7.5	59	428	2.0	132	11	0.21	244	<1.0	10	-83
03/05/1998	8.8	61	412	2.0	130	16	0.28	236	<1.0	11	-81
05/21/1998	8.1	61	500	1.0	127	12	0.25	240	<1.0	13	-94
07/16/1998	8.3	56	424	3.0	132	14	0.34	224	<1.0	15	-92
09/24/1998	8.4	59	544	2.0	131	10	0.27	231	-	13	-89
11/19/1998	8.8	59	400	2.0	135	14	0.24	217	<1.0	11	-89
01/28/1999	8.0	62	356	2.0	130	12	0.20	221	<1.0	12	-82
03/11/1999	7.9	56	370	2.0	131	8.0	0.28	224	<1.0	12	-90
05/20/1999	7.9	70	498	2.0	129	7.0	0.22	226	<1.0	12	-90
07/28/1999	8.4	65	490	3.0	133	11	0.30	236	<1.0	13	-88
09/30/1999	8.0	71	444	2.0	135	3.0	0.26	225	<1.0	12	-86
11/18/1999	7.9	69	446	2.0	123	4.0	0.34	220	<1.0	12	-85
01/12/2000	8.1	66	416	5.0	130	6.0	0.35	220	<1.0	11	-84
03/23/2000	8.1	68	484	2.0	132	6.0	0.36	221	<1.0	11	-83
05/25/2000	8.4	69	478	5.0	131	10	0.33	224	<1.0	12	-85
07/26/2000	7.8	51	506	2.0	134	8.0	0.37	230	<1.0	12	-82
09/28/2000	8.2	73	498	2.0	131	9.0	0.37	227	<1.0	12	-79
11/16/2000	7.0	70	432	2.0	124	3.0	0.38	227	<1.0	11	-78
01/11/2001	7.9	81	386	2.0	127	1.0	0.36	235	<1.0	11	-78
03/29/2001	7.0	52	344	2.0	131	1.0	0.37	264	<1.0	11	-78
05/23/2001	7.3	66	420	1.0	122	<1.0	0.33	237	<1.0	11	-77
07/26/2001	7.1	51	430	1.0	122	2.0	0.42	230	<1.0	12	-77

TABLE 2-15 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-72 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/13/2001	7.4	66	282	2.0	127	<1.0	0.33	234	<1.0	12	-87
11/28/2001	8.7	68	424	2.0	132	102	34	230	<1.0	11	-85
01/24/2002	7.5	72	360	3.0	124	<5.0	0.31	272	<1.0	11	-84
03/21/2002	8.2	67	392	3.0	138	<5.0	0.29	227	<1.0	10	-83
05/23/2002	8.2	63	408	2.0	126	2.0	0.33	223	<1.0	12	-87
07/18/2002	7.2	67	548	2.0	139	6.0	0.47	219	<1.0	12	-83
09/12/2002	7.2	64	492	2.0	125	10	0.55	220	<1.0	12	-86
11/20/2002	8.0	67	500	3.0	142	2.0	0.48	214	<1.0	13	-73
01/23/2003	7.5	68	358	2.0	131	6.0	0.43	209	<1.0	9.0	-75
03/06/2003	7.1	26	388	2.0	127	1.0	0.42	223	<1.0	11	-74
05/14/2003	6.7	67	470	2.0	143	2.0	0.34	216	<1.0	11	-74
07/17/2003	6.7	64	462	2.0	138	1.0	0.36	219	<1.0	13	-81
09/11/2003	7.0	70	536	2.0	125	<5.0	0.39	217	<1.0	12	-79
11/26/2003	7.6	65	418	2.0	136	2.0	0.44	201	<1.0	11	-79
01/08/2004	7.1	24	396	2.0	125	<5.0	0.40	216	<1.0	10	-77
03/04/2004	7.7	68	430	2.0	133	1.0	0.43	230	<1.0	11	-74
05/13/2004	7.7	38	476	2.0	127	<5.0	0.33	204	<1.0	12	-76
07/29/2004	7.6	58	480	2.0	131	1.0	0.40	211	<1.0	12	-73
09/23/2004	7.1	69	382	1.0	126	1.0	0.40	207	<1.0	12	-72
11/18/2004	7.2	35	390	1.0	139	1.0	0.37	204	<1.0	12	-74
01/27/2005	7.5	36	400	2.0	136	2.0	0.39	217	<1.0	10	-79
04/21/2005	7.5	51	378	1.0	127	1.0	0.41	212	<1.0	11	-72
06/22/2005	7.5	38	512	0.40	132	1.0	0.37	211	<1.0	12	-68
08/25/2005	-	-	416	0.80	118	-	0.36	-	<1.0	-	-
10/27/2005	-	-	408	0.70	123	<5.0	0.08	-	<1.0	-	-
12/08/2005	-	-	392	0.70	123	4.0	0.36	-	<1.0	-	-
02/09/2006	7.2	30	358	0.80	127	2.0	0.37	208	<1.0	10	-66
08/24/2006	7.8	67	544	0.50	124	1.0	0.29	210	<1.0	16	-65
11/16/2006	7.9	69	406	0.70	126	1.0	0.32	207	<1.0	11	-72
03/08/2007	7.2	63	436	0.80	137	1.0	0.29	213	<1.0	11	-74
06/07/2007	7.9	50	458	0.60	131	1.0	0.28	205	<1.0	13	-74
12/13/2007	7.5	24	466	0.50	131	2.0	0.35	223	<1.0	11	-72
03/27/2008	7.5	38	428	0.60	135	3.0	0.35	215	<1.0	10	-78
07/24/2008	7.4	70	538	0.60	119	-	0.37	212	<1.0	13	-78
10/22/2008	7.8	69	448	<1.0	125	1.0	0.32	198	<1.0	11	-78
04/30/2009	7.6	35	458	1.0	135	2.0	0.34	201	<1.0	12	-66
08/20/2009	7.9	45	438	<1.0	132	2.0	0.35	199	<1.0	14	-77
10/22/2009	7.5	38	410	<1.0	141	3.0	0.37	208	<1.0	12	-75
03/03/2010	7.3	33	388	<1.0	127	3.0	0.34	216	<1.0	11	-77
07/22/2010	6.9	39	448	<1.0	124	1.0	0.37	181	<1.0	13	-81

TABLE 2-15 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-72 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/28/2010	7.9	40	352	1.0	134	2.0	0.32	217	<1.0	13	-79
03/24/2011	7.8	33	346	<1.0	121	2.0	0.25	219	<1.0	11	-82
05/12/2011	-	-	428	<1.0	126	1.0	0.32	-	<1.0	-	-
07/21/2011	7.6	42	466	<1.0	133	2.0	0.35	215	<1.0	14	-81
11/10/2011	7.8	42	382	<1.0	139	2.0	0.33	216	<1.0	11	-82
02/09/2012	8.0	35	374	1.0	121	<5.0	0.40	209	<1.0	11	-82
08/15/2012	7.3	34	472	10	128	<5.0	0.38	212	<1.0	13	-75
10/04/2012	7.3	33	432	1.0	134	<5.0	0.34	215	1.0	12	-77
02/07/2013	7.4	25	418	<1.0	124	<5.0	0.39	212	<1.0	12	-75
07/25/2013	7.7	35	464	1.3	123	<5.0	0.40	230	<1.0	13	-79
09/19/2013	7.3	42	514	1.0	126	<5.0	0.39	227	<1.0	10	-82

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-16: GROUNDWATER QUALITY DATA FOR WELL QM-73 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/12/1995	8.2	51	338	2.0	46	12	0.30	129	<1.0	11	-130
03/16/1995	8.2	54	338	3.0	39	21	0.31	109	<1.0	12	-128
05/25/1995	8.3	50	378	3.0	36	25	0.28	149	<1.0	12	-126
07/12/1995	9.3	49	346	3.0	40	22	0.36	142	<1.0	14	-124
09/21/1995	7.4	58	338	4.0	42	9.0	0.32	145	<1.0	12	-126
11/30/1995	7.7	58	362	8.0	42	11	0.34	148	<1.0	10	-124
01/18/1996	8.0	53	336	6.0	54	11	0.31	157	<1.0	12	-127
05/09/1996	8.1	52	400	5.0	57	12	0.33	155	<1.0	12	-127
07/18/1996	7.9	52	354	3.0	56	22	0.31	155	<1.0	12	-125
09/26/1996	8.1	31	344	11	57	9.0	0.20	151	<1.0	12	-125
05/22/1997	8.2	50	300	7.0	43	7.0	0.24	154	<1.0	9.0	-124
05/06/1999	7.7	42	294	8.0	43	10	0.24	156	<1.0	13	-136
11/17/1999	8.2	53	442	2.0	54	5.0	0.39	162	<1.0	11	-130
05/17/2000	7.9	54	312	9.0	47	9.0	0.36	166	<1.0	12	-135
12/14/2000	7.2	53	374	2.0	16	61	0.25	48	<1.0	11	-126
05/24/2001	7.7	50	310	5.0	40	2.0	0.34	169	<1.0	12	-121
11/07/2001	7.1	52	360	3.0	44	1.0	0.29	161	<1.0	12	-125
05/16/2002	5.2	47	314	4.0	40	4.0	0.31	149	<1.0	15	-86
11/07/2002	7.1	50	318	4.0	45	8.0	0.42	147	<1.0	12	-127
05/21/2003	7.4	47	378	3.0	41	4.0	0.45	158	<1.0	12	-112
11/12/2003	7.9	32	308	4.0	40	4.0	0.21	145	<1.0	12	-117
05/20/2004	7.5	51	282	3.0	36	1.0	0.27	150	<1.0	12	-109
11/18/2004	8.0	51	310	3.0	38	2.0	0.26	142	<1.0	12	-108
06/02/2005	7.7	27	340	3.0	45	2.0	0.24	152	<1.0	12	-111
09/22/2005	8.1	40	244	1.3	43	1.0	0.24	147	<1.0	14	-110
03/30/2006	7.7	49	272	1.1	43	1.0	0.16	156	<1.0	12	-147
06/22/2006	7.7	51	352	8.7	44	2.0	0.17	148	<1.0	13	-153
07/27/2006	7.7	49	272	1.1	32	2.0	0.19	147	<1.0	13	-155
03/08/2007	7.8	48	310	1.1	37	1.0	0.23	151	<1.0	11	-150
06/28/2007	7.8	40	318	1.3	43	3.0	0.24	143	<1.0	13	-162
12/13/2007	7.8	37	298	1.0	48	3.0	0.23	150	<1.0	11	-162
03/27/2008	7.7	30	290	1.0	35	3.0	0.24	152	<1.0	11	-166
07/24/2008	7.6	30	298	0.70	30	<2.0	0.25	152	<1.0	13	-161
11/13/2008	7.8	25	304	1.0	34	2.0	0.24	135	1.0	12	-161
03/26/2009	8.1	44	286	1.4	34	1.0	0.27	142	<1.0	12	-125
06/18/2009	7.9	54	304	1.3	37	2.0	0.27	139	<1.0	14	-153
08/27/2009	7.9	33	310	1.4	36	2.0	0.23	142	<1.0	13	-164
03/25/2010	7.8	36	278	1.2	34	2.0	0.28	166	<1.0	11	-165
07/29/2010	7.7	35	440	1.0	33	2.0	0.31	132	<1.0	14	-145
11/18/2010	7.8	29	274	1.3	37	<2.0	0.30	142	<1.0	11	-167

TABLE 2-16 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-73 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/24/2011	7.5	32	270	1.3	36	3.0	0.15	154	<1.0	11	-142
05/12/2011	8.1	44	284	1.1	32	3.0	0.16	146	<1.0	13	-167
07/21/2011	7.9	34	268	1.2	35	2.0	0.26	154	<1.0	15	-165
04/19/2012	7.7	44	290	1.1	37	<5.0	0.29	153	<1.0	12	-164
06/07/2012	7.7	27	364	1.2	34	<5.0	0.25	151	<1.0	20	-166
08/16/2012	7.5	34	282	7.7	35	<5.0	0.24	154	<1.0	14	-153
11/29/2012	7.8	41	322	1.1	36	<5.0	0.34	157	<1.0	11	-155
04/11/2013	7.7	28	296	1.3	41	<5.0	0.31	168	<1.0	13	-166
08/22/2013	7.8	38	302	1.4	34	<5.0	0.34	163	<1.0	14	-136
10/30/2013	7.9	37	280	1.3	35	<5.0	0.35	162	<1.0	12	-161

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-17: GROUNDWATER QUALITY DATA FOR WELL QM-74 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
01/12/1995	8.5	40	260	3.0	55	14	0.23	72	<1.0	11	-42
03/16/1995	8.6	46	252	2.0	54	12	0.22	63	<1.0	11	-42
05/25/1995	8.9	41	562	2.0	55	22	0.23	100	<1.0	13	-42
07/12/1995	6.6	41	306	3.0	52	50	0.27	101	<1.0	14	-40
09/21/1995	6.9	45	262	3.0	53	14	0.26	99	<1.0	11	-38
11/30/1995	7.3	46	364	3.0	51	14	0.25	102	<1.0	10	-34
01/18/1996	8.4	43	238	5.0	66	13	0.23	104	<1.0	12	-35
05/09/1996	8.4	42	340	5.0	49	11	0.24	101	<1.0	14	-32
07/18/1996	8.3	41	266	3.0	48	22	0.22	101	<1.0	12	-31
09/26/1996	8.4	28	264	4.0	45	10	0.33	101	<1.0	12	-31
05/22/1997	8.4	40	272	2.0	48	9.0	0.19	98	<1.0	9.0	-28
05/06/1999	8.3	35	278	2.0	50	11	0.17	97	<1.0	13	-28
11/17/1999	8.5	43	266	2.0	46	9.0	0.27	95	<1.0	11	-24
05/17/2000	7.0	35	280	4.0	50	10	0.29	105	<1.0	12	-25
05/24/2001	7.8	31	258	2.0	10	2.0	0.30	103	<1.0	11	-41
05/16/2002	5.4	34	328	3.0	48	3.0	0.25	93	<1.0	12	-20
11/07/2002	7.0	41	266	3.0	54	6.0	0.34	91	<1.0	11	-23
05/21/2003	7.2	43	294	3.0	51	2.0	0.26	98	<1.0	11	-68
11/12/2003	8.4	28	266	3.0	45	2.0	0.23	92	<1.0	12	-23
05/20/2004	7.9	43	266	2.0	53	1.0	0.25	93	<1.0	12	-21
11/18/2004	8.0	44	260	2.0	50	2.0	0.26	89	<1.0	12	-20
04/14/2005	7.0	30	288	2.0	47	2.0	0.15	93	<1.0	11	-24
06/02/2005	8.0	23	256	2.0	49	1.0	0.22	94	<1.0	12	-20
08/04/2005	7.1	40	248	1.1	50	3.0	0.22	93	<1.0	12	-6
04/27/2006	7.9	35	408	1.2	50	3.0	0.13	93	<1.0	12	-22
06/22/2006	8.1	45	282	1.1	49	2.0	0.18	94	<1.0	14	-64
07/27/2006	8.1	45	232	1.2	50	1.0	0.20	96	<1.0	12	-55
03/08/2007	8.2	40	252	1.2	48	-	0.19	95	<1.0	11	-55
06/28/2007	8.0	34	248	1.7	49	2.0	0.14	90	<1.0	12	-19
08/30/2007	7.9	28	236	1.2	52	1.0	0.21	93	<1.0	12	-27
03/27/2008	7.8	23	226	1.2	49	1.0	0.23	99	<1.0	11	-17
07/24/2008	7.7	28	266	0.90	43	<2.0	0.23	98	<1.0	12	-20
09/18/2008	8.0	27	242	<1.0	43	8.0	0.19	96	<1.0	13	-19
06/18/2009	8.2	44	276	1.6	52	1.0	0.23	91	<1.0	13	-30
08/27/2009	8.1	32	248	1.7	48	1.0	0.16	92	<1.0	12	-18
03/25/2010	8.3	31	240	1.5	50	1.0	0.25	105	<1.0	11	-16
07/29/2010	7.9	28	418	1.4	50	2.0	0.19	82	2.0	12	-26
11/18/2010	8.0	29	256	1.4	52	2.0	0.23	98	<1.0	11	-25
03/24/2011	8.1	30	242	1.6	52	1.0	0.12	102	<1.0	10	-26
05/12/2011	8.1	40	246	1.4	48	1.0	0.18	100	<1.0	12	-12

TABLE 2-17 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-74 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
07/21/2011	7.8	31	286	1.4	54	1.0	0.22	101	<1.0	12	-13
04/19/2012	8.0	41	254	1.3	55	18	0.23	103	<1.0	12	-13
06/07/2012	8.1	27	320	1.4	53	<5.0	0.20	102	<1.0	15	-13
08/16/2012	7.9	26	256	8.9	54	<5.0	0.24	99	<1.0	13	-34
11/29/2012	7.9	30	280	1.2	57	<5.0	0.29	100	<1.0	11	-34
04/11/2013	8.0	27	254	1.7	15	<5.0	0.28	117	<1.0	13	-13
08/22/2013	8.0	35	292	1.5	53	<5.0	0.17	113	<1.0	13	-13
10/30/2013	8.0	35	262	1.9	56	<5.0	0.22	111	<1.0	12	-14

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-18: GROUNDWATER QUALITY DATA FOR WELL QM-75 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/12/1995	8.6	36	236	2.0	18	22	0.26	38	<1.0	11	-47
03/16/1995	8.6	36	236	2.0	18	14	0.25	32	<1.0	13	-54
05/25/1995	8.9	36	260	1.0	12	19	0.33	63	<1.0	13	-55
07/12/1995	6.1	31	252	3.0	11	19	0.28	64	<1.0	15	-54
09/21/1995	8.7	38	234	2.0	14	17	0.27	60	<1.0	12	-55
11/30/1995	7.8	38	224	4.0	11	16	0.27	62	<1.0	10	-54
01/18/1996	8.7	34	258	4.0	19	18	0.22	65	<1.0	12	-52
05/09/1996	8.4	35	288	4.0	12	15	0.25	63	<1.0	12	-53
07/18/1996	8.6	32	300	3.0	11	12	0.24	67	<1.0	12	-52
09/26/1996	8.6	22	254	3.0	11	14	0.26	62	<1.0	12	-51
05/22/1997	8.7	32	240	2.0	11	13	0.17	64	<1.0	10	-48
05/06/1999	8.8	30	242	2.0	11	13	0.20	60	<1.0	13	-61
11/17/1999	8.3	38	266	2.0	12	17	0.27	71	<1.0	11	-53
05/17/2000	7.0	35	254	6.0	12	14	0.29	68	<1.0	12	-58
12/14/2000	7.5	39	226	2.0	11	11	0.28	65	<1.0	11	-53
05/24/2001	7.9	27	266	2.0	47	12	0.28	69	<1.0	12	-50
11/07/2001	8.6	29	234	2.0	15	11	0.27	64	8.0	12	-65
05/16/2002	5.1	38	264	2.0	16	12	0.27	62	200	13	-35
11/07/2002	7.1	38	248	2.0	16	19	0.34	20	<1.0	12	-62
05/21/2003	7.5	37	278	3.0	17	13	0.35	63	<1.0	12	-67
11/12/2003	8.3	25	240	2.0	14	13	0.23	61	<1.0	12	-65
05/20/2004	8.2	35	280	2.0	16	11	0.26	60	<1.0	12	-57
11/18/2004	7.8	37	242	1.0	17	12	0.28	59	<1.0	12	-54
03/17/2005	7.4	24	206	2.0	9.0	12	0.22	64	1.0	11	-61
04/28/2005	7.8	22	244	1.0	12	14	0.25	63	<1.0	11	-61
06/16/2005	7.4	29	246	2.0	12	12	0.23	62	<1.0	12	-63
08/18/2005	8.4	27	258	0.70	16	13	0.20	61	<1.0	13	-59
10/20/2005	7.1	29	236	0.80	15	10	0.22	60	<1.0	12	-56
12/08/2005	7.9	28	228	0.70	14	11	0.19	62	<1.0	10	-59
02/09/2006	7.5	36	202	0.80	23	20	0.22	61	<1.0	12	-57
03/30/2006	7.8	35	186	0.70	14	11	0.16	64	<1.0	12	-58
09/14/2006	7.5	19	260	0.60	21	10	0.42	62	<1.0	12	-57
01/31/2007	7.5	33	194	0.90	13	9.0	0.29	50	<1.0	10	-55
03/08/2007	8.3	26	226	0.60	14	10	0.20	61	<1.0	11	-62
04/12/2007	8.3	26	262	0.50	12	12	0.34	61	<1.0	11	-61
06/14/2007	7.9	25	240	0.70	13	9.0	0.20	62	<1.0	12	-64
08/09/2007	7.9	20	236	0.70	14	8.0	0.24	64	<1.0	13	-62
10/25/2007	7.4	34	212	0.60	13	10	0.24	59	1.0	12	-64
02/07/2008	8.1	34	166	0.50	23	12	0.61	66	<1.0	10	-67
04/23/2008	7.8	26	244	0.60	13	14	0.26	60	<1.0	12	-65

TABLE 2-18 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-75 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
06/19/2008	8.6	37	240	0.50	12	9.0	0.25	61	<1.0	11	-64
07/17/2008	8.3	38	208	0.40	11	11	0.25	60	<1.0	13	-65
08/28/2008	7.8	32	216	<1.0	11	7.0	0.27	58	6.0	12	-58
09/18/2008	8.3	24	212	<1.0	15	19	0.24	61	2100	12	-38
01/29/2009	8.0	38	230	0.9	14	11	0.25	63	<1.0	11	-66
03/26/2009	8.2	40	224	<1.0	14	10	0.23	61	9.0	13	-64
05/21/2009	7.9	36	198	1.0	15	11	0.23	56	2.0	14	-67
06/18/2009	8.1	40	222	<1.0	14	8.0	0.25	57	<1.0	13	-63
07/23/2009	8.2	26	268	<1.0	13	42	0.24	56	3.0	12	-67
09/24/2009	7.6	35	236	<1.0	13	8.0	0.21	61	<1.0	12	-68
01/21/2010	7.7	28	218	<1.0	<10	6.0	0.27	62	<1.0	11	-70
03/25/2010	8.4	26	214	<1.0	<15	7.0	0.26	67	<1.0	10	-69
07/29/2010	7.9	25	428	<1.0	16	3.0	0.31	59	2600	13	-62
10/28/2010	8.0	28	208	1.0	16	9.0	0.22	65	<1.0	12	-72
11/18/2010	8.2	24	230	<1.0	<15	8.0	0.27	59	<1.0	12	-72
12/09/2010	7.4	31	234	<1.0	<15	12	0.23	64	<1.0	10	-68
01/27/2011	7.3	27	226	<1.0	12	9.0	0.26	70	<1.0	10	-70
03/24/2011	7.5	30	212	1.0	13	12	0.10	66	1.0	11	-66
05/12/2011	8.1	33	222	1.0	10	10	0.19	61	20	12	-73
07/21/2011	7.8	25	316	<1.0	13	9.0	0.28	63	<1.0	13	-74
11/03/2011	7.9	24	246	<1.0	15	8.0	0.27	59	<1.0	11	-74
12/15/2011	7.7	31	202	<1.0	13	10	0.23	61	3.0	12	-68
01/25/2012	8.2	22	226	<1.0	12	10	0.29	64	<1.0	12	-71
03/08/2012	7.9	29	228	<1.0	16	10	0.28	62	<1.0	12	-73
05/23/2012	8.2	28	220	1.0	12	9.0	0.28	63	2.0	13	-74
07/12/2012	8.2	14	304	1.1	13	13	0.21	61	<1.0	14	-74
09/13/2012	8.1	24	244	10	12	10	0.25	61	<1.0	13	-78
11/01/2012	7.8	30	208	<1.0	13	10	0.24	72	<1.0	12	-78
01/31/2013	8.5	28	226	<1.0	12	15	0.18	707	<1.0	8.0	-77
04/11/2013	7.4	24	216	<1.0	15	9.0	0.27	73	8.0	12	-62
06/13/2013	8.0	17	234	<1.0	10	12	0.23	69	4.0	12	-78
09/19/2013	7.8	25	222	<1.0	12	11	0.24	66	<1.0	12	-62
10/09/2013	8.2	27	216	<1.0	13	8.0	0.28	64	40	12	-62
11/07/2013	8.4	28	288	<1.0	14	6.0	0.29	64	270	12	-81

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-19: GROUNDWATER QUALITY DATA FOR WELL QM-76 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/16/1995	8.6	61	376	2.0	14	65	0.20	27	<1.0	13	-179
05/25/1995	8.3	54	396	2.0	12	39	0.24	51	<1.0	12	-172
07/12/1995	6.3	52	238	3.0	10	52	0.23	54	1.0	15	-168
09/21/1995	8.8	58	400	2.0	13	55	0.09	52	<1.0	12	-158
11/30/1995	8.7	55	422	3.0	12	51	0.25	52	<1.0	10	-141
01/18/1996	8.7	52	417	5.0	13	60	0.19	49	<1.0	12	-143
05/09/1996	8.4	52	366	3.0	10	54	0.25	46	<1.0	13	-132
07/18/1996	8.9	49	382	4.0	10	79	0.25	44	<1.0	14	-129
09/26/1996	8.7	47	362	3.0	10	65	0.29	44	<1.0	12	-124
05/22/1997	9.0	49	360	3.0	12	46	0.36	36	<1.0	9.0	-119
05/06/1999	8.8	45	364	3.0	14	50	0.25	36	<1.0	14	-134
11/17/1999	9.1	53	424	2.0	11	61	0.31	40	<1.0	11	-115
05/17/2000	7.2	35	234	7.0	11	11	0.34	52	<1.0	12	-113
12/14/2000	7.5	54	298	3.0	47	4.0	0.33	162	<1.0	13	-105
05/24/2001	8.8	36	344	2.0	10	58	0.27	48	<1.0	12	-110
11/07/2001	8.7	44	306	2.0	11	74	0.24	47	<1.0	12	-101
05/16/2002	5.6	39	338	3.0	13	43	0.24	36	<1.0	12	-97
11/07/2002	7.8	24	342	2.0	11	65	0.35	42	<1.0	11	-131
05/21/2003	8.0	34	368	3.0	12	85	0.21	54	<1.0	12	-115
11/12/2003	8.5	40	354	3.0	11	89	0.18	55	<1.0	12	-120
05/20/2004	7.9	51	330	2.0	12	71	0.23	45	<1.0	13	-114
11/18/2004	8.5	48	308	2.0	12	22	0.27	30	<1.0	12	-108
04/14/2005	7.0	41	444	2.0	29	97	0.17	65	<1.0	12	-187
08/04/2005	7.2	40	364	0.80	15	94	0.18	62	<1.0	13	-108
09/22/2005	8.4	48	330	0.90	14	91	0.15	70	<1.0	14	-123
07/27/2006	9.0	51	330	0.80	17	49	0.24	34	<1.0	16	-181
11/30/2006	8.7	48	260	0.70	13	63	0.14	45	<1.0	12	-180
01/31/2007	7.4	53	342	0.80	12	66	0.25	58	<1.0	10	-180
04/12/2007	8.5	38	330	0.60	12	75	0.36	58	<1.0	11	-182
08/09/2007	8.1	34	360	0.90	13	61	0.22	53	<1.0	13	-187
04/23/2008	7.7	32	362	0.80	14	72	0.22	54	<1.0	12	-184
07/24/2008	7.5	36	368	0.50	11	80	0.21	64	<1.0	13	-186
03/26/2009	9.2	40	274	1.0	15	15	0.31	24	<1.0	12	-155
06/18/2009	8.2	48	394	1.1	13	65	0.20	50	<1.0	13	-182
07/23/2009	8.1	41	368	<1.0	12	63	0.20	64	3.0	13	-184
05/20/2010	9.0	30	304	1.2	<15	18	0.32	23	1.0	13	-181
07/29/2010	8.0	33	564	<1.0	<15	42	0.27	43	<1.0	14	-177
12/09/2010	7.3	32	286	<1.0	<15	24	0.27	31	<1.0	11	-184
03/24/2011	8.4	33	344	1.0	12	85	0.09	70	<1.0	11	-187

TABLE 2-19 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-76 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
05/12/2011	7.7	51	334	1.1	10	60	0.18	68	<1.0	14	-187
07/28/2011	7.8	37	432	<1.0	<10	61	0.17	62	19	12	-184
04/19/2012	8.5	40	292	1.0	13	47	0.31	37	<1.0	12	-187
06/07/2012	7.8	32	440	1.0	12	80	0.19	73	<1.0	14	-188
08/16/2012	-	-	354	5.5	11	70	0.20	-	<1.0	-	-
10/04/2012	7.7	28	326	1.1	12	58	0.18	64	<1.0	13	-183
04/11/2013	7.8	32	304	1.0	15	46	0.36	46	<1.0	13	187
09/18/2013	8.2	41	328	<1.0	12	17	0.28	42	<1.0	13	187
10/09/2013	8.7	36	292	<1.0	14	16	0.32	34	<1.0	13	185

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-20: GROUNDWATER QUALITY DATA FOR WELL QM-77 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/19/1995	8.3	29	208	1.0	17	28	0.17	51	<1.0	11	-6.0
03/30/1995	8.5	29	244	2.0	18	29	0.14	46	<1.0	11	-85
05/18/1995	8.2	29	190	2.0	14	22	0.16	46	<1.0	11	-145
07/27/1995	7.7	28	378	1.0	12	22	0.15	44	<1.0	13	-153
09/27/1995	6.7	28	184	2.0	13	17	0.12	47	<1.0	10	-152
11/08/1995	8.2	29	184	4.0	12	14	0.14	41	<1.0	10	-152
01/31/1996	8.3	26	132	1.0	15	13	0.20	46	<1.0	10	-154
05/16/1996	8.6	28	214	4.0	12	10	0.15	46	<1.0	11	-150
07/24/1996	8.4	31	176	3.0	12	12	0.13	44	2.0	13	-151
09/26/1996	8.8	32	186	3.0	11	10	0.13	42	<1.0	12	-152
05/29/1997	8.4	27	196	2.0	13	7.0	0.09	46	<1.0	10	-148
05/13/1999	8.5	33	174	4.0	6.0	11	0.09	48	3.0	12	-173
11/03/1999	8.7	31	204	2.0	11	9.0	0.17	45	<1.0	11	-167
05/18/2000	8.4	30	190	7.0	11	11	0.18	45	6.0	12	-171
12/07/2000	8.7	21	238	3.0	10	4.0	0.17	43	<1.0	11	-165
05/31/2001	8.3	20	214	1.0	13	1.0	0.19	47	<1.0	12	-166
11/28/2001	6.2	14	164	2.0	10	3.0	0.15	42	4.0	11	-173
05/02/2002	7.6	24	237	3.0	16	11	0.12	41	<1.0	12	-174
11/27/2002	8.8	28	242	3.0	12	8.0	0.15	41	<1.0	10	-167
06/26/2003	7.7	29	212	2.0	14	<2.0	0.15	43	<1.0	12	-178
11/19/2003	8.3	25	182	2.0	11	2.0	0.13	37	<1.0	12	-173
05/19/2004	8.5	24	182	3.0	12	<2.0	0.13	37	<1.0	12	-172
12/02/2004	7.2	19	209	1.0	14	2.0	0.21	39	<1.0	11	-169
04/14/2005	7.0	21	224	4.0	11	3.0	0.13	42	<1.0	12	-174
08/04/2005	7.2	24	186	0.40	10	3.0	0.10	37	<1.0	12	-166
09/22/2005	8.4	22	148	0.40	11	1.0	0.14	41	<1.0	13	-167
04/27/2006	8.6	21	210	0.70	14	2.0	0.13	37	<1.0	12	-170
07/27/2006	8.4	28	194	0.40	11	2.0	0.15	39	<1.0	13	-168
11/30/2006	8.4	26	114	0.80	11	3.0	0.05	41	<1.0	10	-155
01/31/2007	7.5	26	156	2.4	11	2.0	0.16	43	1.0	10	-174
04/12/2007	8.0	18	204	0.90	11	2.0	0.22	42	<1.0	10	-171
08/09/2007	7.9	21	190	0.70	11	1.0	0.11	40	<1.0	13	-176
02/07/2008	8.4	24	92	1.7	4.0	2.0	0.14	41	<1.0	10	-184
04/23/2008	7.7	20	200	1.7	11	3.0	0.15	40	<1.0	12	-182
09/18/2008	8.4	23	170	1.0	11	3.0	0.13	41	8700	13	-122
03/26/2009	8.4	25	172	1.4	13	2.0	0.14	41	80	12	-180
07/23/2009	8.0	20	206	1.7	11	1.0	0.19	40	4.0	13	-180
08/27/2009	8.3	20	172	<1.0	11	3.0	0.14	40	<1.0	13	-181
03/25/2010	8.2	21	164	2.5	<15	<2.0	0.08	46	<1.0	13	-182
05/20/2010	7.8	19	182	1.0	<15	3.0	0.04	42	70	13	-181

TABLE 2-20 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-77 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
07/29/2010	7.9	20	328	3.4	<15	2.0	0.13	38	6400	15	-179
03/24/2011	8.1	19	150	<1.0	11	8.0	<0.10	43	5.0	10	-184
05/12/2011	8.3	23	156	<1.0	<10	2.0	0.11	41	70	13	-184
07/28/2011	7.1	20	248	<1.0	<10	2.0	0.12	42	730	12	-169
04/19/2012	7.0	25	284	<1.0	10	<5.0	<0.10	47	<1.0	12	-179
06/07/2012	7.8	24	154	<1.0	10	<5.0	<0.10	46	<1.0	14	-182
08/16/2012	-	-	180	12	10	<5.0	0.14	-	<1.0	-	-
10/04/2012	7.9	14	148	<1.0	10	<5.0	0.10	43	<1.0	13	-182
04/11/2013	7.4	21	162	<1.0	13	<5.0	0.16	50	8.0	11	-174
09/18/2013	8.1	22	188	<1.0	11	<5.0	<0.10	47	<1.0	14	-177
10/09/2013	8.0	18	138	<1.0	10	<5.0	<0.10	48	22	12	-174

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-21: GROUNDWATER QUALITY DATA FOR WELL QM-78 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/19/1995	8.7	64	418	1.0	18	135	0.15	7.0	<1.0	11	-21
03/30/1995	8.6	65	444	2.0	19	120	0.12	9.0	<1.0	11	-40
05/18/1995	8.6	86	388	2.0	16	93	0.12	13	<1.0	11	-25
07/27/1995	8.5	63	532	2.0	14	79	0.12	12	<1.0	12	-48
09/27/1995	6.9	32	398	2.0	15	79	0.09	13	<1.0	10	-55
11/08/1995	8.2	63	444	6.0	14	69	0.11	12	<1.0	11	-57
01/31/1996	8.4	66	306	1.0	18	71	0.11	14	<1.0	10	-60
05/16/1996	8.8	59	436	5.0	14	77	0.11	12	<1.0	12	-152
07/24/1996	9.0	61	418	6.0	13	71	0.10	13	1.0	12	-64
09/26/1996	9.0	57	400	3.0	13	70	0.10	10	15	12	-65
05/29/1997	8.8	58	398	2.0	13	64	0.05	10	<1.0	9.0	-66
05/13/1999	9.3	62	354	1.0	8.0	68	0.07	11	<1.0	12	-65
11/03/1999	8.8	61	354	2.0	13	72	0.10	13	<1.0	11	-66
05/18/2000	8.8	63	382	5.0	14	71	0.15	12	<1.0	12	-65
12/07/2000	9.0	59	382	1.0	12	72	0.14	13	<1.0	11	-159
05/31/2001	9.0	59	386	1.0	14	68	0.15	13	<1.0	12	-64
11/28/2001	6.2	36	380	1.0	13	71	0.12	9.0	<1.0	12	-65
05/02/2002	7.4	59	198	2.0	20	75	0.09	11	<1.0	11	-70
11/27/2002	9.4	56	244	2.0	12	69	0.10	13	<1.0	10	-162
06/26/2003	7.8	52	368	2.0	12	72	0.08	14	<1.0	12	-68
11/19/2003	8.8	58	358	2.0	13	88	0.14	10	<1.0	12	-66
05/19/2004	8.6	55	341	1.0	14	76	0.07	10	<1.0	12	-65
12/02/2004	7.2	43	372	1.0	14	63	0.10	10	<1.0	11	-152
03/17/2005	7.6	34	312	2.0	17	62	0.10	3.0	<1.0	11	-66
04/28/2005	7.5	32	342	1.0	13	75	0.11	11	<1.0	11	-158
06/16/2005	7.5	43	370	2.0	13	60	0.09	12	<1.0	11	-67
08/18/2005	7.8	38	332	0.30	13	57	0.06	10	<1.0	12	-158
10/20/2005	7.6	43	358	0.40	13	53	0.08	11	<1.0	12	-63
12/08/2005	8.1	41	362	0.40	13	56	0.08	10	<1.0	10	-161
02/09/2006	7.4	42	348	0.40	13	88	0.10	11	<1.0	11	-147
03/23/2006	7.5	30	352	0.20	13	54	<0.02	10	<1.0	10	-151
06/01/2006	7.7	54	290	0.20	19	54	0.08	11	<1.0	12	-154
06/21/2006	7.7	54	352	0.20	14	59	0.04	11	<1.0	12	-154
08/24/2006	8.9	53	336	0.20	24	55	0.05	11	<1.0	19	-155
09/14/2006	7.6	33	322	0.10	13	47	0.31	10	<1.0	12	-154
03/01/2007	9.1	39	430	0.30	45	49	0.05	10	<1.0	11	-153
03/29/2007	8.1	32	474	0.20	52	52	0.02	10	<1.0	11	-157
05/03/2007	7.5	50	312	0.30	15	44	0.03	10	<1.0	12	-155
06/28/2007	8.8	39	336	0.20	13	49	<0.02	10	<1.0	12	-157

TABLE 2-21 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-78 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/09/2007	8.1	34	342	0.20	12	43	0.06	11	<1.0	12	-154
10/25/2007	7.4	46	310	0.20	13	44	0.07	10	<1.0	11	-158
02/07/2008	8.3	41	206	0.20	14	49	0.09	10	<1.0	11	-160
04/23/2008	7.8	31	328	0.30	13	51	0.07	10	<1.0	12	-156
06/19/2008	8.1	61	324	0.30	12	50	0.07	10	<1.0	11	-156
07/17/2008	8.4	53	308	0.10	11	47	0.07	10	<1.0	12	-159
08/28/2008	7.6	45	298	<1.0	11	44	0.10	9.0	<1.0	12	-160
09/18/2008	8.7	36	290	<1.0	11	43	0.06	11	<1.0	12	-150
01/29/2009	8.9	38	296	0.40	15	43	0.11	12	<1.0	10	-157
03/26/2009	9.2	44	302	<1.0	13	43	0.07	10	<1.0	11	-125
05/21/2009	8.3	49	288	<1.0	16	48	0.06	10	<1.0	13	-160
06/18/2009	9.0	34	328	<1.0	13	52	0.04	10	<1.0	12	-157
07/23/2009	9.0	40	334	<1.0	13	45	0.09	10	<1.0	12	-155
09/24/2009	7.6	44	310	<1.0	13	41	0.06	9.0	<1.0	12	-159
01/21/2010	8.4	35	302	<1.0	22	38	0.08	10	<1.0	11	-155
03/25/2010	9.1	37	294	<1.0	<15	39	0.15	11	<1.0	11	-157
05/20/2010	9.0	13	310	<1.0	<15	40	0.04	8.0	<1.0	12	-154
07/29/2010	8.6	36	540	<1.0	<15	47	0.07	14	<1.0	14	-151
11/18/2010	8.9	30	296	<1.0	<15	41	0.10	12	<1.0	11	-160
12/09/2010	7.7	40	290	<1.0	<15	45	0.08	10	<1.0	11	-161
01/27/2011	8.3	30	292	<1.0	12	42	0.07	12	<1.0	9.0	-159
03/24/2011	8.7	33	276	<1.0	11	45	<0.10	10	<1.0	10	-160
05/12/2011	9.1	40	276	<1.0	<10	41	0.06	10	<1.0	12	-159
07/28/2011	8.7	34	390	<1.0	<10	39	0.06	10	6.0	12	-155
11/03/2011	8.5	31	304	<1.0	11	48	0.03	11	<1.0	11	-164
12/15/2011	8.3	34	348	<1.0	55	49	0.05	10	<1.0	11	-156
01/25/2012	8.7	27	298	<1.0	11	46	<0.10	10	<1.0	11	-155
03/08/2012	8.0	37	302	<1.0	22	42	<0.10	9.0	<1.0	12	-166
05/23/2012	8.6	35	286	<1.0	11	42	<0.10	9.0	<1.0	12	-166
07/12/2012	8.8	22	344	<1.0	11	43	<0.10	10	<1.0	14	-152
09/13/2012	8.7	34	308	10	11	43	<0.10	8.0	<1.0	16	-160
11/01/2012	8.4	38	272	<1.0	11	43	<0.10	9.0	<1.0	11	-166
01/31/2013	8.0	34	298	<1.0	10	45	<0.10	782	<1.0	6.0	-162
04/11/2013	8.9	40	276	<1.0	13	42	0.10	11	<1.0	12	-166
06/13/2013	8.6	23	300	<1.0	10	41	<0.10	10	<1.0	12	-160
08/29/2013	9.0	34	322	<1.0	11	35	0.14	10	<1.0	13	-156
09/19/2013	8.5	35	284	<1.0	11	42	<0.10	32	<1.0	12	-170

TABLE 2-21 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-78 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	-----	-----	mg/L	-----	-----	-----	MPN/ 100 mL	°C	ft ²
12/05/2013	8.1	34	284	<1.0	11	39	0.10	10	<1.0	11	-160

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-22: GROUNDWATER QUALITY DATA FOR WELL QM-79 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	8.7	60	398	2.0	24	50	0.07	10	<1.0	11	-16
03/30/1995	8.8	61	462	3.0	27	43	<0.01	16	<1.0	12	-16
05/18/1995	8.4	69	526	2.0	27	38	0.12	11	<1.0	11	-15
07/27/1995	7.0	67	850	3.0	21	32	0.06	15	<1.0	12	-43
09/27/1995	6.9	62	434	3.0	27	33	0.06	13	<1.0	10	-74
11/08/1995	7.7	74	448	8.0	24	33	0.07	12	<1.0	10	-81
01/31/1996	9.0	65	472	1.0	33	27	0.11	11	<1.0	10	-77
05/16/1996	8.7	62	408	7.0	23	30	0.07	12	<1.0	12	-123
07/24/1996	8.9	65	436	4.0	24	30	0.07	12	<1.0	12	-82
09/26/1996	8.9	60	456	5.0	22	26	0.07	11	<1.0	12	-83
05/29/1997	9.0	58	424	2.0	21	25	0.01	11	<1.0	10	-83
05/13/1999	9.3	60	434	2.0	21	20	0.01	10	<1.0	12	-92
11/03/1999	9.0	58	344	2.0	19	27	0.10	10	<1.0	11	-92
05/18/2000	8.5	60	342	8.0	19	25	0.13	11	<1.0	11	-92
12/07/2000	9.2	61	520	1.0	20	25	0.07	9.0	<1.0	11	-137
05/31/2001	9.1	54	370	2.0	20	17	0.12	10	<1.0	11	-91
11/28/2001	6.9	34	354	2.0	20	17	0.07	7.0	<1.0	11	-93
05/02/2002	7.2	52	1458	4.0	20	23	0.04	9.0	<1.0	11	-96
11/27/2002	9.5	39	348	3.0	17	21	0.06	10	<1.0	10	-137
06/26/2003	8.0	39	362	3.0	18	26	0.04	10	<1.0	11	-95
11/19/2003	8.8	53	340	2.0	18	28	0.07	9.0	<1.0	11	-95
05/19/2004	8.7	52	340	2.0	19	22	0.03	9.0	<1.0	11	-95
12/02/2004	7.2	55	338	1.0	21	18	0.06	9.0	<1.0	11	-135
03/17/2005	7.3	32	336	2.0	17	18	0.05	10	<1.0	11	-95
04/28/2005	7.8	32	360	2.0	19	26	0.04	9.0	<1.0	11	-145
06/16/2005	7.4	41	312	2.0	19	19	0.03	10	<1.0	12	-94
08/18/2005	7.6	38	338	1.0	18	21	<0.02	9.0	<1.0	12	-140
10/20/2005	7.5	41	356	1.1	20	16	0.02	10	<1.0	11	-93
12/08/2005	8.1	40	304	0.70	19	17	0.01	9.0	<1.0	10	-140
02/09/2006	7.1	53	358	0.70	20	31	<0.02	9.0	<1.0	11	-139
03/23/2006	7.8	26	296	0.60	19	19	<0.02	10	<1.0	11	-140
06/01/2006	7.8	54	288	0.50	20	20	0.04	10	<1.0	12	-141
06/21/2006	7.8	54	338	0.50	19	21	<0.02	10	<2.0	12	-141
08/24/2006	8.9	54	338	0.50	19	20	<0.02	10	<1.0	13	-141
09/14/2006	7.6	34	356	0.40	19	18	0.25	10	<1.0	12	-142
03/01/2007	9.0	39	324	0.50	19	19	<0.02	10	<1.0	11	-143
03/29/2007	7.9	32	322	0.60	20	18	<0.02	10	<1.0	11	-143
05/03/2007	7.7	52	340	0.50	24	23	<0.02	10	<1.0	11	-137
08/09/2007	8.1	36	198	0.90	20	15	0.04	10	<1.0	12	-144
10/25/2007	7.7	47	328	0.50	21	15	0.04	10	<1.0	12	-142

TABLE 2-22 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-79 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/13/2007	9.0	38	380	0.60	27	14	0.10	8.0	<1.0	10	-145
04/17/2008	7.6	48	328	0.50	19	26	0.03	11	<1.0	12	-144
06/19/2008	9.0	58	350	0.40	19	22	0.02	10	<1.0	11	-147
07/17/2008	8.8	56	292	0.40	18	19	0.03	10	<1.0	12	-143
08/28/2008	7.7	47	314	<1.0	18	16	0.05	10	<1.0	12	-146
09/18/2008	9.0	36	316	<1.0	18	15	0.04	10	<1.0	13	-126
11/13/2008	8.9	54	390	<1.0	22	16	0.07	9.0	<1.0	11	-167
03/26/2009	9.2	47	308	<1.0	20	19	0.04	10	<1.0	11	-147
05/21/2009	8.2	49	310	1.2	23	21	0.04	11	<1.0	13	-141
06/18/2009	9.1	40	338	<1.0	20	16	0.05	9.0	<1.0	12	-143
07/30/2009	7.5	48	294	<1.0	20	19	0.04	10	<1.0	12	-145
09/24/2009	7.7	47	318	<1.0	19	16	0.04	10	<1.0	11	-150
01/21/2010	8.9	39	318	<1.0	17	18	0.03	13	<1.0	11	-148
03/25/2010	8.9	36	294	<1.0	<15	14	0.05	12	<1.0	11	-151
05/27/2010	8.0	33	392	<1.0	19	19	0.06	114	<1.0	13	-148
07/29/2010	9.1	39	582	<1.0	17	15	0.07	9.0	<1.0	13	-133
01/27/2011	8.6	33	314	<1.0	17	17	0.06	12	<1.0	10	-147
03/24/2011	8.7	34	268	<1.0	17	18	<0.10	12	<1.0	10	-147
02/12/2011	9.1	40	298	<1.0	15	17	0.02	11	<1.0	12	-145
07/28/2011	8.7	35	428	11	15	15	0.07	9.0	11	12	-215
11/03/2011	8.8	28	296	<1.0	17	17	0.04	11	<1.0	12	-150
12/15/2011	8.5	35	292	<1.0	17	19	0.05	11	<1.0	12	-148
01/25/2012	9.1	32	284	<1.0	17	18	<0.10	11	<1.0	11	-153
03/08/2012	7.9	37	302	<1.0	26	18	<0.10	11	<1.0	11	-151
05/23/2012	8.6	34	294	<1.0	16	19	<0.10	11	<1.0	13	-146
07/12/2012	8.5	19	352	<1.0	17	22	<0.10	12	<1.0	21	-149
09/13/2012	8.9	33	304	8.0	16	18	<0.10	11	<1.0	13	-145
11/01/2012	8.4	41	286	<1.0	17	16	<0.10	11	<1.0	12	-155
01/31/2013	7.9	36	322	<1.0	18	18	<0.10	415	<1.0	9.0	-152
04/11/2013	9.0	38	446	<1.0	18	19	0.11	15	<1.0	12	-154
06/13/2013	8.8	25	306	<1.0	15	17	<0.10	12	<1.0	12	-149
08/29/2013	8.6	37	318	<1.0	15	20	<0.10	14	<1.0	14	-153
09/19/2013	8.4	39	316	<1.0	20	14	0.11	8.0	<1.0	13	-156
12/05/2013	8.0	35	274	<1.0	16	18	<0.10	12	<1.0	12	-147

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-23: GROUNDWATER QUALITY DATA FOR WELL QM-80 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	9.0	33	212	1.0	18	21	0.07	12	<1.0	11	-87
03/30/1995	8.8	33	206	1.0	17	30	<0.01	21	<1.0	12	-39
05/18/1995	8.4	47	220	2.0	14	80	0.07	22	<1.0	12	-26
07/27/1995	7.6	31	266	2.0	14	33	0.07	22	<1.0	12	-23
09/27/1995	7.8	36	216	2.0	15	17	0.08	23	<1.0	12	-86
11/08/1995	7.2	30	210	3.0	15	14	0.07	21	<1.0	12	-128
01/31/1996	8.0	34	230	1.0	18	14	0.04	22	<1.0	10	-130
05/16/1996	8.6	32	206	3.0	14	11	0.04	23	<1.0	12	-137
07/24/1996	8.8	36	308	5.0	13	125	0.05	23	<1.0	14	-132
09/26/1996	8.8	30	261	3.0	13	12	0.04	22	<1.0	12	-134
05/29/1997	8.8	31	242	1.0	14	10	<0.10	22	<1.0	10	-133
05/13/1999	9.3	38	220	1.0	14	12	<0.01	25	<1.0	13	-134
11/03/1999	9.0	34	200	2.0	14	13	0.06	22	<1.0	12	-132
05/18/2000	8.7	35	212	5.0	14	10	0.09	23	<1.0	12	-132
12/07/2000	9.0	38	328	1.0	13	11	0.07	21	-	11	-157
05/31/2001	8.6	25	242	1.0	14	3.0	0.10	21	<1.0	12	-130
11/28/2001	7.2	26	288	1.0	14	3.0	0.05	19	<1.0	12	-130
05/02/2002	7.5	36	1092	2.0	15	11	0.04	21	<1.0	12	-132
11/27/2002	9.0	33	372	2.0	14	6.0	0.06	19	<1.0	11	-136
06/26/2003	8.2	30	216	2.0	14	<2.0	0.02	21	<1.0	13	-131
11/19/2003	8.7	33	212	3.0	15	2.0	0.09	20	<1.0	12	-132
05/19/2004	8.5	31	222	2.0	15	1.0	0.03	20	<1.0	12	-130
12/02/2004	7.1	33	226	1.0	14	3.0	0.05	20	<1.0	12	-136
03/17/2005	7.4	22	196	1.0	18	5.0	0.02	23	<1.0	11	-129
04/28/2005	7.3	21	220	1.0	14	-	0.07	21	<1.0	12	-128
06/16/2005	7.5	25	224	1.0	14	3.0	0.06	21	<1.0	12	-126
08/18/2005	7.6	22	214	0.40	14	2.0	<0.02	20	<1.0	13	-136
10/20/2005	7.1	26	208	0.50	14	2.0	0.02	20	<1.0	12	-128
12/08/2005	7.9	24	212	0.40	15	6.0	0.01	20	<1.0	10	-134
02/09/2006	7.3	30	224	0.50	15	5.0	<0.02	20	<1.0	11	-134
03/23/2006	7.5	18	196	0.30	14	2.0	<0.02	21	<1.0	11	-136
06/01/2006	7.5	32	176	0.20	15	2.0	0.06	20	<1.0	13	-125
06/21/2006	7.5	32	236	0.40	15	3.0	<0.02	21	<1.0	13	-125
08/24/2006	8.8	33	212	0.40	14	3.0	<0.02	21	<1.0	18	-135
09/14/2006	7.7	22	266	0.40	14	6.0	0.14	21	<1.0	13	-134
03/01/2007	8.7	24	208	0.40	14	3.0	<0.02	21	<1.0	12	-136
03/29/2007	8.0	21	196	0.20	15	2.0	<0.02	21	<1.0	12	-136
05/03/2007	7.6	31	208	0.30	15	4.0	0.02	21	<1.0	12	-135
08/09/2007	8.0	24	7690	0.40	14	1.0	0.04	20	<1.0	12	-137
10/25/2007	7.5	37	182	0.20	15	4.0	0.05	20	<1.0	12	-136

TABLE 2-23 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-80 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	⁰ C	ft ²
12/13/2007	8.8	23	254	0.40	15	7.0	0.02	21	<1.0	11	-138
04/17/2008	7.5	30	194	0.30	30	4.0	0.04	19	<1.0	12	-142
06/19/2008	9.0	34	252	0.30	14	244	0.01	22	<1.0	12	-138
07/17/2008	8.6	33	176	0.10	12	3.0	0.03	20	<1.0	13	-140
08/28/2008	7.4	27	212	<1.0	13	1.0	0.03	21	<1.0	13	-129
09/18/2008	8.6	24	208	<1.0	13	4.0	0.04	20	<1.0	12	-132
11/13/2008	8.8	33	206	<1.0	14	<2.0	0.03	20	<1.0	12	-156
01/29/2009	8.7	27	188	0.50	15	3.0	0.04	21	<1.0	11	-140
03/26/2009	8.0	25	196	<1.0	15	3.0	0.04	19	<1.0	12	-135
05/21/2009	8.4	30	200	<1.0	18	2.0	0.03	19	<1.0	13	-136
06/18/2009	8.8	28	202	<1.0	14	2.0	0.03	20	<1.0	13	-136
07/30/2009	7.7	30	194	<1.0	15	2.0	0.05	20	<1.0	13	-133
09/24/2009	7.7	30	198	<1.0	14	3.0	0.04	21	<1.0	13	-131
01/21/2010	8.9	26	196	<1.0	<10	2.0	<0.02	21	<1.0	11	-132
03/25/2010	8.3	24	186	<1.0	<15	2.0	0.04	22	<1.0	13	-133
05/27/2010	7.9	22	246	<1.0	<15	2.0	0.03	19	<1.0	13	-137
07/29/2010	8.6	26	438	<1.0	<15	4.0	0.05	18	<1.0	13	-136
11/18/2010		20	196	<1.0	15	4.0	0.06	44	<1.0	12	-142
12/09/2010	7.5	32	188	<1.0	<15	2.0	0.05	21	<1.0	11	-135
01/27/2011	8.4	23	188	<1.0	14	2.0	0.04	21	<1.0	11	-142
03/24/2011	8.1	24	174	<1.0	13	3.0	<0.02	21	<1.0	11	-142
05/12/2011	8.2	22	186	<1.0	11	2.0	0.01	21	<1.0	13	-141
07/28/2011	7.9	28	280	1.2	<10	3.0	0.01	21	6.0	13	-142
11/03/2011	8.3	22	194	<1.0	14	2.0	0.02	21	<1.0	12	-133
12/15/2011	8.0	25	192	<1.0	13	2.0	0.02	22	<1.0	12	-141
01/25/2012	8.6	32	172	<1.0	13	<5.0	<0.10	20	<1.0	11	-144
03/08/2012	7.8	25	192	<1.0	16	<5.0	<0.10	21	<1.0	12	-142
05/23/2012	7.9	22	184	<1.0	13	<5.0	<0.10	23	<1.0	15	-145
07/12/2012	8.3	13	228	<1.0	12	<5.0	<0.10	21	<1.0	23	-143
09/13/2012	7.0	39	200	9.7	13	<5.0	<0.10	21	<1.0	15	-139
11/01/2012	8.4	13	192	<1.0	13	<5.0	<0.10	21	<1.0	10	-143
02/07/2013	8.0	22	180	<1.0	12	<5.0	<0.10	24	<1.0	12	-145
04/11/2013	8.8	28	218	<1.0	15	<5.0	<0.10	26	<1.0	12	-138
06/13/2013	8.4	19	202	<1.0	11	<5.0	<0.10	23	<1.0	12	-145
08/29/2013	8.7	25	214	<1.0	13	<5.0	<0.10	23	<1.0	13	-146
09/19/2013	8.5	24	186	<1.0	14	<5.0	<0.10	23	<1.0	13	-144
12/05/2013	8.2	23	188	<1.0	13	<5.0	<0.10	22	<1.0	11	-137

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-24: GROUNDWATER QUALITY DATA FOR WELL QM-81 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/26/1995	7.8	42	284	2.0	24	55	0.11	22	<1.0	12	-60
03/16/1995	8.1	44	222	2.0	22	32	0.08	22	<1.0	12	-43
05/19/1995	8.2	39	228	2.0	20	50	0.09	21	<1.0	12	-39
07/20/1995	7.9	38	258	1.0	28	33	0.09	22	<1.0	16	-39
09/20/1995	8.1	83	248	2.0	19	29	0.08	22	<1.0	11	-43
11/22/1995	7.1	39	252	5.0	16	29	0.14	22	<1.0	12	-44
01/25/1996	9.0	44	282	3.0	14	27	0.09	8.0	<1.0	11	-113
01/30/1996	7.4	84	244	4.0	16	23	<0.01	20	<1.0	10	-125
05/23/1996	8.6	35	222	4.0	13	22	0.08	21	<1.0	12	-122
07/31/1996	8.2	34	318	3.0	13	32	0.07	23	<1.0	13	-126
09/12/1996	8.4	34	254	2.0	13	22	0.07	24	<1.0	14	-129
11/14/1996	9.0	35	420	2.0	16	26	<0.01	23	<1.0	11	-132
01/30/1997	7.4	84	244	4.0	16	23	<0.10	20	<1.0	10	-125
03/13/1997	7.7	35	266	2.0	15	21	0.07	24	<1.0	12	-126
05/29/1997	6.9	19	256	1.0	16	15	0.03	24	<1.0	12	-138
07/10/1997	7.3	33	256	1.0	17	16	0.19	25	<1.0	13	-139
09/18/1997	8.6	32	224	3.0	16	17	0.08	25	<1.0	14	-128
11/19/1997	8.6	39	458	2.0	18	13	0.18	23	<1.0	12	-130
01/29/1998	9.1	33	204	2.0	18	47	<0.01	29	<1.0	12	-132
03/05/1998	8.7	35	226	2.0	18	24	<0.01	28	<1.0	12	-132
05/21/1998	8.7	33	246	2.0	18	35	0.03	27	<1.0	15	-130
07/16/1998	8.7	33	228	2.0	19	32	0.02	26	<1.0	16	-134
09/24/1998	7.1	35	236	2.0	20	17	0.02	27	-	13	-136
11/19/1998	8.9	35	230	2.0	20	22	<0.01	25	<1.0	12	-134
01/28/1999	8.7	37	206	1.0	21	28	<0.01	28	<1.0	13	-129
03/11/1999	8.7	33	234	2.0	21	16	0.05	30	<1.0	12	-135
05/27/1999	8.9	29	214	2.0	18	21	<0.01	27	<1.0	12	-136
07/28/1999	7.9	38	276	1.0	20	25	0.03	31	<1.0	13	-136
09/30/1999	8.7	40	238	1.0	19	22	<0.01	28	<1.0	12	-137
11/18/1999	8.1	34	238	2.0	19	17	0.11	27	<1.0	12	-137
01/12/2000	8.6	28	292	4.0	19	14	0.11	28	<1.0	11	-136
03/23/2000	8.6	29	254	2.0	22	18	0.12	28	<1.0	12	-137
05/24/2000	8.5	40	236	4.0	18	17	0.11	29	<1.0	13	-137
07/26/2000	8.6	30	234	2.0	21	20	0.13	30	<1.0	13	-137
09/28/2000	8.7	27	290	2.0	20	18	0.13	31	<1.0	13	-137
11/16/2000	7.4	26	260	5.0	25	15	0.12	28	<1.0	12	-136
01/11/2001	8.5	32	232	1.0	20	10	0.13	32	<1.0	11	-137
03/29/2001	6.7	50	232	2.0	20	7.0	0.11	36	<1.0	12	-112
05/17/2001	8.3	30	356	1.0	39	8.0	0.10	30	<1.0	13	-136
07/26/2001	7.7	34	266	1.0	33	10	0.10	29	<1.0	13	-152

TABLE 2-24 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-81 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/13/2001	7.6	35	598	2.0	22	11	0.14	29	<1.0	13	-137
11/08/2001	8.2	41	292	1.0	18	12	0.08	30	<1.0	13	-32
01/24/2002	8.0	29	234	2.0	22	10	0.19	37	<1.0	12	-137
03/21/2002	8.5	29	266	3.0	21	12	0.11	31	<1.0	12	-137
05/23/2002	8.8	30	264	2.0	18	10	0.10	31	<1.0	13	-135
07/18/2002	7.7	29	292	2.0	38	19	0.10	29	<1.0	14	-137
09/12/2002	7.3	34	280	2.0	31	22	0.12	30	<1.0	13	-81
11/21/2002	8.5	35	326	2.0	20	14	0.10	29	<1.0	13	-134
01/23/2003	7.4	27	290	2.0	32	18	0.27	29	<1.0	10	-135
03/06/2003	6.7	25	252	3.0	31	14	0.08	31	<1.0	11	-137
05/22/2003	7.6	27	240	2.0	20	14	0.07	29	<1.0	12	-134
07/17/2003	8.3	29	228	2.0	21	19	0.07	28	<1.0	13	-135
09/11/2003	7.1	28	250	2.0	30	17	0.10	28	<1.0	14	-135
11/20/2003	8.0	24	246	2.0	17	19	0.17	26	<1.0	12	-134
01/08/2004	7.3	27	234	2.0	29	14	0.11	29	<1.0	11	-146
03/04/2004	7.9	39	260	3.0	31	20	0.10	31	<1.0	12	-133
05/19/2004	8.3	35	228	2.0	18	14	0.05	27	<1.0	12	-133
07/29/2004	7.5	36	254	1.0	30	12	0.10	28	<1.0	13	-135
09/23/2004	7.4	40	248	1.0	29	15	0.07	29	<1.0	13	-132
12/02/2004	7.1	38	238	1.0	19	13	0.07	27	<1.0	12	-131
01/27/2005	7.5	20	212	1.0	22	13	0.10	28	<1.0	11	-133
04/21/2005	7.4	30	258	1.0	31	15	0.07	29	<1.0	12	-132
06/22/2005	7.7	22	262	0.20	22	11	0.10	29	<1.0	13	-130
08/25/2005	-	-	244	0.70	29	12	0.07	-	<1.0	-	-
10/27/2005	-	-	240	0.50	29	11	0.02	-	<1.0	-	-
12/08/2005	-	-	266	0.60	30	17	0.06	-	<1.0	-	-
06/01/2006	8.4	38	196	0.40	19	12	0.08	19	<1.0	13	-131
08/10/2006	8.4	39	226	0.50	21	12	0.11	29	<1.0	14	-131
11/16/2006	8.4	38	254	0.50	31	12	0.03	29	<1.0	13	-131
06/07/2007	8.4	31	236	0.50	22	12	0.05	28	<1.0	15	-131
08/09/2007	7.8	27	248	0.60	20	9.0	0.07	29	<1.0	12	-132
10/25/2007	7.4	36	212	0.40	21	10	0.05	28	<1.0	12	-135
04/17/2008	7.7	37	258	0.50	20	20	0.03	29	<1.0	13	-137
07/24/2008	7.5	26	256	0.30	18	13	0.06	29	<1.0	13	-132
09/18/2008	8.6	30	220	<1.0	19	11	0.07	30	<1.0	13	-129
03/26/2009	8.6	37	304	1.1	32	10	0.06	13	<1.0	12	-129
07/30/2009	7.4	37	222	<1.0	21	11	0.07	26	<1.0	13	-131
08/27/2009	8.3	30	256	<1.0	21	17	0.06	21	<1.0	14	-133
03/25/2010	8.0	30	222	<1.0	<15	10	0.05	32	<1.0	12	-133

TABLE 2-24 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-81 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/29/2010	8.8	39	462	1.5	19	13	0.05	31	<1.0	13	-131
03/24/2011	8.2	28	228	<1.0	20	14	<0.10	33	<1.0	12	-135
05/12/2011	8.2	32	222	<1.0	18	11	0.05	30	<1.0	13	-136
07/28/2011	8.0	28	320	<1.0	17	14	0.03	35	2.0	13	-130
02/07/2013	7.8	22	230	<1.0	20	13	<0.10	35	<1.0	11	-130
04/11/2013	8.2	40	232	<1.0	23	11	<0.10	37	<1.0	12	-127
09/19/2013	8.2	30	242	<1.0	18	15	<0.10	34	760	12	-132

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 2-25: GROUNDWATER QUALITY DATA FOR WELL QM-82 IN
THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/26/1995	9.0	49	376	2.0	46	30	0.05	5.0	<1.0	11	-141
03/16/1995	8.3	49	336	2.0	43	28	<0.01	7.0	<1.0	14	-144
05/19/1995	8.4	45	326	3.0	35	42	0.03	13	<1.0	13	-171
07/20/1995	8.3	50	328	2.0	30	40	0.03	10	<1.0	13	-141
09/20/1995	8.4	51	316	3.0	35	28	0.03	10	<1.0	11	-143
11/22/1995	7.1	52	338	6.0	30	26	0.06	13	<1.0	12	-142
01/25/1996	8.9	55	386	4.0	30	27	0.04	3.0	<1.0	11	-143
05/23/1996	8.8	48	298	6.0	31	17	0.03	11	<1.0	12	-151
07/31/1996	8.1	46	392	4.0	31	29	0.06	10	<1.0	13	-152
09/12/1996	9.0	46	362	4.0	30	21	0.04	12	<1.0	14	-153
05/29/1997	7.1	28	324	2.0	30	13	<0.10	12	<1.0	12	-155
05/27/1999	9.1	48	326	4.0	31	16	<0.01	10	<1.0	13	-156
11/18/1999	9.1	49	310	3.0	34	14	0.10	10	<1.0	13	-157
05/24/2000	7.8	50	330	7.0	29	17	0.09	12	<1.0	13	-157
12/21/2000	9.1	35	298	2.0	32	17	0.11	13	<1.0	11	-159
05/17/2001	8.4	39	306	2.0	27	8.0	0.09	12	<1.0	13	-159
11/08/2001	8.8	36	344	2.0	29	81	0.10	12	<1.0	12	-155
05/23/2002	9.2	37	324	4.0	29	5.0	0.06	11	<1.0	13	-156
11/21/2002	8.8	34	338	4.0	28	11	0.04	12	<1.0	12	-158
05/22/2003	7.9	35	294	3.0	30	12	0.07	12	<1.0	12	-157
11/20/2003	8.2	33	278	3.0	29	12	0.12	12	<1.0	12	-159
05/19/2004	8.5	44	294	3.0	28	10	0.02	13	<1.0	13	-159
12/02/2004	7.2	48	291	3.0	28	10	0.06	12	<1.0	12	-183
03/17/2005	7.5	29	268	2.0	29	9.0	0.05	13	<1.0	11	-159
04/28/2005	7.9	29	302	3.0	29	14	0.06	13	<1.0	12	-187
06/22/2005	7.9	30	308	0.90	30	9.0	0.08	14	<1.0	13	-157
08/25/2005	7.4	27	302	1.4	28	13	0.03	13	<1.0	13	-160
10/27/2005	7.4	37	300	2.0	29	<5.0	<0.01	13	<1.0	12	-159
12/08/2005	7.7	29	316	1.4	29	12	0.01	13	<1.0	12	-160
02/09/2006	7.2	41	266	1.5	30	15	0.03	14	<1.0	12	-183
03/23/2006	7.8	27	284	1.1	28	9.0	<0.02	14	<1.0	12	-183
06/01/2006	8.1	46	260	1.2	30	12	0.06	15	<1.0	14	-185
06/21/2006	8.1	46	306	1.1	29	12	<0.02	14	<1.0	14	-185
08/24/2006	8.7	48	296	0.80	28	12	<0.02	14	<1.0	15	-183
09/14/2006	7.6	30	320	0.90	29	10	0.15	14	<1.0	13	-186
03/01/2007	8.7	36	286	1.1	29	9.0	<0.02	14	<1.0	11	-185
03/29/2007	7.9	30	270	1.0	29	8.0	0.02	14	<1.0	12	-189
05/03/2007	7.5	45	288	0.90	32	11	0.02	13	<1.0	13	-186
08/09/2007	8.2	32	3956	1.1	30	6.0	0.05	14	<1.0	13	-186
10/25/2007	7.8	43	280	0.90	32	8.0	0.06	13	<1.0	13	-185

TABLE 2-25 (Continued): GROUNDWATER QUALITY DATA FOR WELL QM-82 IN THE MAINSTREAM TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/13/2007	8.8	34	270	0.80	28	12	0.03	14	<1.0	11	-189
04/17/2008	7.5	42	290	0.90	14	14	0.05	14	<1.0	12	-186
06/19/2008	8.4	39	284	0.90	29	12	0.04	15	<1.0	13	-187
07/17/2008	8.6	50	262	0.70	28	10	0.05	14	<1.0	15	-188
08/28/2008	7.6	42	274	<1.0	28	5.0	0.06	14	<1.0	13	-189
09/18/2008	8.7	28	286	<1.0	27	8.0	0.06	14	<1.0	13	-186
11/13/2008	8.8	48	294	<1.0	29	11	0.04	14	<1.0	12	-200
01/29/2009	8.6	36	292	1.2	32	6.0	0.07	15	<1.0	12	-182
03/26/2009	8.7	41	226	<1.0	22	12	0.09	28	<1.0	12	-185
05/21/2009	8.5	41	288	1.2	36	7.0	0.06	15	<1.0	13	-187
09/13/2012	7.8	43	312	10	29	7.0	<0.10	13	<1.0	14	-188
10/04/2012	7.8	15	284	1.2	30	11	<0.10	14	<1.0	14	-188
11/01/2012	-	-	260	1.1	30	7.0	<0.10	-	<1.0	-	-
12/13/2012	8.5	30	268	1.2	26	12	<0.10	16	<1.0	15	-185
02/07/2013	8.3	29	286	1.4	29	9.0	<0.10	15	<1.0	12	-186
04/11/2013	8.8	50	276	1.1	30	800	0.10	18	<1.0	12	-188
06/13/2013	8.6	25	318	1.3	28	12	0.10	14	<1.0	13	-189
08/29/2013	8.6	38	342	1.2	29	8.0	<0.10	15	<1.0	15	-184
09/19/2013	8.6	36	284	1.1	29	7.0	<0.10	16	<1.0	14	-189
12/05/2013	8.3	35	276	1.1	30	10	<0.10	15	<1.0	13	-185

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-1: GROUNDWATER QUALITY DATA FOR WELL QC-1 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/11/1995	7.2	115	836	4.0	44	253	0.28	549	<1.0	11	-121
01/25/1995	7.3	114	834	2.0	50	266	0.41	557	<1.0	12	-94
02/09/1995	8.0	111	848	3.0	59	280	0.40	528	<1.0	11	-117
02/23/1995	7.8	114	866	4.0	45	237	0.25	538	<1.0	11	-122
03/09/1995	7.6	116	836	3.0	59	262	0.35	571	<1.0	12	-121
03/23/1995	7.7	115	860	5.0	53	226	0.35	526	<1.0	12	-122
04/06/1995	7.8	116	892	4.0	45	252	0.36	565	<1.0	13	-122
04/19/1995	7.2	115	838	6.0	50	274	0.42	535	<1.0	12	-107
05/04/1995	7.3	114	872	4.0	48	313	0.38	544	<1.0	12	-119
05/18/1995	7.4	112	838	4.0	42	203	0.38	566	<1.0	12	-120
06/01/1995	7.9	111	888	4.0	46	291	0.39	579	<1.0	13	-121
06/15/1995	7.8	105	813	6.0	42	272	0.50	563	<1.0	13	-120
06/29/1995	7.8	100	850	5.0	41	319	0.43	579	<1.0	14	-120
07/13/1995	8.0	94	860	4.0	41	283	0.37	578	<1.0	14	-121
07/27/1995	8.1	108	384	5.0	41	259	0.36	553	<1.0	13	-122
08/10/1995	7.6	106	886	5.0	41	234	0.39	576	<1.0	13	-122
08/24/1995	7.7	114	858	4.0	44	261	0.38	563	<1.0	12	-121
09/07/1995	7.6	115	822	4.0	45	224	0.35	519	<1.0	12	-122
09/21/1995	7.7	101	810	3.0	42	231	0.35	530	<1.0	13	-118
10/05/1995	7.1	110	940	7.0	43	266	0.40	583	<1.0	12	-122
10/19/1995	7.3	107	866	5.0	44	270	0.40	575	<1.0	12	-124
11/02/1995	7.5	110	878	10	44	247	0.38	558	<1.0	12	-122
11/16/1995	7.4	117	828	10	41	285	0.39	539	<1.0	12	-98
11/30/1995	7.5	111	842	6.0	42	275	0.37	553	<1.0	12	-119
12/14/1995	8.3	83	846	8.0	41	249	0.40	559	<1.0	11	-122
12/28/1995	8.4	90	884	7.0	38	249	0.46	563	<1.0	11	-122
01/11/1996	7.3	116	858	6.0	40	256	0.41	544	<1.0	10	-123
01/25/1996	7.5	115	836	3.0	43	248	0.36	577	<1.0	10	-122
02/07/1996	8.0	114	824	7.0	37	262	0.33	565	<1.0	11	-122
02/22/1996	7.4	135	866	3.0	43	320	0.40	450	<1.0	11	-122
03/07/1996	7.6	115	854	8.0	44	267	0.38	589	<1.0	11	-122
03/21/1996	7.2	109	836	7.0	40	268	0.38	561	<1.0	11	-122
04/04/1996	7.5	114	824	3.0	41	269	0.35	584	<1.0	11	-122
04/18/1996	7.4	96	430	5.0	42	32	0.38	114	<1.0	12	-122
05/02/1996	7.5	111	928	9.0	48	268	0.39	584	<1.0	12	-122
05/16/1996	7.4	108	848	13	42	268	0.40	560	<1.0	12	-248
05/30/1996	7.1	112	848	4.0	42	240	0.41	590	<1.0	13	-120
06/13/1996	7.4	101	844	7.0	42	273	0.41	578	<1.0	14	-108
06/27/1996	7.4	104	980	9.0	42	288	0.38	577	<1.0	14	-111
07/11/1996	7.4	110	902	8.0	42	254	0.41	584	<1.0	13	-119

TABLE 3-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
07/25/1996	7.5	107	866	4.0	41	306	0.44	572	<1.0	15	-90
08/08/1996	7.5	97	860	7.0	42	280	0.42	579	<1.0	14	-111
08/22/1996	7.8	101	948	6.0	41	277	0.37	587	<1.0	16	-119
09/05/1996	7.5	109	864	5.0	44	237	0.38	564	<1.0	13	-121
09/19/1996	7.5	91	842	4.0	41	290	0.39	575	<1.0	14	-121
10/03/1996	7.5	96	848	7.0	40	255	0.40	626	<1.0	12	-188
10/17/1996	7.5	107	838	8.0	39	258	0.39	568	<1.0	14	-122
10/31/1996	7.6	108	828	6.0	40	286	0.37	558	<1.0	12	-123
11/14/1996	7.4	112	854	5.0	41	301	0.32	583	<1.0	11	-122
11/27/1996	7.6	113	390	5.0	41	33	0.43	115	<1.0	11	-123
12/12/1996	7.8	110	860	5.0	40	243	0.31	550	<1.0	11	-123
12/26/1996	7.6	111	870	3.0	42	246	0.28	546	<1.0	11	-123
01/09/1997	7.4	113	814	3.0	40	272	0.34	590	<1.0	10	-123
01/23/1997	7.3	112	850	6.0	42	313	0.30	598	<1.0	11	-122
02/06/1997	7.3	136	840	13	40	257	0.29	567	<1.0	11	-123
02/20/1997	7.9	111	860	4.0	42	247	0.30	565	<1.0	11	-123
03/06/1997	8.0	109	840	3.0	41	239	0.32	588	<1.0	13	-86
03/27/1997	7.8	109	848	5.0	41	300	0.35	571	<1.0	13	-86
04/10/1997	8.0	109	838	4.0	41	290	0.25	565	<1.0	11	-120
04/24/1997	7.1	89	836	3.0	42	246	0.38	572	<1.0	12	-121
05/08/1997	7.5	105	832	6.0	42	255	0.35	571	<1.0	13	-122
05/22/1997	7.1	140	848	4.0	41	268	0.37	556	<1.0	13	-122
06/05/1997	7.0	107	490	4.0	40	256	0.26	573	<1.0	13	-122
06/19/1997	7.1	107	828	3.0	41	266	0.39	567	<1.0	13	-122
07/03/1997	7.3	109	876	5.0	41	234	0.41	566	<1.0	13	-121
07/17/1997	7.2	92	884	4.0	37	263	0.42	563	<1.0	14	-122
07/31/1997	7.2	106	834	6.0	40	258	0.24	565	<1.0	14	-122
08/14/1997	7.3	107	992	4.0	40	262	0.25	553	<1.0	11	-123
08/28/1997	7.5	100	852	4.0	44	264	0.39	587	<1.0	15	-116
09/11/1997	7.2	99	792	9.0	42	238	0.35	574	<1.0	13	-121
09/25/1997	7.3	108	800	9.0	42	260	0.31	571	<1.0	14	-122
10/09/1997	7.5	96	844	3.0	45	263	0.31	566	<1.0	11	-123
10/23/1997	7.3	106	850	3.0	42	272	0.32	579	<1.0	12	-124
11/09/1997	7.7	104	826	4.0	41	236	0.30	579	<1.0	12	-124
11/20/1997	7.8	106	848	3.0	42	270	0.29	563	<1.0	12	-124
12/11/1997	7.4	101	836	6.0	43	258	0.41	593	<1.0	11	-123
01/08/1998	7.8	100	818	4.0	44	250	0.37	607	<1.0	10	-120
01/22/1998	8.0	104	870	7.0	41	232	0.43	615	<1.0	11	-121
02/05/1998	7.3	98	858	5.0	41	252	0.35	572	<1.0	11	-123
02/19/1998	7.2	119	844	5.0	41	260	0.30	564	<1.0	12	-122

TABLE 3-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
03/05/1998	7.2	110	840	3.0	43	260	0.34	582	<1.0	12	-116
03/19/1998	7.2	76	832	5.0	43	265	0.32	572	<1.0	12	-104
04/02/1998	7.6	106	810	5.0	42	264	0.28	589	<1.0	12	-111
04/16/1998	7.5	106	812	5.0	42	252	0.39	568	<1.0	12	-119
04/30/1998	7.2	96	860	3.0	42	245	0.27	544	<1.0	12	-121
05/14/1998	7.3	96	978	3.0	42	258	0.31	564	<1.0	12	-86
05/28/1998	7.3	97	660	4.0	41	252	0.25	563	<1.0	13	-116
06/11/1998	7.7	103	862	6.0	42	255	0.30	568	<1.0	14	-120
06/25/1998	7.9	101	892	3.0	41	268	0.34	62	<1.0	17	-119
07/09/1998	7.7	104	836	3.0	42	255	0.32	552	<1.0	15	-121
07/23/1998	7.3	107	824	5.0	41	91	0.38	573	<1.0	15	-122
08/06/1998	8.0	94	1000	3.0	41	275	0.40	577	<1.0	13	-122
08/20/1998	7.9	93	830	3.0	43	260	0.30	556	<1.0	12	-112
09/03/1998	7.5	102	854	3.0	43	286	0.41	586	<1.0	15	-119
09/17/1998	7.3	101	940	4.0	43	269	0.32	558	<1.0	15	-113
10/01/1998	7.4	90	848	5.0	43	284	0.16	577	<1.0	13	-121
10/14/1998	7.2	108	398	3.0	42	30	0.69	114	<1.0	14	-122
10/29/1998	7.4	104	857	5.0	41	276	0.43	581	<1.0	13	-122
11/12/1998	8.3	97	818	4.0	45	223	0.47	582	<1.0	12	-122
12/03/1998	7.2	107	910	4.0	45	240	0.34	545	<1.0	14	-122
12/17/1998	8.0	82	842	4.0	53	277	0.32	554	<1.0	10	-122
12/30/1998	8.0	96	832	4.0	46	271	0.39	571	<1.0	10	-123
01/28/1999	8.0	108	796	3.0	46	259	0.32	571	<1.0	11	-89
02/11/1999	7.3	90	846	4.0	44	270	0.34	577	<1.0	13	-110
02/25/1999	7.3	95	816	3.0	44	269	0.36	592	<1.0	12	-117
03/11/1999	7.5	105	814	4.0	45	263	0.36	552	<1.0	14	-119
03/25/1999	7.4	107	818	2.0	46	233	0.39	550	<1.0	13	-119
04/08/1999	7.9	99	810	3.0	44	252	0.30	590	<1.0	13	-120
04/22/1999	7.6	96	828	3.0	43	270	0.45	571	<1.0	12	-118
05/06/1999	6.9	105	824	4.0	42	248	0.32	564	<1.0	14	-104
05/20/1999	6.4	105	834	4.0	42	212	0.32	570	<1.0	15	-117
06/04/1999	7.6	99	830	3.0	43	272	0.34	576	<1.0	14	-118
06/17/1999	8.1	86	788	4.0	46	234	0.32	569	<1.0	12	-102
07/01/1999	7.9	114	872	4.0	42	271	0.35	598	<1.0	13	-113
07/15/1999	6.8	101	904	3.0	43	244	0.34	568	<1.0	16	-120
07/29/1999	7.1	104	956	4.0	43	234	0.21	609	<1.0	15	-121
08/12/1999	7.3	87	940	4.0	42	250	0.29	582	<1.0	13	-122
08/26/1999	7.5	101	846	4.0	43	312	0.28	638	<1.0	14	-122
09/10/1999	7.2	106	826	3.0	42	250	0.27	574	<1.0	15	-122
09/23/1999	7.2	111	848	4.0	44	261	0.27	525	<1.0	12	-122

TABLE 3-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
10/21/1999	7.3	105	844	4.0	41	245	0.35	564	<1.0	14	-151
11/04/1999	7.1	104	810	4.0	43	269	0.34	580	<1.0	14	-121
11/19/1999	7.2	101	788	3.0	43	265	0.41	527	<1.0	14	-122
12/02/1999	7.3	118	838	8.0	45	268	0.39	611	<1.0	12	-123
12/16/1999	7.6	86	818	7.0	41	269	0.35	603	<1.0	11	-119
01/06/2000	6.6	111	864	6.0	40	247	0.40	545	<1.0	12	-123
01/20/2000	7.6	86	800	9.0	46	205	0.42	577	<1.0	11	-123
02/03/2000	7.4	112	818	5.0	45	206	0.41	551	<1.0	12	-123
02/17/2000	7.7	83	860	4.0	45	250	0.42	552	<1.0	11	-123
03/02/2000	7.4	84	1084	3.0	44	217	0.38	564	<1.0	11	-123
03/16/2000	7.4	83	908	5.0	44	231	0.40	615	<1.0	12	-123
03/30/2000	7.4	84	1080	5.0	40	222	0.38	612	<1.0	12	-122
04/13/2000	7.4	84	812	6.0	47	218	0.39	538	<1.0	12	-123
04/27/2000	7.3	84	844	11	45	263	0.40	553	<1.0	12	-103
05/11/2000	7.4	86	938	10	45	233	0.39	567	<1.0	12	-119
05/25/2000	7.3	86	834	12	44	247	0.38	560	<1.0	12	-121
06/01/2000	7.9	118	850	10	44	253	0.37	600	<1.0	13	-125
06/15/2000	7.5	88	834	9.0	42	264	0.38	567	<1.0	13	-121
06/29/2000	7.8	121	830	11	41	252	0.39	568	<1.0	13	-109
07/13/2000	7.4	88	858	5.0	44	247	0.36	558	<1.0	15	-119
07/27/2000	7.4	86	816	7.0	42	257	0.40	568	<1.0	13	-121
08/10/2000	7.4	85	828	8.0	45	243	0.39	560	<1.0	13	-122
08/24/2000	7.5	85	834	3.0	47	231	0.38	541	<1.0	13	-154
09/14/2000	6.9	121	816	3.0	45	255	0.40	560	<1.0	13	-119
09/28/2000	7.6	97	850	4.0	41	244	0.40	550	<1.0	13	-170
10/12/2000	7.3	83	484	3.0	45	242	0.40	517	<1.0	12	-122
10/26/2000	7.5	84	848	3.0	43	230	0.35	551	<1.0	12	-122
11/16/2000	8.9	82	818	2.0	41	290	0.40	569	<1.0	12	-122
11/30/2000	8.3	83	800	3.0	43	272	0.42	593	<1.0	12	-121
01/25/2001	7.3	119	830	3.0	48	281	0.43	576	<1.0	11	-121
02/22/2001	7.6	81	850	3.0	40	215	0.40	631	<1.0	10	-153
03/08/2001	7.6	104	646	3.0	46	276	0.43	652	<1.0	11	-114
03/22/2001	7.5	85	828	3.0	48	280	0.40	623	<1.0	12	-121
04/05/2001	7.4	86	870	3.0	48	247	0.40	599	<1.0	12	-120
04/19/2001	8.1	88	798	3.0	46	255	0.39	583	<1.0	12	-122
05/03/2001	7.7	85	792	2.0	44	249	0.42	587	<1.0	14	-121
05/17/2001	7.4	85	928	3.0	43	246	0.42	582	<1.0	15	-121
06/07/2001	7.2	84	774	3.0	46	258	0.45	576	<1.0	12	-119
06/21/2001	7.2	81	786	3.0	45	228	0.42	572	<1.0	12	-122
07/05/2001	7.7	99	778	3.0	46	246	0.42	542	<1.0	13	-123

TABLE 3-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
07/19/2001	6.9	88	838	3.0	45	248	0.39	537	<1.0	13	-123
08/02/2001	7.4	83	916	3.0	87	266	0.36	592	<1.0	14	-118
08/16/2001	7.4	112	804	3.0	50	269	0.43	577	<1.0	12	-121
08/30/2001	7.3	84	792	3.0	49	306	0.40	572	<1.0	13	-153
09/13/2001	7.3	84	442	3.0	49	237	0.35	557	<1.0	13	-157
09/27/2001	7.1	83	856	3.0	48	240	0.37	528	<1.0	12	-155
10/11/2001	7.4	94	784	3.0	47	222	0.41	532	7.0	12	-124
10/25/2001	7.6	83	756	3.0	48	246	0.44	511	<1.0	12	-116
11/08/2001	7.5	85	790	3.0	48	273	0.44	522	<1.0	13	-157
11/28/2001	7.6	108	828	3.0	48	258	0.39	539	<1.0	11	-122
12/06/2001	7.2	84	906	3.0	48	254	0.36	536	<1.0	11	-124
12/20/2001	7.2	83	802	4.0	49	259	0.21	564	<1.0	12	-122
01/17/2002	7.0	104	412	3.0	58	243	0.35	553	<1.0	12	-124
01/31/2002	7.1	104	842	4.0	51	235	0.38	669	<1.0	11	-123
02/13/2002	7.4	79	802	6.0	50	211	0.33	543	<1.0	11	-123
02/28/2002	7.2	81	818	6.0	52	227	0.41	604	<1.0	11	-123
03/14/2002	7.7	87	776	5.0	50	235	0.35	566	<1.0	12	-153
03/28/2002	7.7	86	446	4.0	45	236	0.36	508	<1.0	12	-121
04/11/2002	7.2	83	850	5.0	52	259	0.39	546	<1.0	13	-122
04/25/2002	7.2	81	834	5.0	44	245	0.33	555	<1.0	12	-121
05/09/2002	7.8	103	776	6.0	50	247	0.36	571	<1.0	12	-122
05/23/2002	7.4	86	788	6.0	48	260	0.39	582	<1.0	12	-104
06/06/2002	7.8	85	866	4.0	49	240	0.32	545	<1.0	12	-161
06/20/2002	7.7	89	940	5.0	45	260	0.34	521	<1.0	14	-120
07/11/2002	7.1	79	794	5.0	54	262	0.42	556	<1.0	12	-121
07/25/2002	7.4	81	1204	4.0	52	246	0.39	555	<1.0	13	-121
08/08/2002	7.7	86	894	3.0	68	265	0.40	538	<1.0	13	-122
08/22/2002	7.4	84	976	5.0	56	245	0.46	618	<1.0	13	-160
09/12/2002	7.8	101	776	4.0	46	240	0.40	543	<1.0	13	-165
09/26/2002	7.7	83	894	4.0	49	238	0.45	580	<1.0	14	-163
10/10/2002	7.5	77	894	4.0	111	238	0.40	542	<1.0	12	-122
10/24/2002	7.5	86	914	4.0	54	242	0.41	473	<1.0	12	-123
11/07/2002	7.4	87	808	5.0	50	271	0.39	517	<1.0	12	-122
11/21/2002	7.3	99	964	7.0	64	240	0.37	529	<1.0	12	-115
12/05/2002	7.0	92	842	4.0	51	238	0.31	516	<1.0	11	-115
12/19/2002	7.1	85	962	5.0	259	243	0.30	517	<1.0	12	-116
01/09/2003	6.6	93	806	5.0	53	224	0.37	568	<1.0	12	-118
01/23/2003	7.0	92	840	5.0	56	252	0.31	523	<1.0	11	-119
02/06/2003	7.5	78	850	6.0	54	259	0.32	526	<1.0	11	-119
02/20/2003	7.6	109	848	6.0	60	250	0.50	561	<1.0	12	-164

TABLE 3-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
03/06/2003	7.3	83	846	4.0	62	238	0.32	550	<1.0	11	-119
03/20/2003	7.5	78	764	5.0	47	235	0.28	535	<1.0	12	-120
04/03/2003	6.8	83	826	5.0	49	250	0.28	533	<1.0	12	-167
04/17/2003	6.7	77	862	6.0	52	247	0.27	532	<1.0	12	-119
05/08/2003	7.0	88	802	3.0	59	243	0.31	511	<1.0	12	-124
05/22/2003	6.9	103	816	5.0	58	244	0.33	541	<1.0	12	-114
06/05/2003	7.5	80	880	5.0	74	240	0.34	547	<1.0	13	-119
06/19/2003	7.3	89	924	3.0	90	249	0.31	539	<1.0	13	-121
07/10/2003	7.0	95	852	7.0	61	268	0.37	533	<1.0	14	-123
07/24/2003	7.4	89	864	5.0	61	274	0.31	528	<1.0	13	-113
08/07/2003	7.0	90	1040	5.0	85	276	0.28	554	<1.0	14	-116
08/21/2003	7.7	90	856	5.0	54	281	0.27	546	<1.0	14	-121
09/11/2003	7.5	106	878	5.0	54	279	0.32	529	<1.0	14	-121
09/25/2003	7.2	103	922	4.0	74	284	0.56	533	<1.0	13	-122
10/09/2003	7.2	101	918	4.0	54	307	0.35	538	<1.0	13	-123
10/23/2003	7.6	88	832	4.0	56	297	0.29	517	<1.0	12	-122
11/06/2003	7.2	65	848	4.0	61	125	0.31	558	<1.0	12	-122
11/20/2003	7.3	29	820	4.0	64	292	0.41	513	<1.0	12	-124
12/04/2003	7.3	34	836	3.0	62	301	0.29	541	<1.0	12	-119
12/18/2003	7.2	118	850	4.0	59	283	0.28	544	<1.0	11	-121
01/22/2004	7.2	37	830	5.0	60	266	0.30	543	<1.0	10	-125
01/28/2004	7.8	56	820	5.0	59	277	0.31	546	<1.0	11	-133
02/05/2004	7.8	71	858	4.0	59	275	0.29	545	<1.0	11	-129
02/19/2004	6.9	38	860	4.0	56	263	0.39	537	<1.0	12	-127
03/04/2004	7.6	61	846	3.0	62	273	0.32	547	<1.0	12	-124
03/25/2004	7.3	121	904	4.0	62	285	0.30	524	<1.0	12	-119
04/08/2004	7.4	94	848	4.0	60	283	0.33	533	<1.0	12	-123
04/22/2004	7.1	119	930	3.0	93	273	0.32	527	<1.0	12	-124
05/06/2004	7.0	45	836	4.0	60	274	0.37	527	<1.0	13	-126
05/20/2004	7.2	99	798	3.0	55	263	0.34	523	1.0	13	-113
06/03/2004	6.8	121	874	4.0	59	312	0.35	536	<1.0	13	-113
06/17/2004	7.4	72	840	4.0	62	242	0.35	534	<1.0	13	-109
07/15/2004	8.0	98	916	3.0	62	585	0.29	506	<1.0	13	-123
07/29/2004	7.7	94	830	3.0	62	245	0.37	522	<1.0	13	-162
08/12/2004	7.5	40	888	3.0	63	237	0.28	536	<1.0	12	-128
08/26/2004	7.4	96	798	5.0	64	241	0.28	532	<1.0	13	-124
09/29/2004	7.5	35	826	4.0	68	221	0.32	532	<1.0	12	-127
11/10/2004	7.4	72	825	5.0	62	234	0.34	544	<1.0	12	-121
11/24/2004	6.8	68	750	3.0	62	227	0.39	511	<1.0	12	-124
02/16/2005	7.2	43	746	4.0	64	223	0.43	525	<1.0	12	-115

TABLE 3-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
05/19/2005	7.6	86	830	3.0	64	256	0.35	531	<1.0	13	-122
06/30/2005	7.5	67	884	3.0	63	251	0.35	548	<1.0	14	-122
08/25/2005	7.5	95	822	2.0	61	237	0.36	529	<1.0	13	-168
11/17/2005	7.4	29	846	2.0	67	237	0.29	504	<1.0	11	-123
03/02/2006	7.2	33	760	1.8	62	283	0.24	503	<1.0	11	-152
03/30/2006	7.5	99	786	1.5	66	246	0.26	555	4.0	13	-161
04/13/2006	7.4	118	806	1.5	68	243	0.31	566	<1.0	13	-161
09/28/2006	7.7	93	746	1.5	71	224	0.31	520	<1.0	13	-163
10/26/2006	7.4	101	874	1.3	72	239	0.26	539	<1.0	12	-167
12/07/2006	7.9	116	852	1.5	72	247	0.31	545	<1.0	11	-163
02/08/2007	7.8	50	854	1.6	79	215	0.31	553	<1.0	11	-167
03/15/2007	7.8	53	1022	1.5	223	233	0.27	553	<1.0	12	-169
05/17/2007	7.7	67	840	1.4	74	238	0.35	540	<1.0	12	-157
06/14/2007	7.8	151	868	1.4	73	248	0.34	548	<1.0	14	-168
08/16/2007	7.5	80	844	1.5	75	224	0.39	540	<1.0	21	-165
11/08/2007	7.3	91	844	1.4	75	243	0.40	544	<1.0	12	-163
01/10/2008	7.4	81	916	1.6	75	237	0.39	546	<1.0	12	-153
03/06/2008	7.4	91	850	1.5	79	246	0.37	558	<1.0	12	-163
04/03/2008	7.5	63	870	1.3	77	250	0.36	545	<1.0	11	-163
06/12/2008	7.8	74	894	1.2	70	235	0.41	542	<1.0	13	-168
08/21/2008	7.4	102	936	1.0	72	230	0.35	533	<1.0	13	-165
11/06/2008	7.4	54	874	1.4	77	229	0.34	487	<1.0	12	-173
01/08/2009	7.7	121	864	1.8	85	238	0.41	519	<1.0	7.2	-165

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-2: GROUNDWATER QUALITY DATA FOR WELL QC-2 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/11/1995	7.7	62	384	3.0	47	30	0.78	104	15	12	-260
01/25/1995	7.9	65	410	3.0	69	58	1.1	119	500	12	-137
02/09/1995	7.8	60	398	3.0	54	53	0.89	93	60	12	-252
02/23/1995	8.9	63	408	4.0	19	51	0.60	25	<1.0	12	-264
03/09/1995	8.4	66	376	3.0	62	35	0.95	123	<1.0	12	-260
03/23/1995	7.5	62	408	4.0	54	38	0.94	120	1.0	12	-261
04/06/1995	8.0	58	392	3.0	51	52	0.92	112	<1.0	13	-265
04/19/1995	7.9	56	408	4.0	56	42	1.1	130	3600	12	-206
05/04/1995	8.1	63	380	4.0	51	35	1.0	118	1200	13	-252
05/18/1995	8.0	60	398	3.0	42	42	1.1	117	150	13	-260
06/01/1995	8.4	73	396	4.0	43	39	1.0	114	<1.0	14	-260
06/15/1995	8.4	52	420	4.0	43	43	1.0	112	3.0	14	-262
06/29/1995	8.0	58	382	4.0	43	48	1.0	114	<1.0	14	-264
07/13/1995	8.2	52	368	3.0	43	48	0.92	112	<1.0	15	-264
07/27/1995	7.7	56	204	4.0	42	35	0.87	109	<1.0	17	-259
08/10/1995	7.7	58	396	4.0	41	29	0.88	112	<1.0	15	-263
08/24/1995	8.2	58	386	4.0	47	31	0.86	107	<1.0	15	-264
09/07/1995	7.9	63	398	4.0	45	35	0.65	105	<1.0	13	-266
09/21/1995	8.1	59	364	3.0	46	34	0.68	108	<1.0	14	-266
10/05/1995	8.5	60	436	5.0	42	24	0.84	112	<1.0	12	-265
10/19/1995	8.4	56	406	3.0	44	43	0.74	113	<1.0	12	-266
11/02/1995	8.2	55	396	10	43	34	0.67	109	<1.0	12	-266
11/16/1995	7.5	71	404	8.0	51	28	1.1	118	<1.0	12	-159
11/30/1995	7.8	61	372	7.0	49	42	0.85	118	750	12	-252
12/14/1995	8.7	96	412	4.0	14	37	0.55	42	38	12	-262
12/28/1995	8.7	104	414	5.0	23	33	0.56	112	3.0	10	-266
01/11/1996	7.9	61	402	5.0	39	30	0.62	108	<1.0	10	-267
01/25/1996	8.0	60	398	5.0	40	33	0.67	102	<1.0	11	-270
02/07/1996	7.7	64	384	2.0	40	28	0.65	114	<1.0	12	-271
02/22/1996	7.9	73	432	57	46	41	0.58	116	<1.0	12	-269
03/07/1996	8.1	60	434	5.0	44	33	0.49	120	<1.0	11	-272
03/21/1996	7.9	109	420	6.0	41	28	0.70	116	<1.0	11	-271
04/04/1996	7.9	62	406	9.0	42	34	0.39	133	<1.0	12	-275
04/18/1996	8.1	53	398	5.0	12	34	0.19	47	<1.0	15	-273
05/02/1996	7.8	57	410	7.0	48	26	0.05	119	<1.0	14	-273
05/16/1996	7.8	63	396	6.0	56	27	1.1	128	4000	12	-108
05/30/1996	7.1	61	410	4.0	52	27	1.1	135	8500	14	-254
06/13/1996	8.1	57	426	8.0	54	30	0.99	130	<1.0	15	-234
06/27/1996	8.0	57	438	7.0	49	35	0.97	128	2000	15	-229
07/11/1996	8.2	58	420	6.0	46	54	1.0	127	260	14	-255

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/25/1996	8.3	60	440	5.0	51	31	1.0	128	3600	14	-102
08/08/1996	8.1	82	412	5.0	49	45	0.91	131	3100	15	-230
08/22/1996	8.1	80	442	4.0	44	32	0.91	123	210	18	-258
09/05/1996	8.0	59	370	5.0	48	39	0.90	112	19	14	-260
09/19/1996	8.0	48	386	4.0	41	28	0.80	117	2.0	14	-266
10/03/1996	8.2	59	632	6.0	35	33	0.46	123	2600	13	-235
10/17/1996	8.1	58	354	5.0	42	32	0.91	114	300	14	-262
10/31/1996	8.2	58	404	5.0	42	28	0.79	111	68	12	-266
11/14/1996	8.3	60	418	3.0	41	39	0.61	117	4.0	11	-268
11/27/1996	8.1	85	812	6.0	41	26	0.34	552	<1.0	10	-272
12/12/1996	8.4	53	396	5.0	42	24	0.54	109	<1.0	12	-272
12/26/1996	8.0	60	436	7.0	48	27	0.35	112	<1.0	12	-277
01/09/1997	7.5	61	376	7.0	41	37	0.25	121	<1.0	10	-280
01/23/1997	8.1	61	420	10	43	29	0.13	119	<1.0	11	-284
02/06/1997	7.4	75	410	12	44	28	0.32	121	35	11	-277
02/20/1997	7.5	75	428	4.0	45	28	0.29	117	4.0	12	-289
03/06/1997	8.5	61	404	5.0	60	28	1.1	123	100	13	-110
03/27/1997	8.0	71	410	4.0	56	30	1.1	118	28	13	-254
04/10/1997	8.3	61	400	4.0	45	27	0.94	125	2.0	12	-263
04/24/1997	7.7	80	406	3.0	46	30	0.84	113	2.0	11	-263
05/08/1997	8.1	57	404	4.0	44	26	0.86	113	<1.0	14	-269
05/22/1997	8.2	86	400	3.0	44	22	0.76	106	<1.0	14	-271
06/05/1997	7.6	60	582	3.0	45	24	0.66	112	<1.0	14	-275
06/19/1997	7.7	60	404	3.0	49	20	0.77	114	390	14	-271
07/03/1997	7.7	59	400	3.0	46	31	0.53	113	120	14	-287
07/17/1997	7.5	61	438	3.0	45	29	0.40	114	20	15	-292
07/31/1997	7.6	61	388	6.0	45	32	0.14	116	20	15	-290
08/28/1997	7.5	59	678	14	37	10	0.43	56	10	16	-241
09/11/1997	7.2	54	388	4.0	45	13	0.89	114	990	13	-266
09/25/1997	8.0	58	362	6.0	43	22	0.95	113	120	15	-267
10/09/1997	7.9	51	398	6.0	43	21	0.84	107	39	11	-271
10/23/1997	7.7	58	392	2.0	42	24	0.47	113	4.0	12	-275
11/06/1997	8.4	56	384	3.0	43	22	0.46	112	<1.0	12	-274
11/20/1997	8.4	57	410	2.0	44	22	0.34	109	<1.0	12	-279
12/11/1997	7.6	54	386	5.0	43	21	0.35	115	<1.0	11	-274
01/08/1998	8.2	56	464	7.0	51	22	0.87	129	5300	10	-272
01/22/1998	8.3	66	428	6.0	55	24	1.0	140	870	12	-246
02/05/1998	7.9	55	644	6.0	36	30	0.36	115	60	12	-263
02/19/1998	7.9	66	424	4.0	53	33	0.91	121	2200	12	-267
03/05/1998	7.9	63	394	4.0	57	27	1.1	130	1000	13	-239

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/19/1998	7.9	88	420	5.0	61	29	1.2	130	2000	12	-169
04/02/1998	8.6	62	378	4.0	60	14	1.2	137	320	13	-243
04/16/1998	8.6	60	606	3.0	35	12	0.42	59	55	13	-251
04/30/1998	7.8	53	412	4.0	44	25	0.75	110	8.0	13	-256
05/14/1998	8.2	54	648	6.0	37	12	0.35	58	520	14	-85
05/28/1998	8.0	55	848	4.0	45	13	0.87	572	56	14	-251
06/11/1998	8.3	56	380	4.0	42	33	0.81	116	5.0	15	-261
06/25/1998	8.6	55	406	4.0	45	38	1.1	487	3700	17	-246
07/09/1998	8.1	62	376	4.0	45	28	0.92	111	340	15	-260
07/23/1998	7.9	56	338	5.0	41	31	0.62	112	32	17	-264
08/06/1998	7.8	52	420	3.0	47	24	1.1	125	28000	15	-269
08/20/1998	7.8	52	396	4.0	46	29	1.1	122	4300	14	-232
09/03/1998	8.5	56	388	3.0	41	34	0.71	115	390	15	-259
09/17/1998	8.2	56	390	4.0	45	32	0.89	117	5900	16	-221
10/01/1998	8.3	51	392	4.0	45	30	0.93	118	870	14	-260
10/14/1998	7.9	57	850	4.0	45	249	0.42	579	58	15	-264
10/29/1998	7.8	57	396	3.0	37	30	0.68	108	7.0	14	-267
11/12/1998	8.6	52	374	3.0	42	29	0.55	108	<1.0	12	-271
12/03/1998	7.8	56	378	4.0	43	26	0.63	101	<1.0	14	-270
12/17/1998	7.9	72	408	3.0	45	28	0.56	55	<1.0	11	-271
12/30/1998	7.8	52	406	3.0	40	29	0.36	110	<1.0	11	-280
01/14/1999	7.3	40	394	3.0	42	26	0.43	110	<1.0	10	-272
01/28/1999	7.5	56	372	3.0	58	25	1.1	121	980	11	-133
02/11/1999	7.2	56	450	4.0	58	31	0.89	125	90	14	-232
02/25/1999	8.0	55	392	3.0	49	28	1.1	118	11	13	-254
03/11/1999	8.0	59	372	4.0	45	29	0.70	108	3.0	14	-259
03/25/1999	8.0	58	360	3.0	44	28	0.79	108	<1.0	13	-263
04/08/1999	7.7	59	344	4.0	44	21	0.61	110	<1.0	14	-266
04/22/1999	7.8	59	386	3.0	47	29	0.73	114	1400	12	-247
05/06/1999	7.2	60	380	3.0	13	38	0.35	47	<1.0	14	-194
05/20/1999	6.7	57	398	3.0	46	31	0.98	113	44	17	-252
06/04/1999	7.8	56	386	3.0	50	33	1.1	121	9900	13	-252
06/17/1999	8.4	49	370	3.0	49	31	1.1	122	2200	13	-172
07/01/1999	8.4	49	382	4.0	47	37	1.1	122	3300	13	-210
07/15/1999	7.2	55	404	3.0	42	37	0.96	111	120	17	-250
07/29/1999	7.7	56	420	3.0	41	42	0.61	120	9.0	16	-257
08/12/1999	7.3	84	408	3.0	39	32	0.80	109	<1.0	14	-260
08/26/1999	7.4	58	396	3.0	41	30	0.82	119	<1.0	14	-262
09/10/1999	7.9	55	366	3.0	40	28	0.51	114	<1.0	16	-263
09/23/1999	7.6	61	412	3.0	40	42	0.59	101	<1.0	13	-266

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/21/1999	7.9	53	392	3.0	40	29	0.79	108	<1.0	14	-276
11/04/1999	7.7	56	380	3.0	39	28	0.86	107	<1.0	14	-265
11/18/1999	7.6	58	376	3.0	38	30	0.65	95	<1.0	16	-265
12/02/1999	8.0	63	374	5.0	41	28	0.67	120	<1.0	12	-267
12/16/1999	8.0	46	376	7.0	43	27	0.90	113	2500	10	-242
01/06/2000	6.7	59	414	6.0	40	19	0.85	104	280	11	-261
01/20/2000	8.1	46	362	8.0	38	22	0.82	107	22	12	-267
02/03/2000	8.1	72	414	4.0	47	22	0.82	102	4.0	12	-268
02/17/2000	8.0	48	686	4.0	43	21	0.77	103	<1.0	12	-269
03/02/2000	8.0	55	402	3.0	39	26	0.52	103	<1.0	11	-275
03/16/2000	7.5	45	426	5.0	36	24	0.60	112	<1.0	11	-274
03/30/2000	7.9	45	498	4.0	36	23	0.48	113	<1.0	13	-279
04/13/2000	7.8	47	368	6.0	39	27	0.38	101	<1.0	14	-286
04/27/2000	8.0	47	432	8.0	48	29	1.0	116	3200	14	-178
05/11/2000	7.8	49	408	8.0	42	29	0.90	114	310	13	-257
05/25/2000	7.8	48	402	7.0	40	28	0.63	106	17	14	-260
06/01/2000	7.7	63	434	8.0	40	39	0.43	128	2.0	14	-275
06/15/2000	8.1	61	380	7.0	44	26	0.67	122	11000	14	-266
06/29/2000	7.9	68	408	5.0	41	28	0.96	123	5000	14	-190
07/13/2000	8.1	49	404	4.0	39	34	0.90	110	860	16	-255
07/27/2000	8.1	48	376	8.0	36	29	0.90	113	43	14	-262
08/10/2000	8.2	47	380	6.0	38	33	0.70	106	20	14	-265
08/24/2000	8.0	47	416	3.0	40	34	0.63	102	<1.0	14	-287
09/14/2000	7.3	64	572	3.0	43	25	0.94	121	16000	13	-258
09/28/2000	7.8	49	432	3.0	40	31	0.69	110	3500	13	-255
10/12/2000	7.7	46	430	3.0	185	31	0.74	96	380	13	-265
10/26/2000	8.2	46	396	3.0	38	22	0.66	104	25	13	-268
11/16/2000	8.8	59	390	2.0	35	24	0.61	102	-	13	-266
11/30/2000	8.1	60	404	2.0	37	28	0.48	137	<1.0	13	-268
12/14/2000	8.1	62	392	2.0	38	24	0.55	103	<1.0	11	-268
12/28/2000	8.0	65	392	2.0	38	19	0.56	104	<1.0	8.0	-271
01/11/2001	7.5	62	366	2.0	38	21	0.51	110	<1.0	12	-272
01/25/2001	7.2	63	372	3.0	41	22	0.62	119	<1.0	10	-270
02/08/2001	8.3	59	380	2.0	38	24	0.40	112	<1.0	13	-294
02/22/2001	8.2	58	480	2.0	45	28	0.75	130	600	12	-314
03/08/2001	8.5	47	412	2.0	46	26	0.92	129	540	11	-233
03/22/2001	8.1	47	386	3.0	43	25	0.79	144	28	13	-260
04/05/2001	7.2	48	454	2.0	40	24	0.68	110	3.0	12	-265
04/19/2001	7.9	61	436	2.0	40	22	0.68	100	<1.0	13	-267
05/03/2001	8.4	47	374	2.0	38	22	0.63	109	<1.0	15	-268

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
05/17/2001	8.0	46	372	3.0	33	19	0.67	106	<1.0	14	-268
06/07/2001	7.6	47	498	3.0	72	22	0.84	126	3100	13	-265
06/21/2001	7.8	45	378	3.0	40	23	0.90	106	540	13	-273
07/05/2001	8.3	58	386	3.0	39	27	0.68	105	60	14	-289
07/19/2001	7.1	53	454	3.0	41	22	0.62	101	2.0	14	-272
08/02/2001	7.9	49	406	3.0	46	25	1.0	123	20000	15	-236
08/16/2001	7.8	61	418	3.0	46	32	1.0	112	21000	14	-242
08/30/2001	8.2	45	430	3.0	44	21	0.96	109	8700	14	-262
09/13/2001	8.0	59	232	3.0	42	22	0.73	105	1200	13	-282
09/27/2001	7.5	60	416	3.0	40	23	0.63	96	100	13	-283
10/11/2001	7.8	57	444	3.0	40	17	0.59	97	<1.0	13	-270
10/25/2001	8.3	62	398	3.0	43	25	0.87	97	3500	12	-227
11/08/2001	8.1	62	428	3.0	35	22	0.89	103	550	13	-275
11/28/2001	7.4	61	410	2.0	37	23	0.91	95	42	10	-265
12/06/2001	7.4	62	410	2.0	39	27	0.27	89	14	12	-279
12/20/2001	7.4	66	460	4.0	42	35	0.43	105	<1.0	11	-272
01/17/2002	7.0	53	530	3.0	40	18	0.73	98	<1.0	12	-266
01/31/2002	7.1	62	438	3.0	41	23	0.39	124	<1.0	11	-277
02/13/2002	7.6	57	454	4.0	42	25	0.23	102	<1.0	12	-280
02/28/2002	7.5	59	408	3.0	41	20	0.30	207	<1.0	11	-279
03/14/2002	8.1	65	518	4.0	97	27	1.8	110	1500	13	-273
03/28/2002	8.1	61	446	4.0	39	30	0.76	95	150	12	-262
04/11/2002	7.6	71	430	4.0	45	26	0.84	108	4200	13	-266
04/25/2002	7.7	64	444	4.0	43	26	0.88	108	760	13	-252
05/09/2002	8.1	61	386	4.0	42	28	0.84	104	35	13	-267
05/23/2002	8.2	47	420	4.0	44	23	0.94	111	770	14	-183
06/06/2002	8.6	62	454	4.0	41	29	0.77	102	320	13	-281
06/20/2002	8.3	64	480	3.0	39	35	0.74	101	69	14	-265
07/11/2002	8.0	59	612	4.0	43	6.0	0.51	61	2.0	14	-266
07/25/2002	7.4	73	468	3.0	43	32	0.55	101	<1.0	14	-271
08/08/2002	7.1	68	438	4.0	39	1.0	0.56	115	<1.0	15	-274
08/22/2002	8.1	63	452	4.0	40	20	0.75	112	<1.0	14	-290
09/12/2002	8.2	56	424	3.0	38	27	0.61	96	<1.0	14	-279
09/26/2002	8.2	55	436	4.0	38	21	0.62	105	<1.0	16	-291
10/10/2002	7.4	62	434	4.0	43	28	0.35	98	<1.0	13	-286
10/24/2002	7.3	57	378	3.0	39	28	0.13	94	<1.0	12	-288
11/07/2002	7.3	57	390	3.0	33	41	0.13	98	<1.0	12	-289
11/21/2002	7.6	47	448	4.0	40	30	0.13	103	<1.0	13	-289
12/05/2002	7.0	59	456	3.0	37	25	0.09	100	<1.0	11	-287
12/19/2002	7.0	53	470	3.0	391	24	0.07	97	<1.0	12	-290

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/09/2003	6.9	60	472	4.0	39	20	0.11	99	<1.0	12	-291
01/23/2003	7.1	83	668	5.0	49	158	0.19	360	<1.0	11	-294
02/20/2003	8.0	67	442	4.0	40	24	0.09	98	<1.0	12	-292
03/20/2003	7.8	66	442	4.0	33	21	3.0	109	<1.0	13	-293
04/17/2003	7.6	62	398	4.0	42	24	0.22	117	400	12	-292
05/08/2003	7.0	60	442	4.0	46	30	0.93	98	60	13	-276
05/22/2003	7.1	58	432	6.0	46	27	0.79	102	1400	14	-241
06/05/2003	7.7	57	462	3.0	41	26	0.72	102	120	15	-290
06/19/2003	8.0	60	372	4.0	38	24	0.89	97	33	14	-264
07/10/2003	6.9	57	382	3.0	36	31	0.76	94	-	15	-265
07/24/2003	7.6	56	580	6.0	36	0.30	0.44	60	8200	14	-218
08/07/2003	6.1	59	440	4.0	45	44	0.73	103	16000	16	-244
08/21/2003	7.8	57	442	4.0	40	38	0.75	98	1300	15	-263
09/11/2003	8.2	55	432	4.0	39	37	0.64	92	38	15	-265
09/25/2003	7.1	55	406	3.0	40	35	0.51	96	5.0	14	-273
10/09/2003	7.2	57	432	3.0	39	38	0.18	98	<1.0	14	-274
10/23/2003	8.0	45	384	3.0	38	31	0.46	90	<1.0	13	-272
11/06/2003	8.0	39	374	4.0	44	153	0.59	106	22000	12	-275
11/20/2003	7.4	25	404	4.0	47	37	0.55	96	13000	13	-259
12/04/2003	7.7	26	259	3.0	42	44	0.70	100	2800	12	-246
12/18/2003	7.7	60	396	2.0	37	49	0.76	101	1700	12	-258
01/22/2004	7.8	35	408	3.0	37	32	0.60	90	6.0	10	-269
01/28/2004	7.5	34	386	3.0	38	38	0.17	98	<1.0	11	-289
02/05/2004	7.7	37	428	4.0	37	36	0.05	98	<1.0	11	-281
02/19/2004	6.9	31	470	4.0	39	29	0.43	97	<1.0	12	-274
03/04/2004	7.7	37	425	3.0	40	29	0.22	98	<1.0	12	-277
03/25/2004	7.5	63	449	3.0	48	36	0.75	103	760	13	-245
04/08/2004	7.5	54	442	4.0	44	36	0.52	98	160	13	-268
04/22/2004	7.5	60	458	3.0	43	32	0.63	92	14	13	-269
05/06/2004	7.0	45	430	2.0	50	27	0.41	92	3.0	14	-275
05/20/2004	7.5	57	406	3.0	49	38	0.75	101	6400	14	-250
06/03/2004	7.1	62	580	3.0	67	123	0.72	281	1700	13	-199
06/17/2004	7.4	37	334	6.0	44	28	1.0	105	4000	14	-163
07/15/2004	7.3	58	408	3.0	40	26	0.97	98	160	14	-253
07/29/2004	7.5	38	447	3.0	37	27	0.64	94	12	15	-275
08/12/2004	7.7	35	424	3.0	39	26	0.68	94	130	13	-263
08/26/2004	7.4	53	404	6.0	38	26	0.62	93	21	14	-266
09/29/2004	7.2	31	404	6.0	38	23	0.59	90	1.0	14	-264
11/10/2004	7.5	39	392	3.0	42	26	0.61	96	3700	13	-241
11/24/2004	7.0	61	321	3.0	39	25	0.60	90	580	12	-262

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
02/16/2005	6.9	36	392	4.0	44	29	0.68	88	120	12	-248
05/19/2005	7.4	49	378	3.0	44	27	0.99	96	<1.0	13	-254
06/30/2005	7.5	40	410	2.0	36	28	0.70	86	<1.0	15	-259
08/25/2005	7.2	48	340	2.0	30	26	0.40	77	<1.0	15	-281
11/17/2005	7.7	26	396	4.0	39	24	0.67	82	<1.0	10	-259
12/15/2005	7.4	44	412	1.0	36	27	0.21	78	<1.0	12	-293
03/02/2006	7.1	25	412	1.3	35	30	0.41	87	<1.0	12	-277
03/30/2006	8.2	49	334	1.2	34	24	0.40	96	390	13	-285
04/13/2006	7.6	58	312	1.1	36	24	0.27	97	32	14	-278
07/20/2006	7.5	27	400	1.2	37	30	0.62	92	35	14	-289
09/28/2006	8.1	56	366	1.3	38	26	0.61	89	6000	14	-281
10/26/2006	8.5	56	420	1.3	38	30	0.73	90	590	12	-273
02/08/2007	7.7	33	390	1.6	37	21	0.74	98	33	10	-270
03/15/2007	7.7	36	434	1.9	38	31	0.57	87	1.0	12	-271
05/17/2007	7.8	39	406	1.2	41	25	0.48	90	49	13	-283
06/14/2007	7.7	49	350	1.2	35	25	0.68	88	5.0	14	-281
08/16/2007	7.4	71	336	1.4	34	25	0.47	87	130	22	-287
10/04/2007	8.0	58	372	1.2	33	21	0.66	82	110	14	-286
01/10/2008	8.0	43	436	1.3	22	36	0.31	47	580	12	-240
03/06/2008	7.5	56	380	1.2	47	30	0.63	97	22	13	-281
04/03/2008	7.8	40	352	1.3	37	32	0.77	85	6.0	12	-271
06/12/2008	7.7	40	386	1.1	34	26	0.75	85	3000	14	-269
08/21/2008	8.2	50	402	1.0	30	27	0.70	88	1.0	15	-286
11/06/2008	7.7	39	366	1.0	33	28	0.64	78	14	13	-277
01/08/2009	7.5	60	380	1.4	43	29	0.41	92	310	6.8	-276
03/05/2009	7.2	42	456	1.6	51	31	0.54	92	1100	13	-275
05/07/2009	7.6	60	376	1.6	52	26	0.88	87	200	10	-262
06/25/2009	8.1	40	362	1.6	43	29	0.71	87	13	16	-278
08/06/2009	7.6	54	424	1.5	36	24	0.66	83	<1.0	14	-278
10/01/2009	8.3	45	356	1.4	37	25	0.65	81	80	13	-280
01/07/2010	7.9	41	346	1.6	37	31	0.44	90	48	11	-290
03/17/2010	7.1	41	374	1.7	<15	23	0.49	92	570	13	-269
06/03/2010	8.1	42	396	1.6	39	23	0.64	143	2400	14	-269
09/09/2010	7.7	40	366	1.5	38	33	0.61	94	4.0	14	-290
10/20/2010	7.9	54	362	1.6	37	33	0.40	91	<1.0	13	-280
12/16/2010	7.1	36	350	1.7	34	27	0.46	83	<1.0	12	-280
03/03/2011	7.8	41	354	1.3	39	22	0.43	92	57	12	-280
04/14/2011	7.9	35	354	1.6	38	24	0.38	87	22	13	-280
06/09/2011	8.1	47	370	1.6	40	24	0.72	94	220	14	-265
08/18/2011	7.7	57	370	1.4	38	31	0.71	93	87	16	-269

TABLE 3-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
10/27/2011	8.0	36	354	1.6	35	25	0.59	88	<1.0	12	-280
12/08/2011	7.8	36	372	<1.0	34	29	0.36	89	53	11	-280
01/05/2012	8.1	37	352	1.7	33	27	0.25	87	66	12	-280
03/22/2012	8.0	43	336	1.4	31	26	0.14	79	<1.0	15	-293
05/03/2012	7.2	52	394	1.3	31	28	0.16	85	<1.0	16	-274
07/19/2012	7.8	30	400	4.5	32	26	0.49	86	3.0	15	-288
08/29/2012	7.8	33	366	1.3	31	25	0.22	82	46	14	-271
10/18/2012	7.0	25	432	1.4	31	27	0.16	84	3.0	15	-273
01/10/2013	8.0	35	344	2.0	29	75	0.70	88	<1.0	12	-275
04/25/2013	7.3	32	370	2.0	34	23	0.76	95	260	12	-272
07/18/2013	7.6	62	446	1.0	33	24	0.15	98	21	16	-278
09/05/2013	8.2	47	494	2.0	33	20	0.80	89	<1.0	14	-280
10/03/2013	8.2	45	344	2.0	33	26	0.44	83	<1.0	14	-283
11/20/2013	7.7	21	348	2.0	32	27	0.35	83	20	13	-275

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-3: GROUNDWATER QUALITY DATA FOR WELL QC-2.1 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/11/1995	8.0	87	534	4.0	40	13	0.37	45	<1.0	11	-260
01/25/1995	7.5	84	608	3.0	45	28	0.40	55	<1.0	12	-264
02/09/1995	7.9	85	544	3.0	42	33	0.51	40	<1.0	11	-261
02/23/1995	7.9	84	574	3.0	43	46	0.54	65	<1.0	12	-266
03/09/1995	8.5	85	568	3.0	45	10	0.31	67	<1.0	11	-265
03/23/1995	8.0	86	588	3.0	45	25	0.34	65	<1.0	12	-268
04/06/1995	8.2	78	560	2.0	47	32	0.39	61	<1.0	13	-268
04/19/1995	7.8	86	600	5.0	43	18	0.49	55	<1.0	12	-300
05/04/1995	7.8	84	580	4.0	41	40	0.47	54	<1.0	12	-253
05/18/1995	8.2	86	594	3.0	38	42	0.45	58	<1.0	12	-255
06/01/1995	7.9	84	570	4.0	36	31	0.47	57	<1.0	13	-258
06/15/1995	7.8	81	656	3.0	35	36	0.48	58	<1.0	14	-260
06/29/1995	7.9	79	544	5.0	37	14	0.49	56	<1.0	13	-266
07/13/1995	8.4	78	572	3.0	37	22	0.49	56	<1.0	15	-261
07/27/1995	7.9	78	172	2.0	37	13	0.48	55	<1.0	14	-257
08/10/1995	7.5	72	556	4.0	36	13	0.48	57	<1.0	14	-260
08/24/1995	8.2	86	600	4.0	38	12	0.39	54	<1.0	17	-269
09/07/1995	8.2	88	550	4.0	38	16	0.46	53	<1.0	13	-258
09/21/1995	8.3	81	544	4.0	41	12	0.48	55	<1.0	14	-259
10/05/1995	6.8	80	602	6.0	38	8.0	0.46	57	<1.0	11	-261
10/19/1995	6.9	83	586	4.0	38	14	0.35	60	<1.0	12	-367
11/02/1995	7.8	80	560	9.0	39	16	0.41	55	<1.0	12	-261
11/16/1995	8.0	82	586	7.0	37	12	0.39	52	<1.0	12	-255
11/30/1995	8.0	84	484	6.0	37	12	0.48	55	<1.0	12	-254
12/14/1995	9.0	85	674	5.0	39	11	0.43	52	<1.0	11	-262
12/28/1995	9.4	78	666	4.0	39	16	0.52	54	<1.0	10	-261
01/11/1996	8.7	86	594	8.0	34	16	0.35	54	<1.0	10	-262
02/07/1996	8.2	90	530	3.0	35	10	0.41	55	<1.0	11	-246
04/04/1996	8.6	83	596	5.0	36	7.0	0.47	64	<1.0	12	-231
07/25/1996	8.6	81	620	8.0	36	11	0.51	53	<1.0	13	-223
08/08/1996	8.4	100	556	8.0	36	10	0.48	54	<1.0	15	-263
08/22/1996	8.4	93	714	4.0	35	11	0.45	56	<1.0	15	-264
09/19/1996	8.4	50	542	7.0	35	11	0.45	56	<1.0	14	-246
10/03/1996	-	81	420	8.0	47	10	0.97	56	<1.0	12	-265
10/17/1996	8.4	80	546	6.0	36	10	0.47	53	<1.0	12	-257
10/31/1996	8.4	80	590	7.0	36	17	0.38	55	<1.0	12	-260
11/14/1996	8.6	80	656	5.0	37	11	0.37	56	<1.0	11	-261
11/27/1996	8.4	67	614	13	36	36	0.39	54	<1.0	10	-269
12/12/1996	7.8	83	594	5.0	35	7.0	0.39	51	<1.0	11	-266
12/26/1996	8.5	80	590	2.0	39	9.0	0.39	54	<1.0	11	-267

TABLE 3-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/09/1997	8.0	81	534	4.0	36	13	0.39	54	<1.0	11	-270
01/23/1997	7.4	82	584	9.0	36	7.0	0.35	58	<1.0	10	-266
02/06/1997	7.4	99	622	14	36	9.0	0.34	56	<1.0	10	-266
02/20/1997	7.5	99	600	7.0	36	9.0	0.38	56	<1.0	11	-262
03/06/1997	7.9	79	538	2.0	35	10	0.40	60	<1.0	12	-264
03/27/1997	8.1	102	716	5.0	48	10	0.20	60	<1.0	13	-269
05/08/1997	8.1	81	624	25	41	8.0	0.36	60	<1.0	13	-237
05/22/1997	8.0	97	582	15	39	15	0.36	55	<1.0	13	-267
06/05/1997	7.7	82	858	10	38	8.0	0.35	58	<1.0	13	-269
06/19/1997	8.0	80	568	8.0	38	9.0	0.46	56	<1.0	14	-266
07/03/1997	7.8	80	588	9.0	35	11	0.48	62	<1.0	14	-260
07/17/1997	8.0	79	612	6.0	37	8.0	0.42	55	<1.0	15	-269
07/31/1997	7.9	80	570	6.0	35	8.0	0.34	54	<1.0	15	-268
08/14/1997	7.3	77	648	8.0	35	9.0	0.31	55	<1.0	14	-270
08/28/1997	7.5	76	444	6.0	49	22	0.95	121	6000	16	-269
09/11/1997	7.3	71	520	4.0	37	24	0.42	56	<1.0	14	-268
09/25/1997	8.1	78	532	5.0	36	10	0.40	57	<1.0	16	-271
10/09/1997	7.6	71	612	3.0	36	11	0.40	56	<1.0	13	-267
10/23/1997	7.6	78	558	4.0	37	11	0.38	34	<1.0	12	-265
11/06/1997	8.6	76	572	5.0	36	10	0.37	56	<1.0	12	-272
11/20/1997	8.8	78	620	3.0	36	14	0.33	54	<1.0	12	-270
12/11/1997	8.0	74	566	6.0	36	14	0.41	60	<1.0	12	-261
01/08/1998	8.5	74	576	13	38	13	0.41	65	<1.0	9.0	-254
01/22/1998	8.5	85	586	9.0	35	8.0	0.39	62	<1.0	11	-273
02/05/1998	7.8	75	462	3.0	44	11	0.88	57	<1.0	11	-268
02/19/1998	8.1	85	570	4.0	34	12	0.38	58	<1.0	12	-270
03/05/1998	7.9	78	530	4.0	36	15	0.42	57	<1.0	12	-272
03/19/1998	8.1	106	562	5.0	36	14	0.31	57	<1.0	11	-273
04/02/1998	8.7	78	510	4.0	36	28	0.35	58	<1.0	13	-276
04/16/1998	8.6	79	418	4.0	49	23	0.85	123	<1.0	13	-271
04/30/1998	8.1	71	584	5.0	37	15	0.29	56	<1.0	13	-272
05/14/1998	8.2	71	450	3.0	50	23	1.1	121	<1.0	13	-271
05/28/1998	8.1	72	586	5.0	36	34	0.36	126	<1.0	14	-272
06/11/1998	8.7	77	550	4.0	35	12	0.39	57	<1.0	14	-273
06/25/1998	8.9	77	580	3.0	35	14	0.40	537	<1.0	16	-263
07/09/1998	8.4	88	542	3.0	38	13	0.32	55	<1.0	15	-270
07/23/1998	8.3	77	558	4.0	36	13	0.43	58	<1.0	16	-274
08/06/1998	7.3	71	634	4.0	36	12	0.41	59	<1.0	15	-274
08/20/1998	8.3	69	546	4.0	40	10	0.35	58	<1.0	14	-275
09/03/1998	8.7	75	556	3.0	38	14	0.40	59	<1.0	15	-255

TABLE 3-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/17/1998	8.3	76	584	3.0	37	11	0.38	59	<1.0	16	-273
10/01/1998	7.3	69	558	4.0	39	10	0.29	63	<1.0	14	-273
10/14/1998	7.9	78	574	3.0	40	24	0.38	58	<1.0	14	-276
10/29/1998	7.9	80	586	4.0	34	13	0.44	56	<1.0	13	-273
11/12/1998	7.6	73	534	4.0	40	16	0.51	56	<1.0	12	-275
12/03/1998	7.9	80	560	3.0	39	14	0.42	55	<1.0	14	-267
12/17/1998	7.9	103	630	4.0	42	9.0	0.36	102	<1.0	11	-290
12/30/1998	7.9	73	622	3.0	37	11	0.40	56	<1.0	10	-279
01/14/1999	7.4	53	576	3.0	39	10	0.37	54	<1.0	10	-276
01/28/1999	7.5	77	510	3.0	38	16	0.39	57	<1.0	11	-277
02/11/1999	8.2	71	640	4.0	37	11	0.31	57	<1.0	13	-276
02/25/1999	8.0	73	532	2.0	37	8.0	0.38	58	<1.0	12	-276
03/11/1999	8.0	78	522	5.0	36	9.0	0.37	56	<1.0	13	-278
03/25/1999	7.9	79	510	3.0	39	16	0.45	57	<1.0	13	-276
04/08/1999	7.5	75	526	4.0	37	10	0.38	60	<1.0	14	-277
04/22/1999	8.2	81	518	2.0	35	13	0.52	57	<1.0	12	-279
05/06/1999	7.3	71	572	4.0	35	10	0.40	57	<1.0	15	-280
05/20/1999	6.8	75	560	3.0	36	14	0.39	58	<1.0	16	-276
06/04/1999	7.9	74	536	2.0	37	6.0	0.43	59	<1.0	13	-277
06/17/1999	8.2	64	502	3.0	38	6.0	0.37	59	<1.0	13	-276
07/01/1999	8.4	66	550	3.0	96	8.0	0.43	61	<1.0	13	-278
07/15/1999	7.1	72	584	3.0	35	10	0.44	59	<1.0	17	-277
07/29/1999	7.5	69	626	2.0	37	9.0	0.33	64	1500	17	-277
08/12/1999	7.3	83	606	3.0	35	6.0	0.40	60	<1.0	13	-277
08/26/1999	7.4	75	572	3.0	37	5.0	0.40	67	<1.0	15	-280
09/10/1999	7.7	73	506	4.0	36	6.0	0.37	63	<1.0	15	-275
09/23/1999	7.6	84	612	3.0	35	7.0	0.40	55	<1.0	12	-281
10/21/1999	8.0	88	560	3.0	36	7.0	0.32	60	<1.0	14	-279
11/04/1999	7.5	74	540	3.0	35	9.0	0.47	62	<1.0	15	-276
11/18/1999	7.2	83	540	3.0	35	30	0.54	58	<1.0	16	-276
12/02/1999	8.0	89	542	3.0	39	8.0	0.49	69	<1.0	12	-281
12/16/1999	8.1	66	554	7.0	36	11	0.48	62	<1.0	11	-282
01/06/2000	6.7	83	602	5.0	34	6.0	0.51	58	<1.0	12	-275
01/20/2000	8.1	85	528	8.0	39	5.0	0.53	61	<1.0	10	-283
02/03/2000	8.3	93	586	4.0	39	6.0	0.51	61	<1.0	11	-285
02/17/2000	8.2	64	448	2.0	39	7.0	0.53	84	<1.0	11	-278
03/02/2000	8.3	77	654	2.0	34	8.0	0.45	62	<1.0	10	-285
03/16/2000	8.4	59	620	6.0	36	6.0	0.50	65	<1.0	11	-285
03/30/2000	8.0	90	752	5.0	34	6.0	0.48	64	<1.0	13	-285
04/13/2000	8.3	94	512	7.0	37	8.0	0.50	57	<1.0	13	-286

TABLE 3-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
04/27/2000	8.0	82	634	11	37	11	0.54	86	<1.0	14	-285
05/11/2000	7.9	66	588	8.0	35	9.0	0.52	59	<1.0	13	-283
05/25/2000	7.9	72	628	10	35	9.0	0.42	61	<1.0	14	-285
06/01/2000	8.0	90	640	6.0	36	17	0.47	70	<1.0	14	-292
06/29/2000	8.0	92	542	11	35	9.0	0.46	66	<1.0	14	-286
07/13/2000	8.0	88	566	5.0	33	8.0	0.49	60	<1.0	15	-281
07/27/2000	8.1	64	536	2.0	33	7.0	0.54	62	<1.0	13	-281
08/10/2000	8.1	88	550	2.0	35	8.0	0.50	61	2.0	15	-288
09/14/2000	7.4	93	572	2.0	34	10	0.48	63	<1.0	14	-273
12/28/2000	8.5	87	532	2.0	35	6.0	0.56	62	<1.0	8	-248
01/11/2001	7.3	91	524	2.0	34	<1.0	0.53	63	<1.0	12	-286
02/22/2001	8.5	58	508	2.0	32	<1.0	0.54	68	<1.0	10	-285
03/08/2001	8.5	86	612	3.0	33	1.0	0.51	73	<1.0	11	-282
03/22/2001	8.2	84	594	2.0	36	1.0	0.55	73	<1.0	12	-288
04/05/2001	7.1	70	658	2.0	36	1.0	0.51	70	<1.0	12	-289
04/19/2001	8.1	69	582	2.0	37	1.0	0.44	60	<1.0	13	-289
05/03/2001	8.4	82	516	2.0	35	3.0	0.41	87	<1.0	14	-289
05/17/2001	8.4	82	550	2.0	34	<1.0	0.43	69	<1.0	13	-289
06/07/2001	7.5	90	570	2.0	36	<1.0	0.50	63	<1.0	13	-285
06/21/2001	7.6	90	526	2.0	36	<1.0	0.53	61	<1.0	13	-286
07/05/2001	8.3	90	538	3.0	37	14	0.38	80	<1.0	15	-289
07/19/2001	7.2	72	572	2.0	34	<1.0	0.44	57	<1.0	15	-290
08/02/2001	7.9	93	594	2.0	39	7.0	0.53	66	1.0	15	-289
08/16/2001	8.0	63	606	2.0	39	5.0	0.49	62	<1.0	13	-288
08/30/2001	8.1	66	554	3.0	35	<1.0	0.45	69	<1.0	15	-295
10/11/2001	8.0	56	532	2.0	35	<1.0	0.87	56	<1.0	13	-288
10/25/2001	6.5	61	534	2.0	38	1.0	0.49	57	<1.0	12	-290
12/06/2001	7.6	62	558	2.0	36	1.0	0.50	70	<1.0	12	-293
12/20/2001	7.4	60	550	6.0	37	8.0	0.55	60	<1.0	11	-290
01/31/2002	7.5	85	604	5.0	39	2.0	0.46	73	<1.0	10	-291
02/13/2002	7.9	60	608	7.0	41	12	0.41	63	<1.0	11	-292
04/11/2002	7.8	62	542	3.0	38	5.0	0.42	62	<1.0	14	-290
04/25/2002	7.5	61	604	3.0	33	8.0	0.56	62	<1.0	12	-291
05/23/2002	7.9	65	536	5.0	44	<1.0	0.53	61	<1.0	13	-291
06/20/2002	8.6	64	616	4.0	35	8.0	0.55	61	<1.0	15	-289
07/11/2002	7.9	50	380	4.0	42	33	0.85	98	<1.0	14	-289
07/25/2002	7.5	61	744	4.0	41	8.0	0.55	60	<1.0	15	-289
08/08/2002	7.2	67	546	5.0	36	<1.0	0.52	64	<1.0	15	-292
08/22/2002	8.3	61	642	4.0	37	<1.0	0.66	68	<1.0	14	-294
10/10/2002	7.5	62	542	4.0	39	6.0	0.56	58	<1.0	13	-289

TABLE 3-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
11/21/2002	7.5	72	604	5.0	36	9.0	0.51	57	<1.0	12	-292
12/05/2002	8.1	53	564	4.0	34	3.0	0.38	57	<1.0	10	-291
12/19/2002	8.0	71	606	4.0	97	2.0	0.47	61	<1.0	12	-292
01/09/2003	7.2	80	644	5.0	37	0.80	0.52	62	<1.0	11	-290
01/23/2003	7.3	84	588	4.0	40	7.1	0.48	64	<1.0	10	-290
02/06/2003	7.5	60	576	4.0	40	12	0.52	60	<1.0	11	-288
02/20/2003	8.1	74	528	6.0	40	3.5	0.37	65	<1.0	13	-291
03/20/2003	7.6	58	568	5.0	34	<0.70	0.56	57	<1.0	12	-290
04/03/2003	7.4	61	598	5.0	34	1.0	0.41	61	<1.0	12	-296
04/17/2003	7.5	61	538	4.0	34	1.0	0.53	66	<1.0	12	-290
05/08/2003	6.8	80	580	5.0	36	5.0	0.58	64	4.0	12	-289
05/22/2003	7.8	83	590	5.0	41	1.0	0.58	64	<1.0	13	-288
06/05/2003	7.5	65	608	5.0	33	1.0	0.59	63	<1.0	14	-289
06/19/2003	7.8	65	528	4.0	35	4.0	0.58	62	<1.0	14	-292
07/10/2003	7.3	69	560	4.0	34	5.0	0.41	64	<1.0	15	-289
07/24/2003	7.5	57	410	4.0	38	36	0.84	100	1.0	13	-292
08/07/2003	6.6	65	566	2.0	38	1.0	0.49	57	2.0	15	-291
08/21/2003	8.0	57	584	4.0	35	<0.70	0.54	65	<1.0	16	-292
09/11/2003	8.1	86	552	4.0	35	<0.70	0.44	51	<1.0	16	-290
09/25/2003	7.1	43	562	4.0	35	2.0	0.46	54	<1.0	13	-293
10/09/2003	7.4	78	552	3.0	35	1.0	0.41	58	<1.0	13	-293
10/23/2003	7.7	33	614	3.0	35	2.0	0.36	63	<1.0	12	-292
11/06/2003	8.7	53	562	5.0	36	<0.70	0.45	59	<1.0	12	-293
11/20/2003	7.2	33	492	4.0	35	3.0	0.57	54	<1.0	12	-294
12/04/2003	7.5	28	504	2.0	36	5.0	0.41	62	2.0	10	-294
12/18/2003	8.0	59	590	3.0	36	3.0	0.44	68	<1.0	9	-292
01/22/2004	7.5	29	520	4.0	35	0.90	0.55	60	<1.0	12	-288
01/28/2004	7.6	43	496	4.0	35	<0.40	0.49	60	<1.0	10	-293
02/05/2004	7.9	28	538	4.0	35	14	0.35	80	<1.0	11	-295
02/19/2004	7.2	43	608	2.0	35	1.0	0.58	62	<1.0	11	-295
03/04/2004	8.0	41	554	3.0	37	1.0	0.52	62	<1.0	12	-293
04/08/2004	7.6	75	530	3.0	72	1.0	0.53	60	<1.0	12	-293
04/22/2004	7.3	44	562	6.0	37	1.0	0.44	58	<1.0	12	-293
05/06/2004	7.2	44	538	2.0	43	2.0	0.49	60	<1.0	14	-295
05/20/2004	8.6	78	548	3.0	40	<0.40	0.31	52	3.0	16	-293
06/03/2004	7.1	85	548	2.0	35	5.0	0.40	67	3.0	14	-293
06/17/2004	7.8	45	526	3.0	38	3.0	0.46	58	84	15	-293
07/15/2004	7.7	77	602	3.0	38	17	0.58	59	<1.0	14	-288
07/29/2004	7.8	52	554	3.0	40	4.0	0.04	64	<1.0	15	-295
08/26/2004	7.5	73	512	9.0	35	6.0	0.48	60	<1.0	14	-293

TABLE 3-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.1
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/29/2004	8.0	41	506	3.0	32	<0.40	0.53	60	<1.0	13	-289
11/10/2004	7.7	53	504	5.0	36	<0.40	0.51	61	31	12	-286
11/24/2004	7.0	85	461	2.0	36	2.0	0.44	56	37	11	-291
05/19/2005	7.6	67	702	2.0	36	5.0	0.57	62	<1.0	13	-271
06/30/2005	7.6	61	540	1.0	34	1.0	0.42	55	<1.0	17	-286
11/17/2005	7.5	36	496	1.0	35	<0.40	0.56	60	<1.0	11	-272
03/02/2006	7.2	36	366	1.2	14	40	0.34	46	<1.0	11	-295
02/08/2007	8.0	40	532	0.90	5.0	0.40	0.63	62	<1.0	10	-295
05/17/2007	8.0	51	510	0.90	36	<0.40	0.60	56	<1.0	12	-294
06/12/2008	8.0	54	570	0.80	34	1.0	0.74	48	1.0	14	-292
08/21/2008	8.6	47	406	1.0	12	33	0.26	47	<1.0	14	-288
03/05/2009	7.6	56	512	1.2	34	<2.0	0.64	54	<1.0	13	-285
08/06/2009	7.4	75	592	1.4	35	<2.0	0.67	55	<1.0	14	-283
10/01/2009	7.9	61	514	1.1	32	<2.0	0.63	57	<1.0	12	-291
10/20/2010	7.6	64	518	1.4	33	<2.0	0.77	59	<1.0	13	-285
12/16/2010	7.4	49	518	1.2	33	<2.0	0.67	64	<1.0	11	-293
03/03/2011	7.8	66	522	1.1	35	<2.0	0.68	64	<1.0	12	-280
06/09/2011	8.1	67	524	1.2	33	<2.0	0.56	58	<1.0	14	-286
08/18/2011	7.6	63	454	1.0	18	<2.0	0.29	39	<1.0	17	-296
01/05/2012	7.9	42	526	1.2	34	<5.0	0.70	62	<1.0	12	-282
03/22/2012	7.8	50	516	1.2	32	<5.0	0.66	63	<1.0	15	-280
05/03/2012	7.7	87	576	<1.0	34	<5.0	0.65	64	<1.0	15	-282
08/29/2012	8.1	53	564	1.1	32	7.9	0.54	58	<1.0	14	-285
01/10/2013	7.7	44	502	1.0	33	<5.0	0.62	67	<1.0	10	-286
04/25/2013	7.1	41	516	1.0	33	<5.0	0.64	66	<1.0	13	-281
07/18/2013	8.2	43	660	1.0	31	<5.0	0.66	67	<1.0	15	-282

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-4: GROUNDWATER QUALITY DATA FOR WELL QC-2.2 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----					MPN/ 100 mL	°C	ft ²	
02/09/1995	8.0	144	656	21	45	112	1.5	12	<1.0	12	-180
02/23/1995	8.0	59	396	3.0	53	55	0.91	98	14	12	-261
03/09/1995	8.5	62	420	5.0	19	58	0.45	27	<1.0	11	-218
03/23/1995	9.1	60	658	4.0	21	115	0.48	27	<1.0	12	-210
04/06/1995	7.5	58	396	3.0	20	493	0.55	29	<1.0	13	-219
04/19/1995	7.8	57	392	4.0	19	22	0.50	29	<1.0	12	-212
05/04/1995	8.7	56	406	4.0	15	81	0.55	27	<1.0	12	-205
05/18/1995	8.9	96	364	3.0	15	85	0.54	31	<1.0	12	-212
06/01/1995	8.8	53	438	4.0	14	106	0.54	31	<1.0	14	-215
06/15/1995	8.9	53	408	4.0	13	79	0.64	32	<1.0	14	-214
06/29/1995	7.8	52	378	5.0	14	94	0.60	33	<1.0	14	-214
07/13/1995	8.4	52	370	3.0	14	111	0.54	34	<1.0	14	-217
07/27/1995	8.1	53	410	4.0	13	44	0.55	36	<1.0	14	-224
08/10/1995	8.3	52	364	3.0	16	36	0.56	36	<1.0	14	-220
08/24/1995	8.6	54	418	3.0	16	70	0.57	36	<1.0	15	-221
09/07/1995	8.6	57	360	3.0	15	51	0.49	36	<1.0	13	-224
09/21/1995	8.6	54	348	4.0	16	48	0.49	39	<1.0	13	-225
10/05/1995	6.7	54	430	4.0	14	33	0.48	41	<1.0	12	-228
10/19/1995	7.1	55	444	5.0	21	43	0.43	42	<1.0	12	-281
11/02/1995	8.0	68	402	7.0	12	44	0.46	42	<1.0	12	-231
11/16/1995	8.2	75	394	6.0	13	42	0.56	41	<1.0	12	-201
11/30/1995	7.9	80	344	5.0	16	42	0.49	41	<1.0	12	-218
12/14/1995	8.8	56	426	7.0	41	33	0.73	112	<1.0	12	-231
12/28/1995	8.7	56	394	6.0	24	44	0.51	43	<1.0	11	-228
01/11/1996	8.8	56	422	5.0	20	40	0.52	42	<1.0	10	-227
01/25/1996	8.8	55	414	7.0	15	39	0.48	33	<1.0	11	-232
02/22/1996	8.6	70	406	4.0	16	40	0.41	47	<1.0	11	-240
03/07/1996	8.6	51	424	4.0	16	43	0.25	48	<1.0	13	-244
03/21/1996	8.6	58	412	5.0	12	43	0.22	49	<1.0	11	-247
04/04/1996	8.6	56	412	8.0	15	42	0.24	55	<1.0	11	-240
04/18/1996	8.7	51	866	4.0	41	8.0	0.36	574	<1.0	14	-248
05/02/1996	8.8	54	404	5.0	19	38	0.21	50	<1.0	12	-248
05/16/1996	8.5	56	414	7.0	15	41	0.23	46	<1.0	12	-248
05/30/1996	7.1	54	390	6.0	13	35	0.32	48	<1.0	13	-240
06/13/1996	8.8	52	392	8.0	15	45	0.39	48	1100	14	-225
06/27/1996	8.6	52	462	7.0	15	46	0.28	49	<1.0	14	-247
07/11/1996	8.6	53	438	6.0	13	54	0.31	49	<1.0	15	-238
08/08/1996	8.8	61	370	5.0	13	44	0.32	48	<1.0	16	-204
08/22/1996	8.4	60	526	5.0	16	54	0.29	50	<1.0	16	-249
09/05/1996	8.5	53	360	5.0	16	36	0.24	45	<1.0	-	-246

TABLE 3-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/19/1996	8.8	33	368	6.0	13	35	0.39	48	<1.0	15	-235
04/10/1997	8.7	62	326	5.0	15	33	0.52	33	<1.0	11	-180
10/09/1997	8.0	47	372	7.0	15	30	0.59	30	<1.0	12	-186
04/02/1998	8.5	51	340	5.0	14	34	0.49	39	<1.0	12	-176
08/06/1998	7.2	47	396	4.0	14	32	0.55	45	<1.0	14	-182
11/12/1998	8.3	48	350	2.0	15	32	0.64	45	<1.0	12	-182
01/14/1999	7.3	38	426	3.0	15	37	0.38	49	<1.0	10	-186
05/06/1999	7.7	52	398	3.0	49	29	0.96	115	410	14	-175
11/04/1999	7.8	49	348	3.0	13	37	0.44	47	<1.0	15	-122
05/11/2000	8.7	44	386	10	13	34	0.55	40	<1.0	12	-175
11/16/2000	9.1	41	382	8.0	14	31	0.52	40	<1.0	12	-177
11/30/2000	8.8	40	412	2.0	12	37	0.46	52	<1.0	12	-258
05/03/2001	9.1	42	348	2.0	12	30	0.55	45	<1.0	14	-177
05/17/2001	8.5	43	352	2.0	13	30	0.37	49	<1.0	15	-245
11/08/2001	8.6	41	408	3.0	14	28	0.53	43	<1.0	13	-278
11/28/2001	7.2	35	382	2.0	13	31	0.34	45	<1.0	10	-228
05/09/2002	8.0	46	342	4.0	15	30	0.58	45	<1.0	13	-182
11/23/2002	8.4	42	376	4.0	18	24	0.53	47	<1.0	13	-234
05/08/2003	7.2	41	432	4.0	16	23	0.59	34	<1.0	13	-184
09/11/2003	8.5	36	412	4.0	14	46	0.47	39	<1.0	16	-185
09/29/2004	7.5	34	362	4.0	16	27	0.58	33	<1.0	13	-186
02/16/2005	7.4	36	336	3.0	16	32	0.54	41	<1.0	12	-179
05/19/2005	7.7	44	388	2.0	14	105	0.43	43	<1.0	13	-185
11/17/2005	7.6	26	382	1.0	15	34	0.25	41	<1.0	11	-184
03/02/2006	7.3	25	514	1.2	31	3.0	0.44	57	<1.0	11	-278
03/30/2006	8.2	45	330	1.1	13	30	0.25	48	<1.0	13	-279
04/13/2006	7.5	56	306	1.1	15	31	0.03	52	<1.0	14	-280
02/08/2007	8.2	30	362	1.2	14	26	0.45	38	<1.0	10	-221
05/17/2007	8.2	38	374	1.1	17	27	0.53	41	<1.0	12	-282
10/04/2007	8.6	56	360	1.0	16	27	0.52	35	<1.0	15	-270
01/10/2008	8.5	42	394	1.5	32	26	0.36	85	<1.0	9.0	-285
06/12/2008	7.9	38	350	0.90	13	33	0.29	45	10	13	-223
03/05/2009	7.7	38	346	1.4	14	32	0.36	40	<1.0	14	-277
08/06/2009	7.6	51	358	1.2	14	25	0.55	39	<1.0	14	-275
10/01/2009	8.7	43	346	1.2	13	33	0.49	40	<1.0	13	-275
01/07/2010	7.8	42	344	1.3	<15	30	0.34	47	<1.0	11	-286
03/17/2010	8.1	38	346	1.4	<15	28	0.25	49	4.0	13	-288
09/09/2010	7.6	38	172	1.5	<15	31	0.20	46	1.0	13	-288
03/03/2011	8.1	41	356	1.2	15	25	0.18	45	<1.0	12	-282
06/09/2011	8.6	43	352	1.3	13	24	0.27	40	<1.0	13	-257

TABLE 3-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-2.2
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
08/18/2011	7.9	51	436	1.3	32	19	0.45	67	41	15	-217
01/05/2012	8.4	36	360	1.4	15	29	0.24	48	<1.0	11	-282
05/03/2012	7.3	84	370	1.2	13	29	0.42	47	<1.0	14	-279
08/29/2012	8.0	62	366	1.3	12	27	0.35	44	<1.0	14	-279
01/10/2013	8.2	58	330	1.0	14	26	0.46	46	<1.0	11	-282
04/25/2013	8.5	53	336	2.0	15	22	0.55	44	<1.0	12	-279
07/18/2013	8.0	47	428	1.0	13	22	0.59	45	<1.0	16	-285

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-5: GROUNDWATER QUALITY DATA FOR WELL QC-3 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/12/1995	7.6	69	492	3.0	30	45	0.32	61	3.0	12	-256
03/02/1995	8.1	69	422	2.0	24	46	0.38	59	3.0	11	-257
05/11/1995	7.8	65	428	4.0	15	38	0.42	61	9.0	13	-257
07/20/1995	7.0	66	440	2.0	13	50	0.02	65	<1.0	14	-263
09/14/1995	8.4	64	464	4.0	13	36	0.07	65	<1.0	14	-266
11/09/1995	7.9	62	508	7.0	11	31	0.08	56	<1.0	12	-267
01/04/1996	8.3	66	416	5.0	11	36	0.12	67	<1.0	9.0	-261
03/28/1996	8.0	64	448	5.0	7.0	32	0.07	65	<1.0	12	-266
05/15/1996	8.2	58	398	2.0	7.0	22	0.30	59	100	13	-187
05/30/1996	7.1	60	414	4.0	8.0	21	0.37	64	95	12	-252
07/10/1996	8.5	59	428	6.0	11	35	0.40	60	<1.0	13	-247
09/12/1996	8.6	42	452	4.0	11	26	0.37	57	<1.0	12	-249
11/21/1996	8.7	63	406	4.0	11	27	0.31	55	<1.0	11	-253
01/09/1997	8.5	57	398	8.0	9.0	21	0.32	64	<1.0	10	-255
03/05/1997	8.1	58	448	2.0	13	24	0.36	65	220	12	-99
05/21/1997	7.9	60	420	2.0	14	24	0.39	63	<1.0	12	-246
07/10/1997	7.9	55	452	2.0	14	23	0.48	67	<1.0	13	-247
09/11/1997	8.1	53	410	3.0	12	27	0.37	62	<1.0	14	-240
11/12/1997	8.2	62	469	5.0	11	19	0.27	69	<1.0	13	-246
01/29/1998	8.7	59	404	4.0	14	25	0.28	63	<1.0	11	-238
03/26/1998	8.3	49	466	4.0	13	20	0.45	59	14	13	-175
05/07/1998	8.4	53	426	4.0	11	39	0.40	65	<1.0	12	-234
07/02/1998	8.4	53	388	3.0	9.0	22	0.33	83	<1.0	15	-229
09/03/1998	8.7	50	402	3.0	9.0	31	0.41	63	<1.0	13	-227
11/19/1998	7.3	53	410	2.0	12	25	0.36	60	<1.0	12	-238
01/07/1999	8.2	58	424	2.0	13	23	0.35	60	<1.0	9.0	-234
03/25/1999	8.3	53	370	2.0	13	26	0.38	54	<1.0	13	-228
05/13/1999	7.4	49	390	2.0	3.0	23	0.32	62	<1.0	14	-208
07/08/1999	7.6	53	412	2.0	10	31	0.30	61	<1.0	16	-204
09/02/1999	8.3	61	444	2.0	11	22	0.31	62	<1.0	13	-225
11/05/1999	7.9	56	396	2.0	11	25	0.45	64	<1.0	14	-228
01/13/2000	8.2	46	428	3.0	10	25	0.41	63	<1.0	11	-228
03/09/2000	8.3	49	432	2.0	11	21	0.48	65	<1.0	12	-229
05/17/2000	8.3	46	416	9.0	9.0	24	0.42	63	<1.0	13	-222
07/20/2000	8.6	47	380	3.0	9.0	22	0.41	66	<1.0	13	-224
09/21/2000	7.3	68	394	2.0	10	26	0.43	60	<1.0	13	-215
11/02/2000	8.2	46	386	2.0	9.0	20	0.41	96	<1.0	13	-224
01/04/2001	7.9	44	434	1.0	11	29	0.43	68	<1.0	11	-226
03/15/2001	8.3	46	400	1.0	9.0	26	0.45	66	<1.0	12	-214
05/03/2001	7.6	49	404	1.0	11	22	0.38	68	<1.0	13	-222

TABLE 3-5 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-3
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
07/05/2001	7.8	48	406	2.0	13	23	0.44	63	<1.0	13	-222
09/27/2001	7.5	47	402	2.0	11	21	0.37	60	<1.0	13	-221
11/15/2001	7.2	57	426	2.0	17	20	0.43	63	<1.0	13	-222
01/10/2002	7.8	45	400	2.0	11	24	0.44	57	<1.0	12	-228
03/07/2002	7.1	54	422	2.0	14	24	0.41	66	<1.0	12	-236
05/09/2002	8.0	44	382	4.0	12	26	0.42	66	<1.0	13	-241
07/11/2002	7.2	56	440	3.0	14	33	0.45	64	<1.0	14	-233
09/12/2002	7.4	42	430	2.0	14	29	0.50	63	<1.0	13	-236
11/07/2002	7.0	43	422	3.0	11	33	0.46	63	<1.0	12	-240
01/16/2003	7.3	43	438	4.0	12	27	0.40	65	<1.0	11	-236
03/19/2003	7.6	42	390	3.0	10	27	1.4	64	<1.0	12	-236
05/15/2003	7.4	47	428	3.0	10	21	0.41	64	30	12	-206
07/24/2003	8.0	49	432	3.0	12	33	0.47	64	<1.0	14	-216
09/18/2003	7.7	58	476	4.0	16	41	0.37	63	<1.0	13	-229
11/06/2003	6.7	24	400	3.0	11	27	0.32	66	<1.0	12	-234
01/15/2004	7.8	37	406	2.0	12	31	0.49	66	<1.0	12	-230
03/18/2004	8.1	35	394	4.0	19	32	0.40	64	<1.0	12	-227
05/06/2004	7.3	36	442	1.0	16	28	0.43	62	<1.0	13	-231
07/22/2004	7.7	57	418	3.0	12	24	0.43	62	<1.0	14	-218
09/30/2004	7.4	65	470	2.0	12	23	0.43	64	<1.0	13	-224
11/18/2004	7.4	43	400	1.0	12	25	0.45	62	<1.0	13	-225
01/27/2005	6.9	37	406	1.0	12	23	0.43	65	1.0	11	-196
06/02/2005	7.6	50	424	2.0	12	24	0.39	63	<1.0	13	-220
09/22/2005	7.4	33	368	1.0	11	25	0.34	65	<1.0	13	-225
05/18/2006	7.4	35	402	0.40	16	26	0.41	70	<1.0	12	-222
08/31/2006	8.4	65	438	0.50	23	25	0.37	66	<1.0	14	-207
11/09/2006	7.9	35	388	0.50	12	30	0.35	65	<1.0	13	-216
04/12/2007	7.7	38	396	0.50	13	28	0.44	64	<1.0	12	-218
06/21/2007	7.6	62	428	0.50	13	24	0.40	66	<1.0	15	-226
11/08/2007	8.2	57	408	0.40	13	29	0.42	66	<1.0	13	-224
01/10/2008	8.0	48	528	0.60	13	26	0.42	66	<1.0	9.0	-201
06/12/2008	8.0	43	420	0.40	12	27	0.45	65	<1.0	14	-236
11/06/2008	8.0	45	438	1.0	12	23	0.38	59	<1.0	12	-257
03/05/2009	8.2	36	404	<1.0	13	27	0.42	61	<1.0	13	-206

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-6: GROUNDWATER QUALITY DATA FOR WELL QC-4 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/12/1995	8.2	68	456	6.0	17	30	0.05	4.0	<1.0	12	-247
03/02/1995	8.2	70	452	7.0	14	62	0.13	12	<1.0	11	-249
05/11/1995	8.5	70	482	5.0	14	39	0.18	12	14	12	-253
07/20/1995	6.6	69	462	7.0	7.0	39	0.13	12	<1.0	13	-265
09/14/1995	8.6	68	514	2.0	9.0	32	0.12	12	<1.0	15	-270
11/09/1995	8.1	66	542	8.0	8.0	23	0.13	11	<1.0	12	-271
01/04/1996	6.9	87	454	8.0	7.0	27	0.13	12	1.0	10	-260
03/28/1996	8.8	70	458	7.0	6.0	26	0.11	12	<1.0	12	-270
05/15/1996	8.6	66	438	1.0	7.0	21	0.12	11	5800	12	-259
05/30/1996	7.1	64	450	9.0	9.0	20	0.12	11	1100	12	-249
07/10/1996	8.9	65	522	7.0	9.0	57	0.11	12	<1.0	13	-237
09/12/1996	9.0	46	532	4.0	10	23	0.13	12	<1.0	12	-248
11/21/1996	8.9	67	456	7.0	10	28	<0.01	12	<1.0	10	-257
01/09/1997	8.8	69	446	5.0	8.0	12	0.01	13	<1.0	10	-262
03/05/1997	8.0	65	512	4.0	9.0	21	0.11	13	55	11	-99
05/21/1997	7.6	66	450	2.0	14	20	0.05	11	<1.0	12	-256
07/10/1997	8.5	60	466	11	13	18	0.25	12	<1.0	13	-259
09/11/1997	8.8	58	438	2.0	13	20	0.05	11	33	13	-257
11/12/1997	8.8	70	510	3.0	11	19	0.03	12	<1.0	12	-260
01/29/1998	8.3	66	442	4.0	12	20	<0.01	12	45	9.0	-245
03/26/1998	8.7	59	544	4.0	13	19	0.09	9.0	51	12	-177
05/07/1998	9.0	59	454	2.0	15	24	0.09	13	<1.0	12	-243
07/02/1998	9.3	61	450	4.0	13	22	0.03	19	7.0	15	-236
09/03/1998	8.3	59	438	3.0	14	27	0.16	10	5.0	13	-234
11/19/1998	7.2	60	460	3.0	18	28	0.08	10	<1.0	11	-248
01/07/1999	8.6	64	470	2.0	16	20	0.12	12	<1.0	10	-252
03/25/1999	8.4	61	430	2.0	18	25	0.12	10	<1.0	13	-240
05/13/1999	7.5	62	444	2.0	9.0	25	0.07	12	3.0	13	-216
07/08/1999	7.9	62	456	3.0	15	27	<0.01	12	<1.0	17	-217
09/02/1999	8.3	70	540	2.0	19	22	0.04	11	<1.0	12	-239
11/05/1999	8.3	64	456	2.0	17	27	0.19	12	<1.0	14	-245
01/13/2000	8.7	71	628	6.0	26	19	0.18	10	<1.0	11	-243
03/09/2000	8.7	55	488	2.0	17	18	0.18	11	<1.0	11	-240
05/17/2000	8.8	69	468	13	13	21	0.19	12	2.0	12	-233
07/20/2000	8.6	70	430	2.0	14	20	0.20	13	1.0	13	-249
09/21/2000	7.7	58	434	2.0	15	21	0.21	12	<1.0	12	-238
11/02/2000	8.7	64	414	2.0	13	15	0.17	12	<1.0	12	-241
01/04/2001	8.7	51	442	2.0	13	24	0.19	12	<1.0	11	-247
03/15/2001	8.7	69	470	1.0	12	12	0.20	12	15	11	-229
05/03/2001	8.5	69	428	1.0	15	12	0.16	12	<1.0	13	-240

TABLE 3-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-4
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
07/05/2001	8.6	68	428	2.0	14	13	0.22	10	<1.0	12	-241
09/27/2001	7.7	68	683	1.0	12	13	0.13	10	<1.0	12	-236
11/15/2001	6.8	76	440	2.0	12	10	0.17	10	2.0	12	-225
01/10/2002	8.4	51	432	3.0	14	13	0.16	8.0	<1.0	11	-241
03/07/2002	7.5	62	446	4.0	13	8.0	0.19	11	<1.0	11	-244
05/09/2002	8.1	50	428	4.0	14	13	0.15	11	<1.0	12	-237
07/11/2002	7.5	68	454	3.0	13	19	0.18	9.0	<1.0	13	-235
09/12/2002	7.8	63	518	3.0	12	19	0.24	11	<1.0	13	-241
11/07/2002	7.0	49	482	3.0	12	19	0.19	11	<1.0	12	-252
01/16/2003	7.4	67	438	4.0	11	14	0.17	11	<1.0	10	-239
03/19/2003	8.2	70	442	4.0	11	15	1.7	10	<1.0	11	-239
05/15/2003	7.6	51	458	4.0	10	15	0.17	10	96	12	-227
07/24/2003	8.3	60	438	3.0	8.0	22	0.16	11	16	13	-235
09/18/2003	7.8	63	464	3.0	14	20	0.15	10	<1.0	12	-235
11/06/2003	6.9	34	414	2.0	11	17	0.13	11	<1.0	12	-239
01/15/2004	8.1	41	392	7.0	11	15	0.24	11	<1.0	11	-234
03/18/2004	8.0	70	426	4.0	20	16	0.18	10	<1.0	11	-231
05/20/2004	8.5	66	472	2.0	18	19	0.17	10	1.0	13	-232
07/22/2004	8.0	66	442	3.0	11	14	0.16	10	<1.0	13	-225
09/30/2004	7.3	70	500	1.0	11	13	0.17	11	<1.0	12	-233
11/18/2004	8.0	47	438	2.0	11	16	0.18	10	<1.0	12	-234
01/27/2005	7.1	44	418	1.0	10	14	0.19	10	<1.0	10	-196
06/02/2005	7.4	54	420	1.0	11	15	0.13	11	<1.0	12	-229
09/22/2005	7.6	34	430	1.0	11	14	0.13	10	<1.0	12	-234
05/18/2006	7.7	35	442	0.50	10	14	0.14	11	<1.0	12	-228
08/31/2006	8.8	70	428	0.40	1.0	15	0.06	11	<1.0	15	-229
11/09/2006	8.8	39	436	0.50	10	18	0.11	10	<1.0	12	-224
04/12/2007	8.4	41	424	0.50	11	12	0.20	10	<1.0	11	-225
06/21/2007	7.7	63	510	0.50	11	14	0.08	10	<1.0	13	-238
11/08/2007	8.8	56	420	0.50	11	17	0.14	11	<1.0	12	-245
04/03/2008	8.1	51	436	0.50	10	17	0.13	11	<1.0	12	-234
08/21/2008	7.4	60	482	1.0	10	16	0.13	11	<1.0	13	-230
11/06/2008	8.1	46	422	1.0	10	11	0.09	9.0	<1.0	13	-262
03/05/2009	9.0	43	412	<1.0	11	15	0.13	17	15	12	-215
06/25/2009	8.6	45	420	1.3	11	11	0.15	10	<1.0	14	-248
08/06/2009	8.8	47	440	<1.0	12	11	0.15	9.0	<1.0	14	-261
02/04/2010	8.7	59	436	<1.0	<15	11	0.13	13	<1.0	11	-252
06/06/2010	8.9	50	436	<1.0	<15	10	0.15	12	<1.0	12	-253
10/20/2010	8.9	66	446	<1.0	<15	8.8	0.17	10	<1.0	13	-232
03/03/2011	8.2	41	428	<1.0	<15	<2.0	0.21	14	<1.0	11	-235

TABLE 3-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-4
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
06/09/2011	8.8	60	422	<1.0	<15	<2.0	0.14	10	60	13	-
08/18/2011	8.3	56	468	<1.0	<15	<2.0	0.12	17	<1.0	18	-253
01/05/2012	8.0	43	428	<1.0	10	12	0.16	11	<1.0	11	-235
03/22/2012	8.1	49	412	<1.0	<10	15	0.15	11	<1.0	14	-235
05/03/2012	8.6	56	454	<1.0	<10	13	0.15	12	<1.0	13	-232
08/22/2012	-	-	498	<1.0	<10	48	0.19	-	<1.0	-	-
03/14/2013	7.9	43	442	<1.0	<10	10	0.13	10	<1.0	11	-224
08/15/2013	8.9	52	432	<1.0	-	14	0.18	10	<1.0	13	-233
10/03/2013	8.9	53	418	<1.0	<10	13	0.13	10	<1.0	13	-227

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-7: GROUNDWATER QUALITY DATA FOR WELL QC-5 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/12/1995	8.4	95	592	2.0	39	16	0.03	5.0	<1.0	12	-260
03/02/1995	8.2	95	600	3.0	34	32	<0.01	10	<1.0	11	-263
05/11/1995	8.3	97	632	5.0	35	36	0.16	12	<1.0	12	-260
07/20/1995	7.1	96	610	5.0	26	22	0.09	11	<1.0	13	-267
09/14/1995	8.6	95	642	4.0	28	23	0.11	11	<1.0	14	-267
11/09/1995	7.9	91	726	10	27	20	0.11	11	<1.0	12	-266
01/04/1996	8.3	96	604	9.0	26	18	0.10	12	<1.0	10	-262
03/28/1996	8.3	92	600	10	24	12	0.05	11	<1.0	13	-266
05/15/1996	8.5	91	596	4.0	23	10	0.17	9.0	<1.0	12	-205
07/10/1996	8.7	91	686	6.0	25	27	0.11	11	<1.0	13	-248
09/19/1996	8.8	63	638	6.0	25	22	0.11	11	<1.0	13	-253
11/21/1996	8.4	95	610	12	27	21	<0.01	<1.0	<1.0	10	-257
01/09/1997	8.8	87	692	15	27	13	<0.10	11	<1.0	10	-259
03/05/1997	8.0	84	608	3.0	24	7.0	0.01	12	<1.0	11	-129
05/21/1997	7.7	133	616	3.0	26	14	0.02	9.0	<1.0	13	-255
07/10/1997	8.3	83	618	2.0	26	20	0.25	11	<1.0	13	-228
09/11/1997	8.5	75	592	6.0	27	15	0.05	11	<1.0	13	-261
11/12/1997	8.5	99	646	4.0	24	13	<0.10	11	<1.0	12	-255
01/29/1998	8.5	92	642	6.0	29	16	<0.01	11	<1.0	10	-243
03/26/1998	8.6	80	684	5.0	26	18	0.10	10	<1.0	13	-190
05/07/1998	8.9	81	614	4.0	25	18	0.10	11	<1.0	12	-240
07/02/1998	9.0	85	616	4.0	26	21	<0.01	14	<1.0	15	-237
09/03/1998	8.8	81	610	3.0	26	21	0.06	11	<1.0	12	-234
11/19/1998	7.2	84	616	4.0	30	21	0.05	9.0	<1.0	11	-243
01/07/1999	7.6	100	632	3.0	29	21	0.09	11	<1.0	9.0	-245
03/25/1999	8.5	83	594	3.0	28	43	0.14	9.0	<1.0	13	-237
05/13/1999	7.6	92	614	2.0	22	17	0.04	12	<1.0	13	-219
07/08/1999	7.6	87	610	4.0	28	21	0.01	9.0	<1.0	15	-217
09/02/1999	8.3	96	658	2.0	27	20	0.01	10	<1.0	13	-236
11/05/1999	8.0	89	600	3.0	27	19	0.20	10	<1.0	14	-239
01/13/2000	8.5	98	458	6.0	16	26	0.18	11	<1.0	11	-237
03/09/2000	8.5	76	636	7.0	26	15	0.18	12	<1.0	12	-240
05/17/2000	8.6	70	618	6.0	25	18	0.19	10	<1.0	12	-231
07/20/2000	8.4	72	598	5.0	25	16	0.20	13	<1.0	12	-229
09/21/2000	7.7	78	528	3.0	26	20	0.41	10	<1.0	12	-226
11/02/2000	8.4	70	580	2.0	24	14	0.18	11	<1.0	12	-235
01/04/2001	8.1	112	606	1.0	25	22	0.20	11	<1.0	11	-238
03/15/2001	8.6	96	628	2.0	24	10	0.20	11	<1.0	11	-224
05/03/2001	8.3	73	592	2.0	25	10	0.14	11	<1.0	13	-234
07/05/2001	8.4	73	556	2.0	25	10	0.19	9.0	<1.0	12	-235

TABLE 3-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-5
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/27/2001	7.5	75	612	3.0	26	9.0	0.15	10	<1.0	12	-232
11/15/2001	7.9	84	584	3.0	26	6.0	0.13	9.0	<1.0	12	-233
01/10/2002	8.1	71	556	4.0	26	9.0	0.16	8.0	<1.0	12	-234
03/07/2002	7.3	92	606	3.0	27	6.0	0.16	10	<1.0	12	-238
05/09/2002	8.5	69	570	4.0	26	9.0	0.19	10	<1.0	12	-230
07/11/2002	7.3	80	610	3.0	29	15	0.15	8.0	<1.0	13	-230
09/12/2002	7.7	67	650	3.0	24	13	0.22	9.0	<1.0	13	-232
11/07/2002	7.0	68	614	4.0	27	15	0.23	9.0	<1.0	12	-171
01/16/2003	7.7	66	584	5.0	25	8.0	0.15	9.0	<1.0	11	-226
03/19/2003	8.3	65	586	4.0	16	11	0.09	9.0	<1.0	11	-229
05/15/2003	7.7	71	590	4.0	23	9.0	0.15	10	<1.0	12	-197
07/24/2003	8.4	84	596	2.0	22	3.0	0.16	9.0	<1.0	13	-212
09/18/2003	7.9	89	648	5.0	29	4.0	0.14	10	<1.0	12	-228
11/06/2003	7.0	36	602	4.0	24	10	0.12	10	<1.0	12	-232
01/15/2004	7.9	51	574	4.0	26	2.0	0.23	9.0	<1.0	12	-231
03/18/2004	8.0	92	578	5.0	28	2.0	0.16	9.0	<1.0	11	-226
05/27/2004	7.7	95	596	8.0	25	2.0	0.15	9.0	<1.0	14	-220
07/22/2004	7.9	88	614	2.0	28	11	0.17	9.0	<1.0	13	-224
09/30/2004	7.2	97	638	2.0	28	8.0	0.16	10	<1.0	12	-229
11/18/2004	7.9	63	588	2.0	26	8.0	0.15	9.0	<1.0	12	-227
01/27/2005	7.0	51	550	2.0	27	9.0	0.16	10	<1.0	11	-202
03/03/2005	6.8	72	528	3.0	30	10	0.15	10	<1.0	12	-210
05/05/2005	7.9	51	698	2.0	28	10	0.15	9.0	<1.0	13	-226
05/18/2006	7.5	48	588	0.80	25	5.0	0.13	10	<1.0	12	-209
08/31/2006	8.6	96	570	0.80	25	6.0	0.10	10	<1.0	15	-131
11/09/2006	8.8	56	576	1.2	24	7.0	0.07	10	<1.0	13	-207
04/12/2007	8.2	52	580	0.80	25	11	0.16	9.0	<1.0	11	-206
06/21/2007	7.6	91	702	0.90	27	7.0	0.08	10	<1.0	14	-237
10/04/2007	8.7	95	572	0.90	26	5.0	0.17	9.0	<1.0	13	-205
04/03/2008	8.1	66	606	0.80	28	15	0.12	11	<1.0	12	-233
08/21/2008	7.6	85	602	1.0	24	23	0.11	13	<1.0	13	-230
10/09/2008	7.3	88	644	1.0	24	7.0	0.06	<1.0	<1.0	12	-197
03/05/2009	8.8	57	632	1.0	27	7.9	0.12	9.0	<1.0	12	-185
06/25/2009	8.8	76	586	1.3	28	7.4	0.14	10	<1.0	14	-204
08/06/2009	8.7	70	576	<1.0	28	5.3	0.17	9.0	<1.0	13	-229
02/04/2010	8.7	77	562	<1.0	<15	3.4	0.15	13	<1.0	12	-234
06/06/2010	8.7	63	578	1.3	27	4.1	0.15	10	<1.0	13	-234
12/16/2010	7.6	53	566	1.2	28	6.4	0.14	9.0	<1.0	11	-210
03/03/2011	8.3	64	552	1.2	32	<5.0	0.12	9.0	<1.0	12	-200
06/09/2011	8.8	72	558	1.3	30	<5.0	0.11	9.0	<1.0	13	-212

TABLE 3-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-5
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/09/2011	8.4	64	644	1.3	31	<5.0	0.17	1.0	<1.0	12	-202
02/01/2012	8.2	63	568	1.6	33	9.6	0.15	10	<1.0	10	-197
04/05/2012	8.2	64	470	1.4	16	6.4	0.33	16	<1.0	12	-202
10/18/2012	8.2	39	544	1.4	36	9.6	0.12	8.0	<1.0	13	-207
02/27/2013	8.4	63	534	1.0	33	9.0	0.16	9.0	<1.0	11	-209
08/15/2013	8.8	69	538	1.0	-	11	0.14	8.0	<1.0	15	-211
10/03/2013	8.7	64	532	1.0	38	12	0.13	8.0	<1.0	13	-208

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-8: GROUNDWATER QUALITY DATA FOR WELL QC-6 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/12/1995	8.4	87	586	3.0	24	77	0.28	36	<1.0	12	-251
03/02/1995	8.4	88	552	3.0	26	90	0.34	25	<1.0	11	-255
05/11/1995	8.1	90	616	6.0	20	90	0.43	38	<1.0	13	-253
07/20/1995	6.7	84	554	3.0	18	59	0.36	31	<1.0	13	-257
09/14/1995	8.6	82	586	4.0	19	47	0.33	13	<1.0	13	-257
11/09/1995	7.8	76	576	10	17	34	0.33	22	<1.0	12	-258
01/04/1996	8.6	88	522	8.0	16	47	0.35	31	<1.0	10	-256
03/28/1996	8.6	87	186	4.0	15	42	0.28	27	<1.0	12	-259
05/15/1996	8.5	81	550	12	16	37	0.36	26	<1.0	13	-221
07/10/1996	8.7	81	654	9.0	21	98	0.38	50	<1.0	14	-236
09/12/1996	8.7	60	638	9.0	21	71	0.41	47	<1.0	12	-245
11/21/1996	8.4	91	582	9.0	20	64	0.34	41	<1.0	11	-255
01/09/1997	8.9	72	576	9.0	18	22	0.25	34	<1.0	10	-253
03/05/1997	7.8	79	648	4.0	27	63	0.35	46	8.0	12	-151
05/21/1997	7.8	82	588	3.0	24	564	0.35	36	<1.0	13	-250
07/10/1997	8.5	75	578	2.0	23	46	0.46	36	<1.0	12	-250
09/11/1997	8.5	75	550	7.0	26	48	0.33	39	<1.0	13	-244
11/12/1997	8.6	95	594	4.0	20	45	0.24	36	<1.0	12	-252
01/29/1998	8.4	78	586	4.0	25	46	0.31	41	2.0	11	-239
03/26/1998	8.4	76	674	5.0	30	72	0.44	51	8.0	13	-186
05/07/1998	8.2	78	604	5.0	29	65	0.40	49	<1.0	12	-230
07/02/1998	9.0	80	570	5.0	28	61	0.02	50	<1.0	15	-227
09/03/1998	8.8	76	582	3.0	26	70	0.38	42	<1.0	13	-224
11/19/1998	7.2	77	590	2.0	28	62	0.39	39	<1.0	11	-232
03/25/1999	8.6	76	544	2.0	29	56	0.40	33	<1.0	13	-227
05/13/1999	7.7	81	558	3.0	19	58	0.37	39	<1.0	14	-213
07/08/1999	7.7	77	566	4.0	25	61	0.34	36	<1.0	16	-210
09/02/1999	8.3	84	594	3.0	24	60	0.33	35	<1.0	13	-225
11/05/1999	7.9	79	542	4.0	24	53	0.46	33	<1.0	14	-228
01/13/2000	8.3	64	562	8.0	22	55	0.42	30	<1.0	11	-227
03/09/2000	8.4	72	578	6.0	24	42	0.44	30	<1.0	12	-229
05/17/2000	8.4	61	546	8.0	21	42	0.41	29	<1.0	13	-222
07/20/2000	8.3	65	536	6.0	21	38	0.39	29	<1.0	13	-219
09/21/2000	7.3	68	612	3.0	22	37	0.21	25	<1.0	13	-219
11/02/2000	8.4	60	510	2.0	21	29	0.39	25	<1.0	13	-223
01/04/2001	8.6	76	528	2.0	19	35	0.60	24	<1.0	12	-225
03/15/2001	8.5	80	550	2.0	18	26	0.40	12	<1.0	12	-215
05/03/2001	8.5	62	480	2.0	18	26	0.39	26	<1.0	13	-222
07/05/2001	8.2	62	480	2.0	19	24	0.37	24	<1.0	13	-222
09/27/2001	7.5	78	548	3.0	21	27	0.39	23	<1.0	13	-220

TABLE 3-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-6
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
11/15/2001	7.8	74	522	2.0	20	18	0.35	22	<1.0	13	-218
01/10/2002	8.6	59	478	4.0	18	20	0.34	21	<1.0	12	-220
03/07/2002	7.1	87	528	3.0	20	15	0.36	22	<1.0	12	-221
05/09/2002	8.4	77	446	6.0	17	26	0.40	22	<1.0	12	-217
07/11/2002	7.2	72	518	4.0	20	26	0.37	20	<1.0	14	-217
09/12/2002	7.9	73	522	4.0	18	23	0.42	21	<1.0	13	-217
11/07/2002	7.0	56	514	4.0	15	27	0.42	20	<1.0	12	-215
01/16/2003	7.6	74	644	6.0	19	15	0.34	20	<1.0	11	-210
03/19/2003	7.8	80	502	3.0	15	15	0.53	20	<1.0	12	-200
05/15/2003	7.2	58	510	5.0	17	16	0.33	20	<1.0	12	-202
07/24/2003	8.4	71	514	3.0	13	23	0.33	19	<1.0	13	-208
09/18/2003	7.8	71	536	4.0	18	16	0.24	20	<1.0	13	-212
11/06/2003	6.8	32	532	5.0	16	16	0.28	19	<1.0	12	-218
01/15/2004	7.8	55	528	3.0	17	12	0.48	19	<1.0	11	-219
03/18/2004	7.8	79	464	5.0	19	14	0.34	21	<1.0	12	-216
05/27/2004	7.8	77	503	2.0	15	15	0.32	19	<1.0	13	-216
07/22/2004	7.7	82	562	3.0	16	4.0	0.35	19	<1.0	13	-214
09/30/2004	7.2	77	542	2.0	16	13	0.35	19	<1.0	12	-217
11/18/2004	7.6	51	482	2.0	16	14	0.35	19	<1.0	12	-219
01/27/2005	7.1	44	488	3.0	16	14	0.36	19	<1.0	11	-202
06/02/2005	7.4	62	526	2.0	15	14	0.30	19	<1.0	13	-215
09/22/2005	7.5	42	446	1.0	16	12	0.29	9.0	<1.0	7.5	-217
05/18/2006	7.4	40	486	1.2	16	10	0.33	20	<1.0	12	-206
08/31/2006	8.8	78	494	1.1	16	11	0.28	19	<1.0	15	-207
11/09/2006	8.7	48	482	1.2	14	12	0.24	18	<1.0	13	-201
04/12/2007	8.2	43	484	1.1	16	12	0.34	18	<1.0	12	-202
06/21/2007	8.1	54	468	1.2	15	7.0	0.28	17	<1.0	14	-195
08/22/2007	8.3	75	520	1.3	14	7.0	0.31	19	<1.0	15	-201
04/03/2008	8.0	51	472	1.1	13	14	0.32	17	<1.0	12	-204
06/12/2008	7.9	50	514	0.90	14	10	0.33	18	<1.0	13	-202
10/09/2008	7.7	70	464	1.0	13	7.0	0.27	15	<1.0	12	-184
03/05/2009	8.8	51	460	1.5	14	6.3	0.31	12	<1.0	13	-189
06/25/2009	8.8	67	470	1.6	15	6.1	0.34	16	<1.0	14	-191
08/06/2009	8.8	59	482	1.4	16	5.6	0.35	15	<1.0	13	-220
02/04/2010	8.6	60	464	1.4	<15	4.7	0.33	18	<1.0	12	-219
06/06/2010	8.8	48	458	1.8	<15	4.3	0.34	17	<1.0	13	-218
12/16/2010	7.6	47	458	1.4	<15	12	0.34	17	<1.0	11	-218
03/03/2011	8.6	51	442	1.4	15	<5.0	0.30	16	<1.0	12	-179
06/09/2011	8.6	55	466	1.5	15	<5.0	0.31	15	<1.0	13	-180
09/09/2011	8.4	53	520	1.5	13	<5.0	0.32	26	<1.0	13	-192

TABLE 3-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-6
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/01/2012	7.9	53	460	1.4	14	<5.0	0.34	16	<1.0	10	-189
04/05/2012	8.1	51	552	1.3	35	9.7	0.13	8.0	<1.0	13	-195
08/22/2012	-	-	542	1.5	14	5.9	0.36	-	<1.0	-	-
10/18/2012	8.4	37	454	1.6	13	5.3	0.50	16	<1.0	12	-203
02/27/2013	8.2	51	448	1.0	14	6.0	0.33	19	<1.0	11	-202
08/15/2013	8.6	56	520	2.0	-	8.0	0.34	17	<1.0	13	-205
10/03/2013	8.7	55	454	1.0	18	6.0	0.33	16	<1.0	13	-202

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-9: GROUNDWATER QUALITY DATA FOR WELL QC-7 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	8.6	67	420	3.0	13	27	0.26	5.0	<1.0	12	-126
03/01/1995	8.6	65	498	3.0	16	24	0.23	12	<1.0	12	-156
05/25/1995	8.8	66	454	3.0	12	32	0.26	12	<1.0	12	-158
07/05/1995	8.7	68	464	5.0	12	22	0.27	12	<1.0	12	-158
09/19/1995	7.3	65	474	3.0	11	21	0.26	12	<1.0	14	-157
11/16/1995	8.2	86	430	8.0	9.0	13	0.27	11	<1.0	11	-124
01/18/1996	8.6	66	456	9.0	11	13	0.27	13	<1.0	12	-158
03/21/1996	8.8	67	516	7.0	8.0	10	0.24	14	<1.0	11	-157
07/24/1996	8.8	51	482	3.0	10	12	0.27	501	<1.0	15	-101
09/11/1996	8.8	63	510	5.0	10	10	0.24	11	<1.0	13	-159
11/21/1996	-	65	450	10	12	8.0	0.60	13	<1.0	11	-160
03/06/1997	8.6	68	396	4.0	10	12	0.16	12	<1.0	10	-104
05/07/1997	8.1	62	458	4.0	10	10	0.17	13	<1.0	13	-160
09/18/1997	8.7	58	412	8.0	10	13	0.24	12	<1.0	14	-161
11/06/1997	8.3	56	422	4.0	10	10	0.19	12	<1.0	12	-157
01/15/1998	9.1	66	442	5.0	11	12	0.35	13	<1.0	11	-141
03/12/1998	8.6	57	562	3.0	10	17	0.15	10	<1.0	12	-148
05/21/1998	9.0	61	322	6.0	10	17	0.18	13	<1.0	15	-139
07/09/1998	8.5	71	420	3.0	11	14	0.15	10	<1.0	11	-155
09/17/1998	7.1	60	432	3.0	11	12	0.19	13	<1.0	13	-146
11/05/1998	8.7	60	446	3.0	15	20	0.17	7.0	<1.0	11	-154
01/14/1999	8.5	65	454	4.0	12	11	0.18	11	<1.0	12	-152
03/04/1999	8.5	62	432	3.0	12	10	0.20	17	<1.0	14	-152
05/06/1999	7.6	67	424	3.0	10	14	0.16	12	<1.0	12	-132
07/21/1999	8.8	70	460	3.0	10	14	0.35	14	<1.0	13	-149
09/16/1999	8.4	59	430	2.0	11	10	0.11	13	<1.0	14	-150
11/19/1999	8.3	63	484	3.0	10	9.0	0.29	12	<1.0	13	-149
01/06/2000	8.4	50	450	5.0	9.0	9.0	0.29	11	<1.0	12	-151
03/23/2000	8.1	73	454	6.0	12	6.0	0.32	12	<1.0	12	-150
05/18/2000	8.6	66	428	4.0	11	9.0	0.29	16	<1.0	13	-150
07/27/2000	7.1	74	434	3.0	9.0	9.0	0.30	12	<1.0	14	-149
09/20/2000	8.7	51	402	3.0	9.0	12	0.30	14	<1.0	12	-144
11/02/2000	7.3	68	404	3.0	10	10	0.28	15	<1.0	13	-149
01/25/2001	7.4	76	412	3.0	12	1.0	0.31	18	<1.0	11	-150
03/15/2001	8.1	68	452	3.0	10	2.0	0.30	12	<1.0	12	-147
05/10/2001	7.4	55	424	3.0	9.0	<1.0	0.31	12	<1.0	13	-149
07/12/2001	6.4	60	532	3.0	10	1.0	0.27	13	<1.0	13	-148
09/20/2001	8.4	52	1130	3.0	13	2.0	0.31	12	<1.0	13	-148
11/08/2001	7.7	66	476	2.0	19	<1.0	0.27	12	<1.0	12	-148
01/10/2002	8.6	55	394	4.0	10	2.0	0.28	10	<1.0	12	-147

TABLE 3-9 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-7
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/21/2002	7.3	67	452	4.0	11	1.0	0.25	21	<1.0	11	-146
05/09/2002	8.7	69	394	5.0	11	6.0	0.28	12	<1.0	12	-148
07/18/2002	8.7	52	484	3.0	12	12	0.27	10	<1.0	15	-146
09/19/2002	7.8	54	446	5.0	10	6.0	0.32	11	<1.0	13	-146
11/20/2002	8.6	61	418	4.0	12	2.0	0.33	11	<1.0	12	-135
01/16/2003	7.4	62	428	5.0	11	1.0	0.29	11	<1.0	11	-137
03/13/2003	8.0	51	434	5.0	10	2.0	0.30	14	<1.0	11	-140
05/29/2003	7.8	60	406	3.0	10	2.0	0.30	12	<1.0	12	-142
07/24/2003	7.0	61	400	4.0	8.0	1.0	0.30	15	<1.0	14	-141
09/17/2003	8.0	69	422	6.0	13	1.0	0.25	11	<1.0	14	-152
11/06/2003	7.0	31	414	4.0	11	3.0	0.24	13	<1.0	12	-167
01/29/2004	7.8	42	402	4.0	10	1.0	0.25	11	<1.0	11	-173
03/18/2004	7.8	77	406	4.0	20	2.0	0.29	12	<1.0	11	-166
05/27/2004	7.8	67	416	2.0	11	2.0	0.28	11	<1.0	13	-168
07/29/2004	8.0	42	410	3.0	13	2.0	0.23	11	<1.0	13	-174
09/30/2004	7.6	62	478	3.0	12	2.0	0.27	11	<1.0	12	-173
11/10/2004	7.8	44	410	4.0	13	2.0	0.31	12	<1.0	12	-172
01/27/2005	7.1	51	392	2.0	12	4.0	0.27	15	<1.0	11	-154
03/03/2005	7.1	58	346	2.0	12	2.0	0.25	12	<1.0	12	-165
07/14/2005	7.6	55	418	2.0	11	2.0	0.28	10	<1.0	14	-174
05/17/2006	8.6	81	438	1.1	27	2.0	0.70	12	<1.0	14	-178
08/31/2006	8.5	66	512	1.4	10	2.0	0.25	12	<1.0	18	-163
11/09/2006	8.6	45	410	1.2	2.0	1.0	0.18	11	<1.0	13	-175
04/12/2007	7.9	38	420	1.1	11	3.0	0.29	11	<1.0	11	-177
06/21/2007	8.0	47	440	1.2	11	2.0	0.21	11	<1.0	13	-174
08/22/2007	8.3	67	502	1.2	16	1.0	0.19	13	<1.0	14	-176
04/03/2008	7.8	45	414	1.3	11	2.0	0.25	11	<1.0	12	-177
06/12/2008	8.0	48	436	0.90	10	0.40	0.27	11	<1.0	13	-176
10/09/2008	7.5	57	558	1.0	10	0.40	0.22	15	<1.0	12	-162
03/05/2009	8.7	47	420	1.4	10	<2.0	0.26	11	<1.0	12	-163
06/25/2009	7.5	63	416	1.7	12	<2.0	0.26	17	<1.0	13	-177
04/14/2011	8.4	44	400	1.6	12	<2.0	0.18	11	<1.0	12	-179
09/09/2011	8.2	55	536	1.5	18	<2.0	0.21	17	<1.0	13	-168
12/08/2011	8.2	42	416	<1.0	10	<2.0	0.27	11	<1.0	11	-188
02/01/2012	8.3	46	480	1.4	19	<5.0	0.21	13	<1.0	12	-168
04/05/2012	8.0	45	408	1.5	11	<5.0	0.26	11	<1.0	12	-167
08/22/2012	-	-	414	1.6	10	<5.0	0.29	-	<1.0	-	-
10/25/2012	8.0	56	394	1.3	10	<5.0	0.28	11	<1.0	14	-168
02/27/2013	8.1	43	388	2.0	10	<5.0	0.28	13	<1.0	12	-169
08/15/2013	8.6	50	432	1.0	-	<5.0	0.37	12	<1.0	13	-172

TABLE 3-9 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-7
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
10/03/2013	8.4	50	392	2.0	11	<5.0	0.24	12	<1.0	13	-168

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-10: GROUNDWATER QUALITY DATA FOR WELL QC-9 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	8.1	46	332	2.0	13	49	0.73	44	<1.0	12	-131
03/01/1995	8.2	45	338	2.0	15	18	0.68	56	<1.0	12	-180
05/25/1995	9.6	46	310	2.0	10	25	0.73	60	<1.0	12	-182
07/05/1995	8.3	45	310	4.0	11	23	0.72	62	<1.0	13	-227
09/14/1995	7.5	45	306	3.0	10	26	0.70	61	<1.0	13	-157
11/16/1995	8.4	54	302	5.0	10	18	0.74	57	<1.0	12	-145
01/18/1996	8.3	44	284	5.0	26	16	0.55	62	<1.0	12	-184
03/21/1996	8.4	45	352	4.0	8.0	17	0.68	64	<1.0	12	-182
05/22/1996	8.2	44	348	7.0	9.0	14	0.46	63	<1.0	13	-167
07/24/1996	8.4	36	374	3.0	9.0	14	0.72	62	<1.0	18	-130
09/11/1996	8.7	46	376	4.0	9.0	10	0.69	62	<1.0	13	-182
03/06/1997	8.3	45	288	2.0	9.0	20	0.69	57	<1.0	10	-75
05/07/1997	7.8	43	328	3.0	9.0	13	0.70	62	<1.0	13	-184
09/18/1997	8.4	43	312	6.0	9.0	16	0.63	60	<1.0	14	-182
01/15/1998	8.8	47	328	4.0	9.0	20	0.75	67	<1.0	11	-227
03/12/1998	8.6	43	390	3.0	10	15	0.75	58	<1.0	12	-174
05/21/1998	8.9	43	550	3.0	9.0	20	0.68	63	<1.0	14	-150
07/09/1998	8.3	43	306	2.0	10	17	0.70	59	<1.0	11	-180
09/17/1998	8.2	39	342	2.0	10	18	0.64	63	<1.0	13	-160
11/05/1998	8.7	41	316	2.0	11	27	0.77	58	<1.0	11	-180
01/14/1999	8.2	46	350	2.0	11	18	0.29	63	<1.0	12	-180
03/04/1999	8.1	43	312	1.0	9.0	16	0.39	62	<1.0	13	-175
05/06/1999	7.7	50	312	2.0	9.0	20	0.59	61	<1.0	13	-136
07/21/1999	8.9	47	348	2.0	9.0	30	0.72	65	<1.0	13	-175
09/16/1999	8.6	43	302	2.0	10	23	0.59	60	<1.0	14	-176
11/19/1999	7.6	43	334	1.0	9.0	38	0.46	64	<1.0	14	-174
01/06/2000	8.3	36	354	4.0	8.0	23	0.65	61	<1.0	12	-174
03/23/2000	8.4	73	296	3.0	11	19	0.75	62	<1.0	12	-175
05/18/2000	8.2	48	312	5.0	10	23	0.49	66	<1.0	13	-172
11/02/2000	7.3	50	286	2.0	9.0	10	0.71	107	<1.0	13	-175
01/25/2001	8.0	57	296	2.0	9.0	11	0.47	64	<1.0	11	-232
03/15/2001	7.4	50	296	2.0	8.0	21	0.60	68	<1.0	12	-172
05/10/2001	7.2	48	268	2.0	9.0	18	0.50	61	<1.0	13	-178
07/12/2001	6.4	48	372	2.0	9.0	22	0.39	64	<1.0	14	-177
09/20/2001	8.2	38	310	2.0	10	20	0.70	64	5800	12	-177
11/08/2001	7.3	48	342	2.0	19	19	0.47	63	<1.0	13	-177
01/10/2002	8.1	53	306	2.0	11	23	0.24	55	<1.0	12	-179
03/21/2002	7.0	41	356	3.0	11	21	0.64	62	<1.0	11	-166
05/09/2002	8.3	36	316	3.0	16	30	0.21	66	<1.0	13	-178
07/18/2002	8.2	37	400	2.0	10	30	0.13	62	<1.0	15	-241

TABLE 3-10 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-9
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/19/2002	7.4	36	344	3.0	9.0	34	0.13	66	<1.0	13	-179
11/20/2002	8.3	36	348	3.0	9.0	30	0.62	60	<1.0	13	-228
01/16/2003	7.0	48	332	3.0	10	26	0.17	62	<1.0	9.2	-173
07/24/2003	7.4	44	320	3.0	6.0	43	0.67	60	<1.0	14	-183
01/29/2004	7.8	31	314	4.0	10	39	0.59	60	<1.0	12	-182
03/31/2004	7.2	49	308	3.0	13	42	0.16	61	<1.0	12	-179
07/29/2004	7.2	33	352	3.0	10	28	0.32	60	<1.0	15	-183
01/27/2005	7.4	38	297	2.0	10	29	0.59	58	<1.0	12	-141
06/02/2005	7.5	40	362	2.0	10	30	0.21	60	<1.0	13	-182
09/22/2005	7.4	30	294	1.0	9.0	30	0.18	61	<1.0	14	-180
01/12/2006	7.4	39	358	0.80	9.0	31	0.32	58	<1.0	12	-239
05/17/2006	8.3	53	312	0.80	<10	30	0.19	64	<1.0	14	-246
07/20/2006	7.6	25	364	0.80	12	32	0.14	63	<1.0	14	-247
02/08/2007	8.0	30	332	0.80	10	28	0.23	67	<1.0	12	-246
04/12/2007	7.6	29	312	0.80	10	35	0.50	60	<1.0	12	-247
08/22/2007	8.1	49	374	0.90	10	29	0.37	62	2.0	15	-245
03/27/2008	7.5	44	288	0.70	10	32	0.15	58	<1.0	12	-249
06/12/2008	7.8	34	330	0.70	10	33	0.12	60	<1.0	14	-245
10/09/2008	7.4	41	342	1.0	10	30	0.60	55	<1.0	13	-228
03/05/2009	8.6	33	314	1.1	10	31	0.75	54	<1.0	13	-175
06/25/2009	7.7	48	312	1.1	10	32	0.65	44	<1.0	14	-252
10/01/2009	8.2	37	322	1.0	10	36	0.74	55	<1.0	13	-179
02/04/2010	8.3	41	306	1.1	<15	28	0.54	61	<1.0	12	-204
06/06/2010	8.1	34	314	1.5	<15	32	0.35	63	20	13	-206
12/16/2010	7.8	32	284	1.1	<15	37	0.46	59	<1.0	11	-197
03/03/2011	8.2	29	334	1.0	<15	30	<0.10	64	<1.0	12	-247
06/02/2011	8.2	45	328	1.7	<15	28	0.53	64	<1.0	14	-223
09/09/2011	7.8	33	366	1.3	<15	35	0.21	62	<1.0	13	-254
02/01/2012	7.9	38	304	1.1	<10	35	0.68	62	<1.0	12	-248
04/05/2012	8.1	37	328	1.1	10	39	0.48	63	<1.0	13	-255
07/19/2012	8.3	32	380	4.7	<10	35	0.71	61	<1.0	14	-216
10/25/2012	8.0	41	308	1.0	<10	34	0.11	61	<1.0	15	-220
03/14/2013	7.7	30	336	1.0	12	33	0.13	64	<1.0	11	-237
08/15/2013	8.2	40	338	1.0	-	33	0.21	66	<1.0	13	-246
10/03/2013	8.3	40	308	1.0	10	35	<0.10	65	<1.0	13	-247

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-11: GROUNDWATER QUALITY DATA FOR WELL QC-10 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/04/1995	8.5	63	358	2.0	35	24	0.05	9.0	<1.0	12	-237
03/15/1995	8.6	58	378	2.0	32	31	<0.01	18	<1.0	13	-245
05/03/1995	8.5	60	418	3.0	32	27	0.11	11	<1.0	13	-241
07/06/1995	8.8	57	330	3.0	30	15	0.05	13	<1.0	14	-240
09/13/1995	8.6	62	414	3.0	34	17	0.08	13	<1.0	14	-248
11/21/1995	8.3	60	394	5.0	29	13	0.10	11	<1.0	12	-229
01/03/1996	7.9	64	402	6.0	29	19	0.10	12	<1.0	10	-241
03/13/1996	8.6	60	428	2.0	28	10	0.07	13	<1.0	12	-235
05/01/1996	8.6	60	406	3.0	33	9.0	0.08	14	<1.0	12	-238
07/02/1996	8.7	58	440	4.0	29	16	0.08	14	<1.0	14	-225
09/04/1996	8.8	55	484	7.0	34	28	0.07	10	<1.0	14	-238
11/12/1996	8.7	113	400	10	30	12	<0.01	13	<1.0	11	-234
01/23/1997	7.4	61	422	4.0	29	8.0	<0.10	15	<1.0	11	-233
03/06/1997	7.8	58	388	3.0	29	9.0	<0.10	10	<1.0	12	-181
05/01/1997	7.5	58	436	2.0	31	9.0	0.05	13	<1.0	13	-233
07/24/1997	8.6	52	502	2.0	29	8.0	0.13	11	<1.0	14	-236
09/11/1997	7.2	51	374	6.0	30	14	<0.10	13	<1.0	13	-242
11/06/1997	8.9	54	390	2.0	29	11	<0.10	12	<1.0	12	-247
01/22/1998	8.0	67	426	5.0	30	8.0	0.03	15	<1.0	12	-227
03/19/1998	8.7	83	406	2.0	30	13	<0.01	11	<1.0	12	-124
05/07/1998	8.9	52	392	2.0	30	12	0.03	12	<1.0	12	-230
07/02/1998	8.5	54	388	3.0	30	12	0.37	14	<1.0	15	-238
09/03/1998	8.7	51	396	2.0	29	18	0.10	11	<1.0	12	-238
11/17/1998	7.3	54	398	1.0	32	18	0.07	11	<1.0	12	-243
01/07/1999	8.4	60	414	1.0	33	13	0.07	13	<1.0	11	-228
03/10/1999	8.8	54	390	1.0	31	11	<0.01	16	<1.0	13	-223
05/17/1999	7.3	58	384	1.0	30	10	<0.01	15	<1.0	15	-220
07/22/1999	8.1	55	414	2.0	30	14	0.18	12	<1.0	18	-231
09/16/1999	8.2	61	420	1.0	31	8.0	<0.01	12	<1.0	12	-237
11/09/1999	7.6	50	414	2.0	28	8.0	0.11	13	<1.0	16	-237
01/27/2000	8.7	59	450	2.0	28	6.0	0.13	12	<1.0	12	-226
03/16/2000	8.8	46	436	2.0	28	7.0	0.12	13	<1.0	11	-234
05/03/2000	9.4	48	424	5.0	29	12	0.15	12	<1.0	13	-217
07/20/2000	7.6	64	378	1.0	29	8.0	0.14	19	<1.0	13	-227
09/12/2000	8.4	73	398	1.0	29	9.0	0.12	12	<1.0	13	-233
11/16/2000	8.4	46	426	1.0	27	3.0	0.17	14	<1.0	12	-230
01/09/2001	9.1	43	386	1.0	30	11	0.15	13	<1.0	11	-220
03/08/2001	7.5	64	372	2.0	26	<1.0	0.16	13	<1.0	12	-212
05/02/2001	9.0	47	396	1.0	29	<1.0	0.14	12	<1.0	13	-217
07/05/2001	9.1	45	374	1.0	30	1.0	0.13	11	<1.0	13	-233

TABLE 3-11 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-10 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/11/2001	8.4	35	370	1.0	33	1.0	0.10	13	<4.0	13	-230
11/01/2001	8.1	44	438	2.0	31	6.0	0.10	12	<1.0	13	-222
01/31/2002	8.1	55	396	2.0	34	2.0	0.14	14	<1.0	12	-219
03/14/2002	7.2	38	444	2.0	32	6.0	0.12	12	<1.0	12	-207
05/01/2002	8.3	46	382	3.0	33	6.0	0.11	11	<1.0	12	-213
07/18/2002	7.9	48	478	2.0	30	8.0	0.11	11	<1.0	13	-250
09/19/2002	7.7	33	402	2.0	29	8.0	0.13	11	<1.0	14	-231
11/06/2002	7.8	29	404	2.0	35	9.0	0.12	11	<1.0	12	-232
01/16/2003	7.4	19	342	3.0	30	<1.0	0.10	12	<1.0	12	-215
03/13/2003	7.0	45	426	3.0	27	1.0	0.09	11	<1.0	11	-213
05/14/2003	7.3	47	430	3.0	33	1.0	0.09	12	<1.0	12	-183
07/17/2003	7.4	40	380	2.0	31	1.0	0.03	11	<1.0	14	-227
09/18/2003	8.3	63	428	2.0	31	<1.0	0.07	11	<1.0	13	-234
11/12/2003	8.4	63	390	2.0	36	3.0	0.06	12	<1.0	12	-220
01/22/2004	7.8	31	394	2.0	31	1.0	0.11	12	<1.0	10	-216
03/16/2004	7.8	48	494	7.0	40	2.0	0.08	12	<1.0	11	-208
05/12/2004	8.1	58	462	1.0	29	1.0	0.16	11	<1.0	13	-217
07/22/2004	8.0	43	432	2.0	33	2.0	0.12	11	<1.0	13	-216
09/30/2004	8.2	33	470	1.0	31	<1.0	0.13	11	<1.0	13	-221
11/03/2004	7.3	64	286	2.0	24	1.0	0.08	21	<1.0	12	-220
01/13/2005	7.7	37	402	4.0	31	1.0	0.05	11	<1.0	12	-187
03/30/2005	7.6	49	314	1.0	29	<1.0	0.09	12	<1.0	13	-201
07/13/2005	7.6	38	408	1.0	36	1.0	0.10	13	<1.0	13	-210
05/24/2006	8.2	62	436	0.40	32	1.0	0.12	12	<1.0	13	-220
08/23/2006	7.7	39	390	0.30	29	1.0	0.02	11	<1.0	14	-223
11/30/2006	8.4	37	348	0.40	37	1.0	0.07	11	<1.0	12	-209
03/28/2007	8.9	49	422	<1.0	32	<1.0	0.04	20	<1.0	12	-190
06/20/2007	8.0	45	438	0.50	31	1.0	0.04	11	<1.0	13	-205
10/29/2007	7.6	56	426	<1.0	32	1.0	0.10	10	<1.0	12	-220
01/23/2008	8.0	37	410	<1.0	33	1.0	0.07	12	<1.0	12	-192
04/29/2008	7.7	50	400	<1.0	31	2.0	0.09	10	<1.0	12	-224
06/04/2008	8.9	64	378	<1.0	30	<1.0	0.10	11	<1.0	13	-198
02/10/2009	7.6	58	428	1.1	35	<2.0	0.11	12	<1.0	12	-220
05/06/2009	8.8	45	406	<1.0	35	<2.0	0.11	15	<1.0	13	-169
08/05/2009	8.9	47	440	<1.0	32	4.5	0.11	17	<1.0	13	-190
01/06/2010	8.6	47	390	<1.0	30	4.4	0.11	12	<1.0	11	-184
03/16/2010	8.0	42	384	<1.0	30	<2.0	0.10	12	<1.0	12	-232
09/29/2010	8.6	50	362	<1.0	29	<2.0	0.10	12	<1.0	13	-222
01/05/2011	7.9	44	414	<1.0	30	64	0.13	12	<1.0	11	-224
02/08/2011	7.8	46	386	<1.0	31	<2.0	0.11	14	<1.0	12	-227

TABLE 3-11 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-10 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
05/11/2011	8.6	47	420	<1.0	27	<2.0	0.11	13	<1.0	14	-168
02/15/2012	8.3	43	406	<1.0	29	<5.0	0.12	12	<1.0	11	-222
04/26/2012	8.0	45	450	<1.0	31	<5.0	0.12	13	<1.0	12	-224
07/12/2012	8.4	38	506	<1.0	30	<5.0	<0.10	11	<1.0	15	-231
12/05/2012	8.4	40	392	<1.0	25	<5.0	0.14	9.0	<1.0	12	-236
04/23/2013	8.6	42	378	<1.0	30	<5.0	0.13	13	<1.0	13	-222
07/30/2013	8.2	50	410	<1.0	29	<5.0	0.12	12	<1.0	13	-220
11/26/2013	8.9	48	372	<1.0	31	<5.0	0.36	10	<1.0	12	-177

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-12: GROUNDWATER QUALITY DATA FOR WELL QC-11 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/04/1995	9.0	48	270	2.0	27	28	0.13	17	<1.0	11	-236
03/15/1995	8.8	43	310	2.0	30	18	<0.01	19	<1.0	13	-239
05/03/1995	8.5	45	312	2.0	28	30	0.10	21	<1.0	13	-239
07/06/1995	8.9	45	272	2.0	26	19	0.10	23	<1.0	15	-241
09/13/1995	8.6	48	318	2.0	25	14	0.09	23	<1.0	13	-240
11/21/1995	8.1	48	298	5.0	22	13	0.08	21	<1.0	11	-228
01/03/1996	7.9	48	328	4.0	21	15	0.10	22	<1.0	11	-238
03/26/1996	8.9	45	330	7.0	22	14	0.09	-	<1.0	12	-239
05/01/1996	8.4	44	310	3.0	26	9.0	0.10	23	<1.0	13	-238
07/02/1996	8.7	39	300	3.0	20	15	0.07	22	<1.0	15	-224
09/04/1996	8.7	41	318	5.0	24	16	0.08	20	<1.0	14	-228
05/01/1997	7.5	43	340	2.0	23	9.0	0.07	22	<1.0	12	-229
05/17/1999	7.4	42	272	1.0	22	8.0	0.01	26	<1.0	15	-212
11/09/1999	8.0	42	308	2.0	21	5.0	0.15	22	<1.0	15	-219
05/03/2000	9.1	36	364	5.0	23	9.0	0.17	23	<1.0	13	-219
12/27/2000	8.4	35	452	1.0	20	8.0	0.15	25	<1.0	12	-228
05/02/2001	8.9	36	286	1.0	21	<1.0	0.16	24	<1.0	13	-225
11/01/2001	7.2	47	370	1.0	24	1.0	0.08	23	<1.0	13	-222
05/01/2002	8.5	51	302	3.0	25	7.0	0.12	23	<1.0	13	-223
11/06/2002	7.2	46	330	2.0	23	10	0.12	21	<1.0	12	-226
05/14/2003	7.8	44	334	2.0	40	<0.70	0.10	22	<1.0	13	-211
11/12/2003	8.2	45	296	2.0	23	<0.70	0.10	22	<1.0	13	-224
05/12/2004	8.2	43	343	1.0	31	1.0	0.17	20	<1.0	14	-228
11/03/2004	7.3	48	417	3.0	28	1.0	0.03	11	<1.0	13	-224
01/20/2005	7.1	35	234	1.0	22	1.0	0.11	22	<1.0	12	-186
03/30/2005	7.6	35	214	1.0	21	2.0	0.12	22	<1.0	13	-219
07/13/2005	7.8	29	290	1.0	22	1.0	0.19	19	<1.0	13	-219
01/05/2006	7.5	35	280	0.30	23	2.0	0.08	20	<1.0	12	-219
05/24/2006	8.1	45	286	0.40	24	1.0	0.10	21	<1.0	13	-220
08/23/2006	7.8	31	292	0.20	36	<0.40	0.06	21	<1.0	13	-221
01/17/2007	9.0	34	306	0.40	23	1.0	0.06	20	<1.0	11	-201
03/28/2007	8.7	35	300	0.20	22	1.0	0.07	12	<1.0	13	-209
06/20/2007	7.9	33	328	0.40	23	2.0	0.08	21	<1.0	13	-215
01/23/2008	7.6	30	286	0.40	25	1.0	0.11	22	<1.0	12	-211
04/29/2008	7.3	49	306	0.20	22	<2.0	0.13	21	<1.0	12	-227
06/04/2008	8.8	48	290	0.30	21	0.60	0.12	20	<1.0	13	-216
02/10/2009	7.4	42	316	<1.0	24	<2.0	0.10	21	<1.0	13	-229
05/06/2009	8.8	36	314	<1.0	26	<2.0	0.12	18	<1.0	14	-191
08/05/2009	8.6	38	304	<1.0	22	<2.0	0.15	17	<1.0	14	-208
01/06/2010	8.2	36	284	<1.0	21	<2.0	0.14	22	<1.0	11	-203

TABLE 3-12 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-11
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/16/2010	7.3	31	344	<1.0	27	<2.0	0.12	21	<1.0	14	-224
09/29/2010	8.4	47	296	<1.0	22	<2.0	0.14	21	<1.0	14	-229
01/05/2011	7.8	55	276	<1.0	20	<2.0	0.15	21	<1.0	11	-234
02/08/2011	7.6	57	302	<1.0	22	<2.0	0.13	20	<1.0	11	-237
05/11/2011	8.6	38	308	<1.0	18	<2.0	<0.10	20	<1.0	14	-191
02/15/2012	8.1	35	286	<1.0	20	<5.0	0.15	20	<1.0	12	-224
04/26/2012	8.0	37	314	<1.0	22	<5.0	0.14	20	<1.0	13	-225
07/12/2012	8.3	34	366	1.7	21	<5.0	0.10	20	<1.0	15	-222
12/05/2012	7.9	37	302	<1.0	14	<5.0	0.10	21	<1.0	12	-223
04/23/2013	8.6	40	274	<1.0	21	7.0	0.13	19	<1.0	13	-218
07/30/2013	8.1	37	304	<1.0	20	<5.0	0.13	21	<1.0	14	-218
11/26/2013	8.8	36	270	<1.0	21	<5.0	0.15	19	<1.0	13	-201

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-13: GROUNDWATER QUALITY DATA FOR WELL QC-12 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/04/1995	8.1	72	726	3.0	34	110	0.07	114	1.0	12	-253
03/15/1995	8.5	101	722	3.0	35	197	<0.01	86	<1.0	13	-256
05/03/1995	7.5	111	770	3.0	34	173	0.21	104	<1.0	14	-255
07/06/1995	8.5	118	840	3.0	32	28	0.11	171	<1.0	13	-266
09/13/1995	8.1	118	830	4.0	33	212	0.19	90	<1.0	14	-271
11/21/1995	7.8	74	818	6.0	31	227	0.16	125	15	12	-256
01/03/1996	6.6	124	1088	10	30	345	0.19	286	<1.0	25	-266
03/13/1996	7.9	129	908	5.0	28	245	0.22	119	<1.0	12	-271
05/08/1996	7.6	134	840	5.0	34	223	0.11	84	<1.0	12	-274
07/02/1996	7.6	112	734	6.0	34	211	0.18	99	<1.0	14	-242
09/05/1996	8.2	103	902	5.0	38	273	0.19	192	<1.0	15	-244
05/01/1997	7.5	118	574	3.0	31	121	0.09	114	<1.0	13	-260
05/17/1999	6.9	133	902	3.0	45	290	0.21	210	<1.0	17	-229
11/09/1999	7.3	104	922	3.0	39	320	0.29	189	<1.0	15	-244
05/03/2000	8.5	100	992	6.0	40	343	0.33	221	<1.0	13	-245
12/27/2000	7.8	109	1054	2.0	45	416	0.23	262	<1.0	11	-251
05/02/2001	8.6	100	872	3.0	45	311	0.25	194	<1.0	13	-248
11/01/2001	7.6	102	904	2.0	42	317	0.22	160	<1.0	13	-249
05/01/2002	8.5	105	908	4.0	43	358	0.27	187	<1.0	12	-243
11/06/2002	7.1	125	956	4.0	40	331	0.37	168	<1.0	12	-250
05/14/2003	7.1	134	956	2.0	40	340	0.30	215	<1.0	12	-259
11/12/2003	7.6	146	906	2.0	37	344	0.27	174	<1.0	12	-247
05/12/2004	8.0	123	944	1.0	37	392	0.32	183	<1.0	14	-247
11/03/2004	7.0	150	990	4.0	41	332	0.23	207	<1.0	12	-243
01/20/2005	6.9	107	728	1.0	37	199	0.26	115	<1.0	11	-229
03/30/2005	7.3	107	758	2.0	47	239	0.25	146	<1.0	13	-230
07/13/2005	7.5	70	968	1.0	40	354	0.30	200	<1.0	14	-236
01/05/2006	7.3	113	962	0.50	37	394	0.29	229	<1.0	12	-243
05/24/2006	8.0	144	956	0.50	38	382	0.28	230	<1.0	14	-239
08/23/2006	7.6	53	998	0.30	23	405	0.23	236	<1.0	13	-241
01/17/2007	8.0	114	876	0.50	39	844	0.24	155	<1.0	8.0	-227
03/28/2007	8.0	102	856	0.70	40	295	0.22	163	<1.0	12	-229
06/20/2007	7.8	81	860	0.50	39	269	0.23	162	<1.0	13	-228
01/23/2008	7.7	59	948	0.50	41	329	0.32	203	<1.0	11	-227
04/29/2008	7.6	121	972	0.40	38	338	0.31	21	<1.0	12	-248
06/04/2008	7.7	149	990	0.40	37	371	0.32	38	<1.0	13	-231
02/10/2009	7.7	111	910	<1.0	37	303	0.47	164	<1.0	13	-251
05/06/2009	8.3	53	788	<1.0	44	224	0.35	104	<1.0	13	-209
08/05/2009	8.0	78	868	<1.0	41	267	0.33	151	<1.0	14	-220
01/21/2010	7.7	99	930	<1.0	42	303	0.24	185	<1.0	5.4	-241

TABLE 3-13 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-12
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/09/2010	7.8	72	978	<1.0	38	345	0.34	218	<1.0	12	-223
07/07/2010	7.6	82	874	<1.0	37	305	0.32	161	<1.0	14	-220
01/05/2011	7.4	84	934	<1.0	38	347	0.46	191	<1.0	13	-245
05/11/2011	8.0	85	898	<1.0	35	264	0.39	159	<1.0	15	-213
12/07/2011	8.0	82	848	<1.0	39	274	0.36	149	<1.0	9.5	-220
02/15/2012	7.5	82	928	<1.0	37	310	0.33	187	<1.0	12	-238
04/26/2012	7.8	84	1000	<1.0	38	357	0.34	215	<1.0	12	-248
07/12/2012	7.5	78	992	1.4	36	337	0.29	200	<1.0	14	-248
12/05/2012	8.0	70	994	<1.0	30	393	0.36	232	<1.0	12	-248
04/23/2013	7.8	78	938	<1.0	38	321	0.35	191	<1.0	13	-235
07/30/2013	7.9	107	934	<1.0	34	313	0.34	176	<1.0	13	-233
11/26/2013	8.0	106	848	<1.0	35	279	0.56	138	<1.0	13	-222

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-14: GROUNDWATER QUALITY DATA FOR WELL QC-13 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/04/1995	8.7	68	346	2.0	31	62	0.09	36	<1.0	12	-266
03/15/1995	8.2	57	460	2.0	34	70	0.07	50	<1.0	14	-276
05/03/1995	8.0	63	458	3.0	28	12	0.13	33	<1.0	13	-266
07/06/1995	9.6	57	360	2.0	27	27	0.25	30	<1.0	13	-283
09/13/1995	8.4	60	398	3.0	28	27	0.11	22	<1.0	14	-284
11/21/1995	7.4	68	378	5.0	27	21	0.10	21	<1.0	12	-250
01/03/1996	7.1	58	430	8.0	25	31	0.10	33	<1.0	10	-283
03/13/1996	8.5	58	420	4.0	27	22	0.08	27	<1.0	12	-285
05/01/1996	8.2	58	384	7.0	32	16	0.05	27	<1.0	13	-283
07/02/1996	8.3	54	432	6.0	27	8.0	0.09	27	<1.0	14	-246
09/04/1996	8.5	55	378	3.0	28	18	0.10	27	<1.0	14	-258
05/01/1997	7.6	59	304	2.0	21	31	0.05	95	<1.0	12	-262
05/17/1999	7.5	55	428	2.0	34	39	0.06	38	<1.0	15	-231
11/09/1999	7.7	57	428	2.0	35	41	0.19	39	<1.0	14	-252
05/03/2000	8.2	54	480	5.0	37	46	0.21	41	<1.0	13	-232
12/27/2000	8.5	70	468	1.0	37	40	0.22	40	<1.0	11	-256
05/02/2001	8.5	66	438	2.0	38	48	0.19	42	<1.0	13	-253
11/01/2001	7.4	69	554	2.0	37	46	0.16	33	<1.0	13	-249
05/01/2002	8.4	76	416	2.0	42	43	0.17	36	<1.0	13	-249
11/06/2002	7.2	67	470	3.0	42	58	0.23	36	<1.0	12	-254
05/14/2003	7.4	65	550	3.0	42	37	0.17	35	<1.0	13	-256
11/12/2003	7.7	71	480	2.0	41	39	0.16	32	<1.0	13	-251
05/12/2004	8.2	60	550	2.0	48	59	0.22	34	<1.0	14	-251
11/03/2004	7.1	71	476	2.0	44	40	0.16	34	<1.0	12	-246
01/20/2005	7.1	51	500	1.0	46	40	0.19	33	<1.0	10	-210
03/30/2005	7.4	56	406	2.0	48	41	0.18	34	<1.0	13	-233
07/13/2005	7.6	45	466	1.0	43	45	0.17	35	<1.0	13	-241
01/05/2006	7.4	54	520	0.60	42	43	0.18	36	<1.0	12	-246
05/24/2006	8.1	67	510	0.70	45	45	0.19	38	<1.0	14	-243
06/08/2006	7.8	33	476	0.50	43	38	0.11	36	<1.0	13	-243
01/17/2007	8.6	54	424	0.70	46	43	0.14	33	<1.0	12	-223
06/20/2007	7.9	43	502	0.70	48	47	0.15	37	<1.0	14	-232
10/29/2007	7.6	60	466	0.60	49	40	0.16	37	<1.0	12	-255
04/29/2008	7.4	63	432	0.70	56	49	0.18	39	<1.0	12	-257
06/04/2008	8.1	75	436	0.60	48	44	0.16	2692	<1.0	13	-235
05/06/2009	8.3	30	456	1.1	58	44	0.19	34	<1.0	14	-215
08/05/2009	8.1	44	482	<1.0	54	40	0.18	35	<1.0	14	-232
03/09/2010	7.6	39	438	1.0	51	40	0.19	40	<1.0	12	-237
07/07/2010	7.2	46	476	<1.0	54	42	0.17	37	<1.0	15	-222
09/29/2010	8.2	52	430	<1.0	53	40	0.16	36	<1.0	13	-253

TABLE 3-14 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-13
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
05/11/2011	7.9	46	464	<1.0	50	35	0.16	36	<1.0	15	-222
09/08/2011	7.9	59	440	<1.0	58	40	0.19	40	<1.0	15	-225
12/07/2011	7.8	44	470	<1.0	57	35	0.21	43	<1.0	13	-228
02/15/2012	7.8	89	424	<1.0	51	31	0.18	37	<1.0	13	-237
04/25/2012	7.8	38	420	<1.0	57	31	0.21	39	<1.0	13	-233
07/12/2012	7.4	46	490	1.7	63	34	0.19	39	<1.0	14	-237
12/05/2012	7.4	41	422	<1.0	48	26	0.19	41	<1.0	14	-239
04/23/2013	7.9	80	424	<1.0	59	27	0.19	39	<1.0	13	-231
07/30/2013	7.9	57	462	<1.0	57	31	0.18	38	<1.0	14	-228
11/26/2013	8.2	53	412	1.1	58	29	0.19	35	<1.0	12	-237

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-15: GROUNDWATER QUALITY DATA FOR WELL QC-14 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	8.6	55	356	2.0	25	23	0.10	12	<1.0	11	-196
03/01/1995	8.6	55	332	2.0	26	34	0.19	17	<1.0	11	-227
05/25/1995	9.2	48	464	2.0	21	22	0.11	23	<1.0	12	-229
07/05/1995	8.0	48	368	4.0	21	20	0.09	24	<1.0	13	-230
09/14/1995	7.3	54	404	2.0	21	21	0.11	22	<1.0	12	-231
11/16/1995	8.2	50	348	5.0	19	12	0.10	21	<1.0	12	-197
01/18/1996	8.4	52	3982	4.0	25	16	0.11	25	<1.0	12	-230
03/21/1996	8.3	55	428	4.0	19	8.0	0.07	26	<1.0	11	-229
05/22/1996	8.2	51	444	7.0	20	11	0.11	23	<1.0	13	-220
07/24/1996	8.6	49	398	3.0	20	12	0.07	25	<1.0	14	-179
09/11/1996	8.6	51	450	6.0	21	9.0	0.10	24	<1.0	13	-222
11/21/1996	8.8	65	364	9.0	21	12	0.03	26	<1.0	11	-228
05/07/1997	7.8	54	424	4.0	24	10	<0.10	26	<1.0	12	-224
05/06/1999	7.5	70	446	2.0	34	9.0	0.02	37	<1.0	13	-202
11/19/1999	8.0	76	532	3.0	40	10	0.17	50	<1.0	16	-217
05/18/2000	8.2	55	474	7.0	43	6.0	0.17	53	<1.0	13	-218
12/27/2000	8.0	54	530	2.0	53	6.0	0.17	72	<1.0	8.0	-248
05/10/2001	6.9	82	544	3.0	59	<1.0	0.23	72	<1.0	13	-221
11/08/2001	7.6	86	624	3.0	66	2.0	0.16	77	<1.0	13	-19
05/09/2002	8.0	62	524	7.0	71	2.0	0.17	97	<1.0	13	-221
11/20/2002	7.6	67	664	4.0	61	2.0	0.25	78	<1.0	12	-220
05/29/2003	7.5	61	602	4.0	71	2.0	0.29	97	<1.0	13	-217
11/06/2003	8.4	54	646	5.0	81	2.0	0.14	77	<1.0	12	-221
05/27/2004	7.3	97	576	3.0	63	1.0	0.22	94	<1.0	13	-213
11/10/2004	7.5	58	620	7.0	79	2.0	0.23	103	<1.0	12	-218
02/16/2005	7.1	48	634	4.0	88	3.0	0.27	111	<1.0	12	-211
07/28/2005	7.6	49	662	2.0	95	1.0	0.19	106	<1.0	13	-217
09/15/2005	7.7	85	670	2.0	85	<2.0	0.17	105	<1.0	13	-217
03/09/2006	7.4	44	714	2.3	94	2.0	0.13	117	<1.0	13	-218
07/27/2006	7.6	93	674	2.2	103	1.0	0.19	115	<1.0	16	-217
09/28/2006	7.5	97	580	2.0	87	1.0	0.14	111	<1.0	13	-210
02/08/2007	8.1	49	694	2.2	103	2.0	0.20	124	<1.0	11	-209
07/05/2007	7.7	65	702	2.0	96	4.0	0.14	109	<1.0	14	-213
10/11/2007	7.4	80	702	2.0	97	2.0	0.22	106	<1.0	13	-197
01/31/2008	7.6	89	710	2.4	128	2.0	0.29	139	<1.0	12	-214
06/12/2008	7.9	67	728	1.9	115	0.40	0.26	129	<1.0	14	-217
08/21/2008	7.6	77	706	2.0	110	0.60	0.20	134	<1.0	13	-218
03/05/2009	7.3	66	722	2.5	108	<2.0	0.25	114	<1.0	13	-206
06/25/2009	7.4	90	330	2.6	107	<2.0	0.25	111	<1.0	12	-219
09/02/2009	7.6	80	724	3.3	124	<2.0	0.29	132	<1.0	14	-219

TABLE 3-15 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-14
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/04/2010	7.5	88	672	2.6	113	<2.0	0.27	132	<1.0	13	-211
05/06/2010	7.4	51	734	3.7	125	<2.0	0.27	147	<1.0	14	-221
12/02/2010	7.0	58	684	2.9	121	2.0	0.27	131	<1.0	11	-227
03/03/2011	7.9	45	676	2.6	129	<2.0	0.26	128	<1.0	12	-209
06/02/2011	7.8	100	676	2.5	110	<2.0	0.16	122	<1.0	14	-212
08/31/2011	7.5	75	764	3.2	134	<5.0	0.26	141	<1.0	14	-206
02/01/2012	7.5	77	700	2.9	132	<5.0	0.24	131	<1.0	12	-208
04/05/2012	7.3	68	726	2.9	128	<5.0	0.27	161	<1.0	13	-213
07/19/2012	7.6	67	810	3.9	135	<5.0	0.32	146	<1.0	15	-200
10/25/2012	7.4	60	756	3.0	142	<5.0	0.29	148	<1.0	15	-216
03/14/2013	6.8	45	690	3.0	119	<5.0	0.29	120	<1.0	13	-199
09/26/2013	7.7	100	750	4.0	312	<5.0	0.32	146	<1.0	13	-209
10/31/2013	7.6	104	786	4.0	166	<5.0	0.24	164	<1.0	14	-199

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-16: GROUNDWATER QUALITY DATA FOR WELL QC-15 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	9.0	50	322	2.0	17	31	0.25	5.0	<1.0	12	-218
03/01/1995	8.8	48	320	2.0	18	39	0.01	10	<1.0	12	-233
05/25/1995	9.2	48	432	2.0	15	48	0.24	14	<1.0	12	-238
07/05/1995	8.6	68	334	5.0	12	27	0.23	14	<1.0	13	-238
09/14/1995	7.8	49	338	3.0	12	15	0.21	14	<1.0	11	-239
11/16/1995	9.0	54	292	7.0	13	12	0.22	12	<1.0	12	-221
01/16/1996	8.8	46	330	4.0	13	19	0.21	15	<1.0	13	-240
05/22/1996	8.3	45	368	7.0	15	11	0.17	14	<1.0	14	-228
07/24/1996	8.8	39	344	4.0	14	12	0.25	14	<1.0	18	-227
09/11/1996	8.9	45	400	7.0	13	9.0	0.21	14	<1.0	13	-234
05/07/1997	7.7	46	362	3.0	14	8.0	0.12	15	<1.0	13	-236
05/06/1999	7.6	53	358	2.0	14	10	0.10	14	<1.0	12	-218
11/19/1999	8.3	48	374	2.0	14	9.0	0.24	15	<1.0	14	-235
05/18/2000	8.5	49	320	7.0	15	8.0	0.24	15	<1.0	13	-230
05/10/2001	7.5	41	326	2.0	12	<0.40	0.27	23	<1.0	13	-235
11/08/2001	7.6	50	244	2.0	14	<0.40	0.23	14	<1.0	13	-231
05/09/2002	8.7	52	318	4.0	14	5.0	0.24	16	<1.0	12	-233
11/20/2002	8.6	49	394	3.0	20	1.0	0.28	14	<1.0	12	-235
05/29/2003	7.6	49	328	5.0	20	1.0	0.23	14	<1.0	13	-228
11/06/2003	8.7	33	344	3.0	14	1.0	0.16	62	<1.0	12	-232
05/27/2004	8.0	52	364	2.0	29	1.0	0.22	13	<1.0	13	-226
11/10/2004	7.6	33	344	4.0	21	1.0	0.23	14	<1.0	12	-229
02/16/2005	7.0	34	336	2.0	20	1.0	0.17	14	<1.0	12	-218
07/28/2005	8.2	29	332	1.0	21	<0.40	0.19	13	<1.0	13	-227
09/15/2005	7.8	39	426	1.0	20	1.0	0.18	13	<1.0	13	-225
03/09/2006	8.0	27	372	0.90	22	2.0	0.12	14	<1.0	12	-229
07/27/2006	8.3	45	344	0.80	22	<0.40	0.20	14	<1.0	16	-225
09/28/2006	8.3	47	292	0.80	21	<0.40	0.09	14	<1.0	13	-221
02/08/2007	8.1	41	306	0.80	15	1.0	0.12	15	<1.0	12	-218
07/05/2007	7.8	35	338	0.80	13	0.80	0.13	13	<1.0	13	-222
10/11/2007	7.5	38	328	0.70	20	<0.40	0.21	13	<1.0	13	-225
01/31/2008	7.4	49	332	0.80	17	1.0	0.20	15	<1.0	11	-222
06/05/2008	7.9	36	312	0.80	13	0.40	0.15	15	<1.0	13	-222
08/21/2008	7.2	46	356	1.0	12	2.6	0.17	14	<1.0	13	-232
03/05/2009	7.6	31	350	<1.0	14	<2.0	0.22	16	<1.0	12	-233
06/25/2009	7.8	56	314	1.5	13	<2.0	0.22	13	<1.0	13	-230
09/02/2009	8.6	39	332	1.2	15	<2.0	0.19	15	<1.0	13	-224
02/04/2010	8.5	41	308	<1.0	<15	<2.0	0.21	16	<1.0	12	-216
05/06/2010	8.4	25	306	1.3	<15	<2.0	0.23	15	<1.0	13	-225
12/02/2010	7.0	38	356	<1.0	16	<2.0	0.24	23	<1.0	11	-225

TABLE 3-16 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-15
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/03/2011	8.4	35	296	<1.0	14	<2.0	0.15	15	<1.0	12	-233
06/02/2011	8.2	47	318	1.7	12	<2.0	0.17	15	<1.0	19	-230
08/31/2011	7.8	44	356	<1.0	12	<2.0	0.22	15	<1.0	13	-234
03/22/2012	8.3	36	304	<1.0	12	<5.0	0.22	16	<1.0	13	-215
05/03/2012	8.4	45	332	<1.0	13	<5.0	0.18	12	<1.0	14	-217
07/19/2012	8.5	31	360	6.3	12	<5.0	0.25	13	<1.0	16	-215
12/06/2012	7.9	33	310	1.1	<10	<5.0	0.21	14	<1.0	12	-218
03/14/2013	8.0	36	464	<1.0	54	<5.0	0.24	12	<1.0	13	-217
09/26/2013	8.8	44	302	1.0	13	<5.0	0.28	14	<1.0	13	-218
10/31/2013	8.0	38	308	1.0	12	<5.0	0.24	14	<1.0	14	-215

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-17: GROUNDWATER QUALITY DATA FOR WELL QC-16 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/19/1995	7.6	77	518	2.0	14	73	0.25	70	<1.0	10	-158
03/01/1995	8.3	65	568	2.0	14	58	0.11	77	<1.0	10	-156
05/25/1995	7.8	76	422	3.0	15	52	0.18	73	<1.0	12	-171
07/05/1995	7.0	73	516	2.0	12	51	0.25	72	<1.0	13	-149
09/14/1995	6.9	73	494	3.0	13	54	0.10	68	<1.0	11	-174
11/16/1995	8.5	84	504	5.0	13	45	0.13	70	<1.0	10	-159
01/24/1996	8.4	73	580	5.0	12	48	0.05	68	<1.0	9.0	-154
03/14/1996	9.0	57	502	4.0	8.0	43	0.07	7.0	<1.0	13	-182
05/08/1996	8.2	74	600	8.0	12	45	0.05	79	<1.0	12	-176
07/18/1996	8.3	70	564	4.0	14	219	0.07	77	<1.0	13	-159
09/18/1996	8.4	50	536	6.0	13	47	0.07	78	<1.0	13	-166
11/14/1996	8.3	74	588	2.0	15	64	0.95	79	<1.0	11	-177
03/06/1997	8.1	75	512	3.0	14	47	0.23	77	<1.0	9.0	-176
05/15/1997	7.6	74	494	1.0	16	46	<0.10	77	<1.0	12	-166
07/24/1997	8.1	65	638	2.0	14	48	0.14	76	<1.0	13	-160
09/18/1997	8.2	69	540	8.0	14	37	0.14	75	<1.0	14	-177
11/06/1997	7.8	66	546	4.0	15	47	<0.10	78	<1.0	12	-191
01/15/1998	8.4	73	582	5.0	15	46	0.19	86	<1.0	10	-167
03/12/1998	8.0	67	612	3.0	15	45	0.03	75	<1.0	11	-178
05/21/1998	8.6	72	444	2.0	15	52	<0.01	80	<1.0	15	-162
07/09/1998	8.3	70	512	4.0	17	42	<0.01	73	<1.0	10	-189
09/17/1998	7.2	64	558	2.0	18	15	0.02	80	<1.0	13	-168
11/05/1998	8.1	67	556	1.0	20	52	0.21	77	<1.0	11	-191
01/14/1999	8.1	75	590	3.0	20	48	0.01	77	<1.0	11	-172
03/04/1999	7.9	74	538	2.0	17	50	0.05	78	<1.0	12	-188
05/13/1999	7.7	79	508	2.0	12	53	0.01	83	<1.0	12	-169
07/21/1999	8.3	73	576	2.0	18	54	0.18	82	<1.0	13	-173
09/16/1999	8.1	72	544	1.0	19	55	<0.01	78	<1.0	14	-180
11/04/1999	8.1	80	514	3.0	19	57	0.03	81	<1.0	12	-185
01/06/2000	8.0	80	354	4.0	18	47	0.11	75	<1.0	11	-183
03/23/2000	8.4	79	506	2.0	253	47	0.11	76	<1.0	12	-169
05/04/2000	7.1	61	584	4.0	17	55	0.11	84	<1.0	13	-200
07/27/2000	7.5	78	514	1.0	17	50	0.1	79	<1.0	13	-167
09/20/2000	8.2	87	554	1.0	18	55	0.13	75	<1.0	13	-190
11/02/2000	7.6	86	482	2.0	18	47	0.08	77	<1.0	13	-206
01/25/2001	7.6	86	504	2.0	19	49	0.15	77	<1.0	11	-252
03/15/2001	7.6	82	596	2.0	18	50	0.14	84	<1.0	11	-196
05/24/2001	7.2	64	478	1.0	20	53	0.15	83	<1.0	12	-184
07/12/2001	7.9	71	616	1.0	20	51	0.05	76	<1.0	14	-197
09/20/2001	7.9	58	492	2.0	19	45	0.17	78	<1.0	12	-181

TABLE 3-17 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-16
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
11/29/2001	7.7	57	558	1.0	20	53	0.07	102	<1.0	11	-5.0
01/10/2002	8.1	56	450	2.0	21	49	0.05	65	<1.0	12	-208
03/21/2002	7.3	51	538	5.0	20	50	0.05	74	<1.0	11	-182
05/02/2002	8.8	57	524	3.0	20	49	0.04	72	<1.0	12	-206
07/18/2002	8.8	58	536	3.0	22	53	0.04	74	<1.0	13	-254
09/19/2002	7.6	51	504	3.0	20	62	0.05	76	<1.0	14	-194
11/06/2002	7.6	51	598	2.0	21	60	0.05	73	<1.0	11	-206
01/16/2003	7.0	53	528	4.0	22	43	0.03	71	<1.0	10	-184
03/13/2003	7.8	52	538	3.0	20	43	0.03	70	<1.0	11	-199
05/22/2003	6.7	58	522	3.0	20	46	0.02	72	<1.0	12	-186
07/24/2003	7.3	71	482	5.0	16	53	0.15	73	<1.0	13	-196
09/17/2003	8.0	80	510	3.0	20	61	0.05	71	<1.0	14	-199
11/06/2003	8.5	45	518	3.0	19	43	0.06	76	<1.0	10	-207
01/29/2004	7.7	48	474	3.0	18	61	0.15	71	<1.0	10	-174
03/18/2004	7.6	77	432	4.0	29	60	0.08	69	<1.0	11	-197
05/06/2004	7.4	81	546	1.0	24	59	0.04	69	<1.0	14	-212
07/29/2004	7.8	43	516	2.0	20	47	0.08	72	<1.0	14	-196
09/30/2004	7.4	71	588	1.0	21	44	0.05	71	<1.0	12	-205
11/17/2004	7.5	47	496	1.0	21	49	<0.02	71	<1.0	12	-219
01/27/2005	7.2	59	494	1.0	22	49	0.04	75	<1.0	11	-194
05/05/2005	7.6	37	570	1.0	21	54	0.07	74	<1.0	13	-195
09/22/2005	7.3	35	464	<1.0	21	55	0.04	76	<1.0	14	-186
01/12/2006	7.2	33	572	0.50	22	60	0.03	77	<1.0	11	-214
08/31/2006	8.0	82	588	0.60	23	59	0.10	80	<1.0	14	-254
11/09/2006	7.8	79	530	0.60	26	67	<0.02	79	<1.0	12	-254
03/15/2007	7.8	38	508	0.40	26	60	0.05	79	<1.0	10	-233
06/21/2007	7.7	55	568	0.40	23	56	<0.02	81	1.0	14	-244
07/12/2007	7.5	93	538	0.40	24	65	<0.02	85	<1.0	14	-261
03/13/2008	7.9	42	606	0.40	26	66	0.12	88	<1.0	11	-242
06/05/2008	8.1	58	510	0.50	22	61	0.08	76	<1.0	13	-208
08/21/2008	7.5	100	552	1.0	21	68	0.02	84	<1.0	12	-256
04/16/2009	7.6	75	524	<1.0	27	62	<0.10	83	<1.0	12	-256
07/22/2009	7.4	81	1148	<1.0	41	63	<0.10	126	<1.0	13	-258
09/02/2009	7.8	53	524	<1.0	23	63	0.12	73	<1.0	14	-216
02/04/2010	8.1	53	500	1.0	24	61	<0.02	83	<1.0	11	-254
06/03/2010	8.1	47	510	<1.0	23	59	0.06	85	<1.0	14	-224
12/02/2010	7.5	70	502	<1.0	22	65	0.08	87	<1.0	12	-261
03/03/2011	8.1	46	506	<1.0	23	61	<0.10	84	<1.0	12	-249
06/02/2011	7.9	74	522	1.2	22	70	<0.10	86	<1.0	14	-260
08/31/2011	7.5	37	544	<1.0	23	66	<0.10	87	<1.0	15	-256

TABLE 3-17 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-16
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
03/22/2012	7.8	56	488	1.1	21	68	<0.10	84	<1.0	16	-256
07/19/2012	8.0	49	588	4.4	22	65	<0.10	84	<1.0	16	-257
09/12/2012	7.7	40	506	<1.0	22	138	0.27	84	<1.0	18	-260
03/21/2013	7.7	46	500	1.0	21	67	<0.10	110	<1.0	11	-249
09/26/2013	8.1	62	490	<1.0	21	63	<0.10	78	<1.0	14	-256

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-18: GROUNDWATER QUALITY DATA FOR WELL QC-17 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/19/1995	8.5	82	620	2.0	7.0	220	0.25	161	<1.0	11	-140
07/13/1995	6.2	75	522	2.0	4.0	220	0.26	173	<1.0	13	-171
09/07/1995	8.6	76	532	3.0	5.0	208	0.24	165	<1.0	12	-173
11/09/1995	8.6	84	536	5.0	3.0	177	0.12	173	<1.0	11	-171
01/24/1996	8.0	75	600	4.0	6.0	197	0.25	165	<1.0	9.0	-174
03/14/1996	7.9	77	548	3.0	1.0	207	0.25	184	<1.0	12	-178
05/08/1996	7.8	77	520	4.0	3.0	200	0.25	182	<1.0	12	-173
07/18/1996	8.2	70	564	4.0	3.0	219	0.24	181	<1.0	15	-162
09/18/1996	8.2	45	388	4.0	7.0	203	0.09	186	<1.0	14	-168
05/15/1997	7.5	73	518	2.0	4.0	193	0.20	170	<1.0	12	-199
05/13/1999	7.5	76	530	2.0	<1.0	10	0.19	169	<1.0	12	-170
11/04/1999	7.9	78	502	2.0	5.0	197	0.23	181	<1.0	12	-189
05/04/2000	7.3	60	530	6.0	3.0	203	0.29	147	2.0	13	-169
05/24/2001	7.1	72	496	1.0	4.0	185	0.28	153	<1.0	12	-180
11/29/2001	7.9	52	536	1.0	7.0	186	0.30	168	<1.0	11	-176
05/02/2002	8.5	53	478	2.0	5.0	160	0.23	124	<1.0	12	-168
05/22/2003	6.6	57	554	3.0	12	188	0.27	182	<1.0	12	-155
11/20/2003	7.6	26	512	2.0	9.0	222	0.37	149	2.0	12	-162
05/06/2004	7.4	43	546	1.0	20	214	0.28	169	<1.0	13	-157
11/17/2004	7.6	46	560	1.0	15	193	0.32	179	<1.0	12	-152
06/30/2005	7.6	50	552	1.0	13	191	0.29	170	<1.0	13	-156
07/28/2005	7.5	35	546	1.0	14	194	0.28	188	<1.0	12	-156
09/15/2005	7.7	64	568	1.0	13	192	0.27	187	<1.0	12	-157
06/08/2006	7.6	29	530	0.60	15	164	0.23	169	<1.0	12	-160
07/27/2006	8.0	75	500	0.60	14	192	0.27	182	<1.0	14	-157
12/07/2006	8.0	78	578	0.70	20	191	0.25	173	5.0	12	-130
03/01/2007	7.7	76	536	0.70	14	191	0.19	174	<1.0	12	-159
07/05/2007	7.6	47	578	0.60	14	196	0.23	184	<1.0	13	-165
03/27/2008	7.7	59	534	0.50	13	191	0.27	187	<1.0	11	-165
06/05/2008	8.0	49	530	0.60	10	192	0.29	176	<1.0	14	-168
08/21/2008	7.7	53	538	1.0	10	186	0.26	174	<1.0	13	-171
04/16/2009	7.3	64	548	1.0	10	176	0.21	155	<1.0	12	-163
07/22/2009	7.3	70	980	<1.0	<10	155	0.29	111	<1.0	13	-166
09/02/2009	8.1	54	510	<1.0	10	186	0.22	152	<1.0	13	-170
02/04/2010	7.9	56	546	<1.0	<15	181	0.27	186	<1.0	12	-168
06/03/2010	8.1	49	552	<1.0	17	179	0.31	180	20	12	-171
12/02/2010	7.6	52	514	<1.0	<15	183	0.24	169	<1.0	11	-168
03/03/2011	7.7	44	570	1.1	11	185	0.25	172	<1.0	12	-171
06/02/2011	7.2	62	566	1.4	15	174	0.31	198	51	14	-163
08/31/2011	7.4	49	500	<1.0	10	181	0.28	152	<1.0	13	-180

TABLE 3-18 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-17
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
03/22/2012	8.3	46	506	<1.0	<10	183	0.28	164	<1.0	14	-193
05/03/2012	7.7	71	528	<1.0	<10	185	0.27	159	<1.0	14	-193
07/26/2012	8.2	70	512	8.3	<10	181	0.27	166	6.0	14	-186
10/25/2012	7.4	45	520	<1.0	<10	180	0.28	156	<1.0	23	-207
03/21/2013	7.6	44	528	<1.0	<10	189	0.30	17	<1.0	11	-173
09/26/2013	8.4	47	508	<1.0	<10	174	0.28	165	<1.0	13	-198
10/31/2013	8.3	57	512	<1.0	<10	180	0.28	166	<1.0	13	-193

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-19: GROUNDWATER QUALITY DATA FOR WELL QC-18 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/05/1995	8.8	63	386	1.0	9.0	53	0.07	5.0	<1.0	11	-225
03/09/1995	8.9	59	384	2.0	16	57	0.10	11	<1.0	12	-227
05/04/1995	8.9	60	392	2.0	11	50	0.12	7.0	5.0	12	-227
07/13/1995	7.3	55	394	1.0	7.0	52	0.10	7.0	<1.0	13	-227
09/07/1995	7.3	57	416	2.0	9.0	52	0.09	7.0	<1.0	14	-228
11/09/1995	8.5	63	482	6.0	7.0	45	0.08	7.0	<1.0	10	-227
01/24/1996	9.1	59	440	3.0	8.0	50	0.08	5.0	<1.0	10	-228
03/14/1996	8.2	72	580	4.0	9.0	50	0.03	76	<1.0	13	-228
05/08/1996	9.0	60	494	5.0	6.0	50	0.07	5.0	<1.0	11	-229
07/18/1996	9.0	54	476	4.0	7.0	63	0.07	8.0	<1.0	13	-223
09/18/1996	9.2	38	556	3.0	5.0	40	0.25	8.0	<1.0	12	-222
05/15/1997	7.5	59	394	2.0	9.0	36	0.02	8.0	<1.0	12	-221
05/13/1999	7.4	65	392	2.0	2.0	42	0.04	8.0	<1.0	12	-188
11/04/1999	8.9	63	386	2.0	7.0	49	0.05	9.0	<1.0	12	-204
05/04/2000	7.7	47	474	5.0	6.0	43	0.14	15	<1.0	13	-197
05/24/2001	6.8	50	390	1.0	7.0	35	0.15	8.0	<1.0	12	-206
11/29/2001	8.7	44	378	1.0	7.0	45	0.09	5.0	<1.0	11	-207
05/02/2002	9.0	44	494	2.0	24	37	0.07	7.0	<1.0	12	-207
11/06/2002	8.2	42	452	3.0	6.0	47	0.13	8.0	<1.0	11	-207
05/22/2003	7.2	44	412	3.0	7.0	34	0.11	7.0	<1.0	12	-196
11/20/2003	8.0	28	386	2.0	6.0	49	0.16	7.0	<1.0	12	-208
05/06/2004	7.8	61	398	1.0	9.0	44	0.10	7.0	<1.0	13	-208
11/17/2004	8.0	40	382	1.0	9.0	34	0.11	7.0	<1.0	12	-203
06/30/2005	7.5	40	398	1.0	8.0	38	0.08	7.0	<1.0	13	-204
07/28/2005	8.7	33	364	<1.0	8.0	37	0.09	7.0	<1.0	12	-203
09/15/2005	7.9	48	426	<1.0	8.0	33	0.09	7.0	<1.0	12	-205
03/09/2006	8.4	26	362	0.40	8.0	42	0.02	7.0	<1.0	12	-207
07/27/2006	8.7	58	388	0.40	2.0	35	0.07	7.0	<1.0	14	-205
10/26/2006	9.4	58	390	0.30	10	39	0.06	7.0	<1.0	12	-212
03/01/2007	7.5	57	370	0.30	8.0	34	<0.02	7.0	<1.0	12	-210
06/14/2007	7.5	57	364	0.40	8.0	33	<0.02	9.0	<1.0	15	-212
07/12/2007	7.3	70	372	0.30	9.0	31	0.06	7.0	<1.0	14	-210
03/13/2008	8.2	40	440	0.30	124	35	0.11	8.0	<1.0	11	-207
06/05/2008	8.2	40	508	0.30	10	37	0.12	8.0	<1.0	13	-212
12/04/2008	7.7	45	466	1.0	10	34	0.07	8.0	<1.0	11	-214
05/07/2009	7.7	55	394	<1.0	12	32	<0.10	7.0	<1.0	11	-212
07/22/2009	7.7	51	744	<1.0	<10	31	0.11	6.0	<1.0	13	-222
09/02/2009	9.1	46	384	<1.0	<10	32	0.10	7.0	<1.0	13	-213
06/03/2010	9.0	43	412	<1.0	<15	43	0.12	43	<1.0	12	-218
09/16/2010	8.9	43	394	<1.0	<15	31	0.12	8.0	<1.0	14	-222

TABLE 3-19 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-18
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
03/03/2011	9.0	37	362	<1.0	<10	31	0.11	14	<1.0	12	-194
06/02/2011	8.3	56	388	<1.0	<10	28	0.13	7.0	<1.0	17	-222
08/31/2011	9.3	33	540	<1.0	<10	30	0.15	56	<1.0	13	-194
03/22/2012	8.9	43	358	<1.0	<10	31	<0.10	7.0	<1.0	14	-202
05/03/2012	8.8	54	400	<1.0	<10	30	<0.10	7.0	<1.0	13	-201
07/26/2012	9.0	55	428	6.9	<10	28	<0.10	7.0	<1.0	14	-194
10/25/2012	8.9	44	370	<1.0	<10	27	0.10	7.0	<1.0	22	-204
03/21/2013	8.9	38	370	<1.0	<10	35	0.11	23	<1.0	6.0	-190
09/26/2013	9.1	45	360	<1.0	<10	27	0.10	7.0	<1.0	13	-202
10/31/2013	9.1	44	364	<1.0	<10	25	<0.10	8.0	<1.0	12	-201

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-20: GROUNDWATER QUALITY DATA FOR WELL QC-19 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/24/1996	8.2	71	478	9.0	6.0	173	0.34	134	<1.0	11	-128
03/14/1996	8.3	68	468	7.0	2.0	179	0.27	134	<1.0	12	-131
05/08/1996	8.1	69	470	5.0	3.0	167	0.29	143	<1.0	12	-128
07/18/1996	8.4	66	498	4.0	4.0	198	0.27	139	<1.0	13	-121
09/18/1996	8.4	44	498	5.0	4.0	169	0.27	134	<1.0	13	-126
11/14/1996	8.4	67	492	4.0	4.0	206	0.18	131	<1.0	11	-134
03/06/1997	8.1	72	524	3.0	3.0	179	0.16	151	<1.0	10	-99
05/15/1997	7.5	68	490	2.0	5.0	163	0.22	137	<1.0	12	-148
07/24/1997	8.0	65	502	1.0	3.0	167	0.31	140	<1.0	12	-142
09/18/1997	8.3	67	474	7.0	3.0	174	0.28	134	<1.0	14	-151
11/06/1997	7.9	56	480	3.0	4.0	143	0.15	139	<1.0	12	-148
01/15/1998	8.6	72	538	2.0	3.0	174	0.36	160	<1.0	10	-134
03/12/1998	8.0	62	502	3.0	3.0	171	0.20	132	<1.0	11	-142
05/21/1998	8.6	69	472	4.0	3.0	166	0.18	141	<1.0	14	-129
07/09/1998	8.2	59	486	2.0	4.0	167	0.17	132	<1.0	10	-150
09/17/1998	7.2	60	480	3.0	4.0	172	0.20	138	<1.0	13	-136
11/05/1998	8.1	65	518	2.0	6.0	188	0.38	149	<1.0	11	-147
01/14/1999	8.4	68	474	3.0	6.0	167	0.26	129	<1.0	12	-146
03/04/1999	8.4	65	488	2.0	4.0	168	0.15	134	<1.0	13	-138
05/13/1999	7.9	76	462	2.0	-	175	0.22	140	<1.0	12	-126
07/21/1999	8.7	55	488	2.0	4.0	162	0.41	135	<1.0	13	-135
09/16/1999	8.1	65	462	2.0	4.0	164	0.12	131	<1.0	14	-141
11/04/1999	8.2	75	470	2.0	5.0	169	0.24	133	<1.0	12	-140
01/06/2000	8.3	52	484	3.0	2.0	151	0.30	123	<1.0	11	-140
05/04/2000	7.8	57	500	5.0	2.0	169	0.31	128	<1.0	13	-129
07/27/2000	7.6	74	480	2.0	2.0	169	0.31	134	<1.0	13	-134
09/20/2000	8.4	52	488	2.0	3.0	178	0.30	138	<1.0	13	-130
11/02/2000	7.3	79	468	2.0	4.0	158	0.30	130	<1.0	12	-135
01/25/2001	7.4	72	482	1.0	3.0	166	0.32	130	<1.0	11	-131
03/15/2001	8.2	58	468	2.0	3.0	166	0.31	139	<1.0	11	-131
05/24/2001	7.1	49	492	1.0	3.0	167	0.31	137	<1.0	12	-135
07/12/2001	7.1	65	366	1.0	4.0	158	0.27	130	<1.0	13	-135
09/20/2001	7.8	54	600	1.0	53	162	1.58	129	<1.0	12	-130
11/29/2001	7.5	52	502	1.0	3.0	168	0.28	116	<1.0	12	-183
01/10/2002	8.4	50	416	2.0	5.0	163	0.28	112	<1.0	11	-131
03/21/2002	7.5	49	500	2.0	6.0	157	0.25	128	<1.0	11	-128
05/02/2002	8.4	54	482	3.0	7.0	197	0.25	135	<1.0	12	-128
07/18/2002	8.2	54	488	2.0	6.0	159	0.28	106	<1.0	14	-131
09/19/2002	7.7	48	470	2.0	5.0	171	0.31	132	<1.0	13	-127
11/06/2002	7.7	48	548	2.0	3.0	170	0.35	120	<1.0	12	-123

TABLE 3-20 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-19
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/16/2003	7.0	50	470	2.0	7.0	167	0.25	117	<1.0	11	-120
03/13/2003	7.4	47	518	2.0	5.0	156	0.27	123	<1.0	10	-127
05/22/2003	6.6	52	490	2.0	5.0	164	0.26	124	<1.0	12	-114
07/24/2003	7.1	65	484	2.0	4.0	188	0.25	122	<1.0	13	-119
09/17/2003	7.8	74	494	2.0	8.0	173	0.21	121	<1.0	12	-126
11/20/2003	7.6	27	466	2.0	2.0	202	0.34	119	<1.0	12	-121
01/29/2004	7.6	41	474	2.0	5.0	183	0.25	114	<1.0	10	-117
03/18/2004	7.3	74	472	2.0	15	181	0.26	128	<1.0	11	-109
05/06/2004	7.4	76	476	1.0	10	180	0.26	115	<1.0	12	-117
07/29/2004	7.9	42	478	1.0	6.0	164	0.23	117	<1.0	13	-117
09/30/2004	7.6	58	510	1.0	4.0	153	0.25	118	<1.0	12	-114
11/17/2004	7.6	44	471	1.0	5.0	163	0.27	114	<1.0	12	-112
01/27/2005	7.0	57	470	1.0	5.0	161	0.27	114	<1.0	11	-87
03/03/2005	6.9	57	396	2.0	5.0	158	0.28	119	<1.0	12	-103
07/14/2005	7.4	58	482	1.0	4.0	169	0.28	119	<1.0	13	-118
05/25/2006	8.5	69	474	0.50	5.0	167	0.25	120	<1.0	14	-115
08/31/2006	8.3	72	500	0.50	1.0	171	0.20	132	<1.0	14	-98
11/09/2006	8.2	68	492	0.60	2.0	173	0.20	113	<1.0	12	-109
04/05/2007	8.6	49	432	0.50	7.0	149	0.20	107	<1.0	10	-114
07/12/2007	7.7	61	476	0.50	6.0	155	0.24	110	<1.0	13	-102
10/11/2007	7.5	59	450	0.50	6.0	193	0.25	109	<1.0	12	-94
03/27/2008	7.3	59	460	0.50	10	153	0.26	104	<1.0	11	-122
06/05/2008	7.9	47	466	0.50	10	149	0.26	103	<1.0	12	-125
12/04/2008	7.6	49	460	1.0	10	159	0.22	105	<1.0	10	-134
04/16/2009	7.5	59	494	<1.0	<10	152	0.22	101	<1.0	12	-144
07/22/2009	7.6	67	1040	<1.0	10	172	0.26	143	<1.0	13	-153
09/02/2009	8.5	50	484	<1.0	<10	161	0.27	121	<1.0	13	-127
02/04/2010	7.8	43	438	<1.0	<15	151	0.30	112	<1.0	12	-135
06/03/2010	8.5	46	474	<1.0	<15	153	0.32	115	<1.0	13	-127
09/16/2010	8.2	41	472	1.1	<15	162	0.27	107	<1.0	15	-119
04/14/2011	8.9	42	432	<1.0	<10	142	0.19	103	<1.0	12	-142
08/31/2011	7.7	45	464	<1.0	<10	150	0.28	103	<1.0	12	-161
12/08/2011	8.4	42	460	<1.0	<10	150	0.30	111	<1.0	11	-150
03/29/2012	8.1	46	418	<1.0	<10	152	0.30	120	<1.0	12	-129
07/26/2012	8.5	43	470	12	<10	141	0.28	106	<1.0	14	-131
09/12/2012	8.4	43	428	<1.0	<10	65	<0.10	89	<1.0	13	-122
03/21/2013	8.4	43	466	<1.0	<10	154	0.56	6.0	<1.0	7.5	-150
09/26/2013	9.1	47	446	<1.0	<10	141	0.28	110	<1.0	13	-129

TABLE 3-20 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-19
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
10/31/2013	8.9	50	452	<1.0	<10	149	0.29	118	<1.0	13	-98

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-21: GROUNDWATER QUALITY DATA FOR WELL QC-20 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/22/1999	8.8	45	300	2.0	19	8.0	0.25	19	<1.0	13	-258
09/30/1999	8.5	43	302	1.0	18	5.0	0.01	19	<1.0	12	-270
11/17/1999	8.7	33	290	1.0	16	9.0	0.17	19	<1.0	11	-272
01/13/2000	8.6	33	288	3.0	18	14	0.17	18	<1.0	11	-274
03/30/2000	8.6	44	356	2.0	15	8.0	0.18	19	<1.0	12	-274
05/11/2000	8.8	31	290	5.0	17	8.0	0.18	17	<1.0	13	-274
07/12/2000	8.4	32	268	2.0	17	7.0	0.12	17	<1.0	14	-275
09/21/2000	8.8	31	272	1.0	17	10	0.19	17	<1.0	12	-274
11/29/2000	8.6	31	290	1.0	18	8.0	0.20	26	<1.0	11	-276
01/25/2001	8.7	32	280	2.0	18	<1.0	0.20	20	<1.0	12	-276
03/08/2001	8.9	31	306	1.0	16	<1.0	0.18	21	<1.0	12	-217
05/10/2001	8.4	37	250	1.0	16	<1.0	0.17	18	<1.0	14	-276
07/19/2001	8.6	33	310	1.0	18	<1.0	0.13	17	<1.0	16	-278
09/19/2001	8.4	32	264	1.0	19	<1.0	0.14	29	<1.0	12	-274
11/29/2001	7.4	38	274	1.0	18	7.0	0.15	15	<1.0	12	-276
01/10/2002	7.6	45	260	2.0	18	<1.0	0.14	15	<1.0	11	-277
03/21/2002	8.2	31	334	2.0	19	<1.0	0.10	18	<1.0	10	-276
05/16/2002	8.2	33	290	2.0	18	1.0	0.12	19	<1.0	13	-275
09/19/2002	9.2	31	324	2.0	15	11	0.17	18	<1.0	13	-275
11/14/2002	8.3	31	290	2.0	19	<0.40	0.16	17	<1.0	14	-276
01/30/2003	8.6	43	340	2.0	19	10	0.12	17	<1.0	10	-275
03/20/2003	7.3	45	340	2.0	15	<0.40	0.15	17	<1.0	13	-276
05/21/2003	6.8	32	312	2.0	18	<0.40	0.16	18	<1.0	12	-274
07/31/2003	8.4	33	328	2.0	17	2.0	0.12	17	<1.0	14	-274
09/25/2003	7.5	41	274	2.0	17	1.0	0.15	18	<1.0	12	-274
11/19/2003	7.2	26	258	2.0	17	2.0	0.15	16	<1.0	12	-274
01/29/2004	7.5	45	284	2.0	20	<0.40	0.15	18	<1.0	10	-276
03/25/2004	6.9	27	302	2.0	20	<0.40	0.18	17	<1.0	12	-274
05/26/2004	7.3	32	274	3.0	18	1.0	0.11	18	<1.0	12	-272
12/04/2008	7.5	59	392	1.0	17	65	0.08	65	<1.0	11	-290
01/08/2009	7.9	28	304	1.6	20	16	0.12	29	<1.0	11	-
05/14/2009	8.6	42	264	<1.0	25	6.8	0.16	24	<1.0	13	-268
09/02/2009	8.6	36	286	<1.0	19	2.9	0.12	19	<1.0	13	-269
06/03/2010	8.5	32	304	<1.0	18	2.2	<0.02	28	1.0	13	-272
09/16/2010	7.6	32	312	<1.0	18	22	0.16	34	<1.0	14	-274
11/18/2010	8.4	28	278	<1.0	21	2.8	0.15	23	<1.0	12	-274
04/28/2011	8.1	40	252	<1.0	18	<5.0	0.12	20	<1.0	13	-276
06/16/2011	7.2	73	606	1.1	33	108	0.15	158	1.0	15	-270
08/31/2011	8.3	36	366	<1.0	18	27	0.17	63	<1.0	14	-263
03/29/2012	7.3	31	266	2.8	18	<5.0	0.14	20	<1.0	13	-267

TABLE 3-21 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-20
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
05/10/2012	8.0	42	258	<1.0	18	<5.0	0.15	20	<1.0	13	-265
07/26/2012	8.4	42	286	7.3	19	<5.0	0.10	19	<1.0	19	-263
12/06/2012	7.7	27	266	<1.0	11	<5.0	0.15	20	<1.0	11	-267
05/09/2013	7.5	42	412	<1.0	17	85	0.15	99	<1.0	16	-263
08/08/2013	8.4	35	308	1.0	18	17	0.17	33	<1.0	14	-265
11/06/2013	8.5	33	274	<1.0	19	<5.0	0.15	21	<1.0	12	-263

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-22: GROUNDWATER QUALITY DATA FOR WELL QC-21
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/22/1999	6.6	48	342	6.0	17	9.0	0.25	8.0	<1.0	14	-43
09/30/1999	8.6	46	326	3.0	16	3.0	0.02	10	<1.0	13	-252
11/17/1999	8.8	48	316	2.0	15	13	0.16	9.0	<1.0	13	-262
01/13/2000	8.8	36	308	8.0	15	12	0.14	9.0	<1.0	11	-262
03/30/2000	8.7	48	484	1.0	12	7.0	0.16	9.0	<1.0	13	-264
05/11/2000	8.7	35	326	5.0	14	7.0	0.16	9.0	<1.0	13	-266
07/12/2000	8.9	36	308	3.0	14	9.0	0.15	7.0	<1.0	14	-267
09/21/2000	9.1	35	302	1.0	15	10	0.17	9.0	<1.0	13	-267
11/29/2000	8.8	35	320	1.0	14	9.0	0.15	14	<1.0	13	-269
01/25/2001	8.7	35	298	2.0	15	<1.0	0.18	9.0	<1.0	12	-270
03/08/2001	9.1	31	184	1.0	12	1.0	0.16	11	<1.0	12	-211
05/10/2001	8.7	40	296	1.0	14	<1.0	0.15	10	<1.0	14	-270
07/19/2001	8.9	35	332	1.0	14	2.0	0.12	8.0	<1.0	15	-270
09/19/2001	8.8	36	168	1.0	18	2.0	0.12	10	<1.0	13	-270
11/29/2001	7.8	31	102	1.0	15	14	0.12	6.0	<1.0	12	-270
01/10/2002	7.9	47	284	2.0	16	3.0	0.11	8.0	<1.0	12	-272
03/21/2002	8.5	35	346	3.0	17	2.0	0.18	10	<1.0	12	-271
05/16/2002	8.5	36	320	2.0	16	6.0	0.06	10	<1.0	14	-270
11/14/2002	8.8	33	314	5.0	18	<1.0	0.07	10	<1.0	14	-268
01/30/2003	8.9	34	362	2.0	17	7.0	0.08	10	<1.0	12	-267
03/20/2003	7.7	33	382	3.0	13	<0.70	0.09	10	<1.0	13	-267
05/21/2003	6.6	40	365	3.0	20	<0.70	0.14	10	<1.0	13	-267
07/31/2003	8.6	48	318	3.0	15	1.0	0.15	14	<1.0	14	-268
09/25/2003	7.6	46	326	2.0	16	1.0	0.07	10	<1.0	13	-267
11/19/2003	7.4	27	298	2.0	16	2.0	0.13	9.0	<1.0	12	-267
01/29/2004	7.6	46	288	2.0	16	1.0	0.11	9.0	<1.0	12	-267
03/25/2004	7.0	30	322	3.0	16	1.0	0.11	9.0	<1.0	13	-268
05/26/2004	7.8	34	286	2.0	17	1.0	0.09	9.0	<1.0	13	-266
07/21/2004	7.8	48	292	3.0	17	4.0	0.06	9.0	<1.0	14	-266
09/16/2004	7.5	45	280	2.0	18	2.0	0.01	10	<1.0	13	-266
11/24/2004	7.3	49	265	2.0	20	<0.40	0.12	10	<1.0	12	-266
01/13/2005	7.6	31	358	2.0	29	1.0	0.63	10	<1.0	11	-266
03/10/2005	7.5	35	256	7.0	17	<0.40	0.03	11	<1.0	11	-266
07/14/2005	7.5	36	350	1.0	16	1.0	0.09	10	<1.0	14	-263
05/25/2006	8.8	48	346	1.0	17	1.0	0.15	12	<1.0	15	-266
08/17/2006	7.6	31	376	0.80	24	<0.40	0.03	13	<1.0	13	-267
11/09/2006	8.3	57	380	6.7	14	19	0.03	26	<1.0	13	-266
04/05/2007	8.7	36	300	0.90	17	3.0	0.02	13	<1.0	11	-265
08/01/2007	7.5	44	368	0.90	19	1.0	0.06	13	<1.0	14	-266
11/08/2007	8.7	45	242	1.5	14	0.80	0.14	11	<1.0	13	-266

TABLE 3-22 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-21
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/31/2008	7.7	44	334	0.70	23	<2.0	0.11	13	<1.0	11	-268
07/10/2008	7.4	21	328	0.90	15	1.0	0.04	14	<1.0	12	-266
12/04/2008	7.7	65	556	11	19	126	0.02	114	<1.0	11	-271
04/01/2009	7.5	42	440	4.6	22	51	<0.10	55	<1.0	12	-266
06/25/2009	8.0	45	380	9.2	23	25	<0.10	41	<1.0	14	-263
07/23/2009	7.8	36	388	3.4	19	20	<0.10	34	<1.0	14	-266
01/07/2010	7.6	40	330	2.6	18	4.1	0.09	37	<1.0	11	-272
03/04/2010	8.0	42	336	3.1	18	4.3	0.05	36	<1.0	12	-277
04/28/2011	7.6	68	346	2.5	17	<5.0	0.18	49	<1.0	12	-276
06/16/2011	7.7	32	582	8.9	19	61	0.12	75	<1.0	15	-244
08/31/2011	7.8	51	490	7.3	20	51	<0.10	84	<1.0	15	-258
03/29/2012	7.3	40	376	7.0	20	8.0	0.14	44	<1.0	13	-241
05/10/2012	7.8	51	398	8.0	20	<5.0	<0.10	46	<1.0	13	-280
07/26/2012	7.7	53	440	18	18	5.0	0.10	50	<1.0	13	-255
10/25/2012	7.9	51	394	7.0	19	<5.0	<0.10	64	<1.0	19	-280
05/09/2013	7.9	30	390	2.0	17	12	<0.10	60	1.0	20	-235
08/08/2013	7.9	50	398	4.0	20	22	<0.10	88	<1.0	14	-280
11/06/2013	8.1	45	370	4.0	19	9.0	<0.10	48	<1.0	13	-237

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-23: GROUNDWATER QUALITY DATA FOR WELL QC-22 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m				mg/L			MPN/ 100 mL	°C	ft ²
07/22/1999	7.2	39	272	4.0	12	14	0.32	22	<1.0	15	-27
09/30/1999	8.7	38	264	4.0	12	3.0	0.12	21	<1.0	12	-44
11/17/1999	8.5	30	312	2.0	12	13	0.23	24	<1.0	12	-249
01/13/2000	8.5	29	272	5.0	12	13	0.23	23	<1.0	11	-253
03/30/2000	8.5	39	284	2.0	10	8.0	0.23	26	<1.0	12	-255
05/11/2000	8.5	29	268	6.0	12	10	0.23	23	<1.0	13	-256
07/12/2000	8.7	30	252	4.0	12	8.0	0.21	23	<1.0	15	-258
09/21/2000	9.0	28	254	2.0	13	9.0	0.25	24	<1.0	13	-260
11/29/2000	8.8	28	264	2.0	12	5.0	0.20	28	<1.0	12	-261
01/25/2001	8.5	29	260	3.0	13	<1.0	0.24	25	<1.0	11	-260
03/08/2001	9.0	28	260	2.0	11	<1.0	0.22	27	<1.0	11	-260
05/10/2001	8.5	33	252	2.0	12	<1.0	0.24	26	<1.0	14	-261
07/19/2001	8.7	29	286	2.0	14	<1.0	0.19	25	<1.0	14	-262
09/19/2001	8.2	30	258	2.0	15	<1.0	0.20	26	<1.0	13	-299
11/29/2001	7.4	28	246	1.0	13	12	0.21	10	<1.0	12	-264
01/10/2002	7.1	38	234	4.0	13	2.0	0.18	21	<1.0	12	-264
03/21/2002	8.4	40	270	4.0	15	<1.0	0.16	25	<1.0	11	-264
05/16/2002	8.4	29	330	3.0	13	3.0	0.20	26	<1.0	13	-262
09/19/2002	8.0	31	272	3.0	14	10	0.22	25	<1.0	15	-264
11/14/2002	8.8	15	272	3.0	15	2.0	0.22	26	<1.0	12	-264
01/30/2003	8.4	27	318	3.0	15	7.0	0.17	25	<1.0	10	-264
03/20/2003	7.4	42	282	4.0	14	2.0	0.20	25	<1.0	12	-265
05/21/2003	6.8	29	272	3.0	16	2.0	0.26	26	<1.0	12	-262
07/31/2003	8.2	30	278	3.0	18	1.0	0.20	25	<1.0	14	-264
09/25/2003	7.8	42	290	3.0	14	2.0	0.19	26	<1.0	12	-264
11/19/2003	8.0	24	254	2.0	14	2.0	0.23	25	<1.0	12	-264
01/29/2004	7.5	40	248	3.0	14	1.0	0.08	26	<1.0	10	-260
03/25/2004	7.3	26	272	3.0	14	1.0	0.17	24	<1.0	12	-266
05/26/2004	7.4	29	258	2.0	15	1.0	0.16	25	<1.0	12	-266
07/21/2004	7.5	40	246	3.0	15	537	0.14	26	<1.0	14	-265
09/16/2004	7.3	47	260	2.0	16	4.0	0.14	26	<1.0	13	-265
11/24/2004	7.2	39	210	2.0	15	3.0	0.14	24	<1.0	11	-264
01/13/2005	7.5	26	252	2.0	15	2.0	0.18	26	<1.0	11	-265
03/10/2005	7.5	29	179	2.0	15	2.0	0.11	27	<1.0	11	-265
07/14/2005	7.6	30	290	1.0	14	2.0	0.19	24	<1.0	13	-264
05/25/2006	8.6	39	278	1.1	15	2.0	0.32	25	<1.0	15	-264
08/17/2006	7.7	26	256	0.50	14	2.0	0.13	26	<1.0	14	-265
11/09/2006	8.2	38	272	1.2	14	3.0	0.10	27	<1.0	14	-235
04/05/2007	7.6	37	262	1.1	16	2.0	0.13	24	<1.0	12	-235
08/01/2007	7.7	36	292	1.3	16	0.80	0.12	26	<1.0	14	-267

TABLE 3-23 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-22
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m				mg/L			MPN/ 100 mL	°C	ft ²
11/08/2007	8.3	36	310	1.0	18	1.0	0.08	24	<1.0	12	-265
01/31/2008	7.5	43	250	1.1	19	0.40	0.19	27	<1.0	10	-266
07/10/2008	7.6	26	260	1.1	13	0.40	0.18	26	<1.0	12	-264
12/04/2008	7.3	40	306	1.0	16	12	0.08	40	<1.0	11	-270
01/08/2009	8.0	30	284	1.9	15	6.2	0.15	34	<1.0	11	-259
04/01/2009	8.0	30	294	1.9	18	<2.0	0.25	30	<1.0	11	-260
07/23/2009	7.9	30	280	2.1	15	<2.0	0.34	31	<1.0	13	-260
01/07/2010	7.7	38	236	1.6	14	2.1	0.23	33	<1.0	11	-266
03/04/2010	7.9	32	240	1.4	<15	2.0	0.22	34	<1.0	12	-275
09/16/2010	7.7	32	294	1.8	15	<2.0	0.29	19	<1.0	13	-264
03/10/2011	7.2	27	172	1.9	16	<15	0.20	34	<1.0	12	-265
06/16/2011	8.0	41	414	1.7	17	<15	0.19	41	<1.0	15	-242
09/15/2011	7.8	36	310	1.9	16	<15	0.21	46	<1.0	13	-260
03/29/2012	8.1	38	254	2.0	13	5.0	0.22	36	<1.0	12	-228
05/10/2012	8.0	39	266	2.0	13	6.0	0.21	35	<1.0	13	-238
07/26/2012	7.9	25	290	9.0	13	<5.0	0.22	36	<1.0	13	-228
05/09/2013	7.7	30	285	2.0	16	<5.0	0.19	36	<1.0	14	-221
08/08/2013	7.9	39	310	2.0	15	<5.0	0.19	57	<1.0	14	-264
11/06/2013	8.0	34	266	2.0	14	<5.0	0.26	49	<1.0	13	-233

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-24: GROUNDWATER QUALITY DATA FOR WELL QC-23 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/22/1999	7.8	42	382	4.0	20	14	0.24	7.0	<1.0	13	-23
09/30/1999	8.9	54	340	2.0	20	4.0	0.01	7.0	<1.0	12	-22
11/17/1999	8.4	43	362	4.0	19	14	0.14	6.0	<1.0	12	-133
01/13/2000	8.1	41	352	5.0	19	13	0.16	7.0	<1.0	11	-222
03/30/2000	8.7	58	374	1.0	22	9.0	0.11	7.0	<1.0	12	-219
05/11/2000	9.1	27	352	5.0	20	7.0	0.16	7.0	<1.0	13	-221
07/12/2000	9.2	41	336	3.0	19	7.0	0.18	4.0	<1.0	13	-223
09/21/2000	8.4	38	358	2.0	20	9.0	0.16	6.0	<1.0	13	-225
11/29/2000	8.2	39	386	1.0	19	6.0	0.15	8.0	<1.0	12	-227
01/25/2001	9.0	57	334	2.0	20	1.0	0.17	6.0	<1.0	11	-229
03/08/2001	9.5	40	398	1.0	19	<1.0	0.16	8.0	<1.0	12	-175
05/10/2001	8.9	45	316	1.0	19	<1.0	0.17	7.0	<1.0	14	-231
07/19/2001	9.1	40	360	1.0	20	<1.0	0.10	5.0	<1.0	14	-231
09/19/2001	9.1	42	388	1.0	21	9.0	0.15	7.0	<1.0	13	-232
11/29/2001	7.2	36	334	1.0	20	10	0.11	7.0	<1.0	12	-234
01/10/2002	8.0	53	320	2.0	21	1.0	0.09	5.0	<1.0	12	-237
03/21/2002	8.8	39	340	3.0	20	<1.0	0.06	6.0	<1.0	11	-235
05/16/2002	8.5	40	348	2.0	20	1.0	0.09	6.0	<1.0	12	-236
07/25/2002	9.2	40	508	2.0	24	<1.0	0.13	6.0	<1.0	13	-236
09/19/2002	9.4	41	348	2.0	19	4.0	0.09	6.0	<1.0	14	-237
11/14/2002	7.2	53	344	2.0	18	1.0	0.12	6.0	<1.0	12	-237
01/30/2003	9.3	39	398	3.0	21	6.0	0.09	6.0	<1.0	12	-237
03/20/2003	8.2	56	352	3.0	21	<0.70	0.11	6.0	<1.0	12	-238
05/21/2003	7.0	41	334	3.0	18	1.0	0.10	7.0	<1.0	13	-235
07/31/2003	8.7	43	364	4.0	14	1.0	0.17	6.0	<1.0	14	-238
09/25/2003	8.2	37	354	1.0	20	1.0	0.11	6.0	<1.0	13	-239
11/19/2003	8.2	31	324	3.0	19	2.0	0.12	6.0	<1.0	12	-240
01/29/2004	7.9	54	318	2.0	20	<0.40	0.14	6.0	<1.0	11	-239
03/25/2004	7.2	29	346	2.0	20	1.0	0.10	6.0	<1.0	12	-241
05/26/2004	7.4	38	324	2.0	19	3.0	0.06	6.0	<1.0	12	-241
07/21/2004	7.9	54	336	2.0	28	2.0	0.07	7.0	<1.0	15	-240
09/16/2004	7.6	51	328	1.0	19	1.0	0.03	6.0	<1.0	13	-240
11/17/2004	8.5	36	354	2.0	19	1.0	0.09	6.0	<1.0	12	-242
01/13/2005	7.6	34	330	1.0	20	<0.40	0.05	6.0	<1.0	11	-240
03/10/2005	7.8	40	292	2.0	21	<0.40	0.04	7.0	<1.0	11	-241
05/18/2005	7.8	33	330	1.0	20	<0.40	0.06	6.0	<1.0	13	-240
07/14/2005	7.9	35	348	1.0	20	1.0	0.10	5.0	<1.0	14	-236
08/25/2005	7.8	44	340	<0.30	19	1.0	0.10	6.0	<1.0	13	-240
11/03/2005	7.7	29	352	<0.30	21	1.0	0.07	6.0	<1.0	13	-240
05/25/2006	8.6	53	366	0.40	21	1.0	0.21	6.0	<1.0	13	-239

TABLE 3-24 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-23
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/17/2006	7.9	35	380	<0.20	20	1.0	0.03	6.0	<1.0	13	-241
11/09/2006	9.5	55	342	0.30	18	1.0	0.04	6.0	<1.0	13	-240
04/05/2007	9.5	40	336	0.30	20	6.0	0.05	6.0	<1.0	11	-242
08/01/2007	7.5	49	386	0.50	21	2.0	0.10	7.0	<1.0	13	-241
11/08/2007	9.2	50	324	0.40	21	7.0	0.09	6.0	<1.0	12	-242
01/31/2008	7.3	47	322	<1.0	26	<2.0	0.16	6.0	<1.0	11	-241
07/10/2008	8.3	37	326	<1.0	18	<2.0	0.08	6.0	<1.0	12	-238
12/04/2008	7.8	47	342	<1.0	19	<2.0	0.02	6.0	<1.0	11	-249
01/08/2009	8.7	30	372	<1.0	20	2.8	<0.10	6.0	<1.0	12	-239
04/01/2009	9.1	37	336	<1.0	22	<2.0	<0.10	6.0	<1.0	12	-241
07/23/2009	9.3	39	370	<1.0	20	<2.0	0.24	5.0	<1.0	13	-242
01/07/2010	7.6	40	318	<1.0	20	<2.0	<0.10	8.0	<1.0	11	-246
03/04/2010	8.6	37	318	<1.0	21	<2.0	0.07	7.0	<1.0	11	-247
09/16/2010	9.2	38	354	<1.0	20	2.1	0.09	6.0	<1.0	14	-242
03/10/2011	8.6	36	310	1.4	23	<15	<0.10	7.0	<1.0	12	-242
06/16/2011	9.0	50	470	<1.0	19	<15	<0.10	17	<1.0	13	-223
09/15/2011	9.1	43	336	<1.0	20	<15	0.10	6.0	<1.0	13	-245
03/29/2012	8.2	38	316	<1.0	20	<5.0	0.10	6.0	<1.0	12	-228
05/10/2012	9.0	50	354	<1.0	19	<5.0	<0.10	6.0	<1.0	13	-238
07/26/2012	7.7	32	386	7.3	19	<5.0	<0.10	6.0	<1.0	13	-228
05/09/2013	8.2	49	320	<1.0	19	<5.0	<0.10	6.0	<1.0	16	-223
08/08/2013	9.2	45	318	<1.0	18	<5.0	0.12	6.0	<1.0	14	-240
11/06/2013	9.3	41	334	<1.0	20	<5.0	0.13	6.0	<1.0	12	-232

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-25: GROUNDWATER QUALITY DATA FOR WELL QC-24 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/15/1999	7.5	32	288	3.0	29	8.0	0.09	12	<1.0	13	-22
09/23/1999	8.9	43	318	2.0	27	8.0	<0.01	11	<1.0	12	-24
11/05/1999	8.9	42	272	2.0	27	8.0	0.22	11	<1.0	13	-24
01/27/2000	8.9	31	304	2.0	26	7.0	0.20	10	<1.0	12	-194
03/09/2000	8.9	31	272	2.0	27	5.0	0.20	11	<1.0	12	-212
05/18/2000	8.9	30	256	4.0	26	8.0	0.19	12	<1.0	13	-219
07/20/2000	9.2	31	240	2.0	24	7.0	0.20	12	<1.0	14	-224
09/20/2000	7.8	27	268	1.0	26	11	0.21	10	<1.0	13	-226
11/30/2000	8.8	31	280	1.0	26	7.0	0.21	13	<1.0	12	-228
01/18/2001	7.9	44	252	1.0	27	<1.0	0.27	11	<1.0	12	-227
03/22/2001	7.1	34	266	1.0	28	<1.0	0.21	15	<1.0	13	-170
05/24/2001	9.0	30	244	1.0	23	<1.0	0.20	15	<1.0	13	-228
07/12/2001	8.8	31	298	1.0	26	<1.0	0.15	13	<1.0	13	-228
09/27/2001	8.7	31	324	1.0	26	2.0	0.18	11	<1.0	13	-227
11/29/2001	7.6	29	214	1.0	27	11	0.16	8.0	<1.0	13	-241
01/17/2002	9.2	28	302	1.0	27	<1.0	0.16	11	<1.0	11	-230
03/28/2002	8.2	30	310	2.0	27	6.0	0.10	11	<1.0	12	-231
05/16/2002	9.0	30	286	2.0	28	<1.0	0.13	11	<1.0	13	-231
07/25/2002	7.6	34	378	2.0	27	10	0.18	11	<1.0	13	-233
09/26/2002	7.6	42	284	2.0	28	<1.0	0.21	11	<1.0	13	-233
11/27/2002	7.8	40	280	2.0	29	7.0	0.16	11	<1.0	12	-232
01/30/2003	7.4	40	302	2.0	28	10	0.13	12	<1.0	11	-235
03/20/2003	7.6	30	278	2.0	24	<0.70	0.20	11	<1.0	12	-232
05/08/2003	7.6	38	272	2.0	27	2.0	0.11	11	<1.0	13	-232
07/31/2003	7.8	29	294	2.0	28	1.0	0.13	18	<1.0	13	-233
09/11/2003	8.7	30	300	2.0	26	<0.70	0.17	11	<1.0	15	-233
11/19/2003	8.8	28	246	1.0	26	2.0	0.16	10	<1.0	12	-233
01/29/2004	7.1	23	252	2.0	26	<0.40	0.12	11	<1.0	11	-233
03/31/2004	7.6	25	263	1.0	29	<0.40	0.18	11	<1.0	12	-233
05/13/2004	7.7	40	282	1.0	38	1.0	0.14	11	<1.0	13	-233
07/21/2004	7.5	31	278	1.0	25	3.0	0.13	11	<1.0	14	-234
09/23/2004	7.1	22	324	1.0	49	1.0	0.87	12	<1.0	13	-231
11/17/2004	8.0	28	275	2.0	28	<0.40	0.12	11	<1.0	12	-234
01/13/2005	7.5	27	256	1.0	26	<0.40	0.09	11	<1.0	12	-234
03/10/2005	7.6	29	212	1.0	26	5.0	0.09	11	<1.0	11	-234
05/18/2005	7.5	26	274	1.0	26	1.0	0.10	11	<1.0	13	-233
07/14/2005	7.6	24	248	1.0	27	1.0	0.13	10	<1.0	14	-229
08/25/2005	7.6	32	266	<0.30	26	1.0	0.13	11	<1.0	13	-233
11/03/2005	7.8	22	288	<0.30	27	<0.40	0.09	11	<1.0	12	-233
05/25/2006	8.3	99	260	0.50	28	<0.40	0.18	11	<1.0	14	-233

TABLE 3-25 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-24
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/17/2006	7.9	26	298	0.20	27	2.0	0.07	12	<1.0	13	-236
11/09/2006	9.0	41	256	0.30	27	<0.40	0.08	12	<1.0	13	-234
04/05/2007	9.0	30	240	0.50	27	2.0	0.09	12	<1.0	11	-236
08/01/2007	7.4	34	306	0.40	29	0.50	0.12	12	<1.0	14	-236
11/08/2007	8.8	38	284	0.40	26	<0.40	0.17	12	<1.0	12	-230
01/31/2008	7.5	36	262	<1.0	35	<2.0	0.17	12	<1.0	11	-240
07/10/2008	7.8	31	282	<1.0	25	<2.0	0.12	15	<1.0	12	-224
12/04/2008	7.7	36	238	<1.0	26	<2.0	0.09	12	<1.0	12	-238
01/08/2009	8.6	29	260	<1.0	29	<2.0	0.11	12	<1.0	11	-235
04/01/2009	8.5	30	250	<1.0	30	<2.0	0.13	13	<1.0	12	-236
07/23/2009	8.7	32	278	<1.0	29	<2.0	0.14	12	<1.0	13	-236
01/14/2010	8.7	31	234	<1.0	26	2.5	0.14	14	<1.0	12	-237
03/04/2010	8.6	27	230	<1.0	26	<2.0	0.16	14	<1.0	12	-239
09/16/2010	8.7	30	258	<1.0	27	<2.0	0.13	14	<1.0	13	-237
03/10/2011	8.1	30	224	<1.0	30	<2.0	0.12	13	<1.0	11	-236
06/16/2011	8.5	38	490	<1.0	29	<2.0	0.13	40	<1.0	14	-223
09/15/2011	8.9	31	258	<1.0	28	<2.0	0.14	13	<1.0	13	-235
03/29/2012	8.5	36	234	<1.0	27	<5.0	0.14	14	<1.0	12	-236
05/10/2012	8.4	29	198	<1.0	28	<5.0	0.14	14	<1.0	12	-223
07/26/2012	7.8	24	264	9.6	28	<5.0	0.14	14	<1.0	13	-229
03/21/2013	8.4	30	216	<1.0	27	<5.0	0.14	26	<1.0	12	-223
08/08/2013	8.0	33	260	1.0	24	<5.0	0.18	15	<1.0	14	-236
12/19/2013	8.7	29	256	<1.0	25	<5.0	0.16	13	<1.0	12	-223

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-26: GROUNDWATER QUALITY DATA FOR WELL QC-25 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/15/1999	7.6	37	266	2.0	15	8.0	0.10	10	<1.0	14	-17
01/27/2000	9.0	28	274	3.0	14	6.0	0.21	8.0	<1.0	12	-49
03/09/2000	9.2	27	212	5.0	13	5.0	0.21	11	<1.0	12	-204
05/18/2000	8.9	26	224	6.0	13	7.0	0.20	13	<1.0	13	-216
07/20/2000	9.2	27	206	3.0	12	9.0	0.20	11	<1.0	14	-219
09/20/2000	7.9	27	232	1.0	12	10	0.21	10	<1.0	13	-221
11/30/2000	8.7	31	222	<1.0	11	11	0.21	13	<1.0	12	-222
01/18/2001	7.7	37	230	1.0	13	1.0	0.25	13	<1.0	11	-224
03/22/2001	6.9	28	214	1.0	13	1.0	0.20	14	<1.0	13	-174
05/24/2001	9.0	25	208	1.0	11	2.0	0.21	15	<1.0	14	-227
07/12/2001	8.6	27	258	1.0	12	9.0	0.14	13	<1.0	14	-227
09/27/2001	8.7	26	190	1.0	13	<1.0	0.15	13	<1.0	13	-228
11/29/2001	9.6	24	278	1.0	12	13	0.16	10	<1.0	12	-229
01/17/2002	9.0	24	226	2.0	14	<1.0	0.17	13	<1.0	11	-229
03/28/2002	8.6	25	262	2.0	15	7.0	0.07	13	<1.0	12	-231
05/16/2002	9.0	25	226	2.0	13	1.0	0.13	14	<1.0	14	-233
07/25/2002	7.6	30	316	1.0	16	2.0	0.17	15	<1.0	13	-233
09/26/2002	7.4	21	230	2.0	14	<1.0	0.17	15	<1.0	13	-234
11/27/2002	7.7	38	256	2.0	14	6.0	0.13	14	<1.0	12	-233
01/30/2003	7.2	34	254	2.0	15	10	0.16	15	<1.0	11	-235
03/20/2003	7.5	26	248	2.0	14	2.0	0.18	16	<1.0	13	-232
05/08/2003	7.5	33	217	2.0	16	1.0	0.17	16	<1.0	13	-233
07/31/2003	7.8	25	280	2.0	16	<0.70	0.15	16	<1.0	14	-233
09/25/2003	7.3	31	300	2.0	16	<0.70	0.18	15	<1.0	13	-235
11/19/2003	8.5	24	222	1.0	16	2.0	0.24	15	<1.0	12	-233
01/29/2004	7.0	22	241	2.0	15	<0.40	0.14	17	<1.0	12	-234
03/31/2004	7.3	34	212	1.0	20	1.0	0.17	15	<1.0	12	-234
05/13/2004	7.6	34	242	2.0	16	1.0	0.15	16	<1.0	14	-234
07/21/2004	7.7	27	210	1.0	14	3.0	0.13	16	<1.0	14	-235
09/23/2004	7.5	26	220	1.0	17	2.0	0.01	16	<1.0	14	-237
11/17/2004	7.7	25	210	1.0	16	1.0	0.15	16	<1.0	13	-234
01/13/2005	7.7	26	244	1.0	16	1.0	0.16	18	<1.0	12	-235
03/17/2005	7.5	27	178	1.0	14	<0.40	0.10	19	<1.0	12	-236
07/14/2005	7.9	22	246	1.0	14	1.0	0.14	17	<1.0	14	-235
05/25/2006	8.6	36	264	0.20	17	1.0	0.29	18	<1.0	14	-235
08/17/2006	7.6	22	248	0.20	14	1.0	0.07	18	<1.0	13	-235
11/09/2006	8.8	35	222	0.40	15	2.0	0.07	18	<1.0	13	-235
04/05/2007	8.7	26	206	<0.20	16	4.0	0.10	18	<1.0	12	-236
08/01/2007	7.7	24	262	0.20	17	2.0	0.13	18	<1.0	13	-235
10/18/2007	7.5	23	226	0.40	15	4.0	0.12	18	<1.0	13	-235

TABLE 3-26 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-25
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
05/15/2008	7.8	23	236	<1.0	14	3.0	0.13	20	<1.0	13	-235
12/04/2008	7.5	31	270	1.0	13	25	0.07	9.0	<1.0	11	-242
01/08/2009	7.8	28	232	<1.0	14	9.6	0.12	25	<1.0	12	-234
04/01/2009	8.6	30	240	<1.0	16	8.7	0.15	22	<1.0	14	-236
07/23/2009	8.6	28	234	<1.0	14	5.4	0.13	18	<1.0	14	-236
01/14/2010	8.6	28	214	<1.0	<15	3.0	0.13	19	<1.0	11	-234
03/04/2010	8.3	24	204	<1.0	<15	3.0	0.14	25	<1.0	22	-239
09/23/2010	8.3	28	192	<1.0	<15	6.2	0.13	25	<1.0	22	-234
03/10/2011	7.9	26	208	<1.0	14	<15	0.15	20	<1.0	12	-235
06/16/2011	8.0	19	352	<1.0	15	<15	0.12	27	<1.0	14	-235
09/15/2011	8.2	33	280	<1.0	14	30	0.17	48	<1.0	13	-242
03/29/2012	8.5	33	242	<1.0	12	19	0.13	24	<1.0	13	-235
05/10/2012	8.2	27	228	<1.0	12	8.9	0.14	26	<1.0	13	-231
08/02/2012	7.8	30	244	7.5	12	7.2	0.16	22	<1.0	14	-238
03/21/2013	7.8	27	220	<1.0	13	<5.0	0.17	16	<1.0	11	-240
08/08/2013	7.8	29	242	<1.0	13	10	0.18	35	<1.0	15	-236
12/19/2013	8.7	26	236	<1.0	13	6.0	0.19	23	<1.0	13	-243

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-27: GROUNDWATER QUALITY DATA FOR WELL QC-26 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/15/1999	7.5	46	334	1.0	14	16	0.09	7.0	<1.0	13	-15
09/23/1999	8.6	36	332	2.0	12	14	<0.01	6.0	<1.0	12	-39
11/05/1999	8.1	23	274	2.0	13	9.0	0.17	6.0	<1.0	13	-50
01/27/2000	9.0	32	328	2.0	10	8.0	0.16	5.0	<1.0	11	-72
03/09/2000	9.2	34	298	2.0	11	5.0	0.18	6.0	<1.0	12	-81
05/18/2000	9.2	31	282	6.0	12	7.0	0.15	10	<1.0	13	-213
07/20/2000	9.2	32	214	1.0	10	7.0	0.15	7.0	<1.0	13	-216
09/20/2000	8.4	34	274	1.0	10	11	0.17	7.0	<1.0	13	-216
11/30/2000	8.3	33	304	<1.0	10	14	0.17	8.0	<1.0	12	-219
01/18/2001	8.2	44	272	1.0	11	<1.0	0.17	8.0	<1.0	11	-219
03/22/2001	7.1	34	270	1.0	11	<1.0	0.15	9.0	<1.0	12	-173
05/24/2001	9.2	31	272	1.0	14	2.0	0.16	9.0	<1.0	13	-221
07/12/2001	8.8	34	316	1.0	10	<1.0	0.07	7.0	<1.0	14	-221
09/27/2001	8.9	34	334	1.0	13	<1.0	0.09	6.0	<1.0	13	-222
11/29/2001	9.3	31	288	1.0	11	10	0.09	4.0	<1.0	12	-222
01/17/2002	9.2	30	1322	1.0	14	<1.0	0.14	6.0	<1.0	11	-229
03/28/2002	8.9	31	306	2.0	11	5.0	0.06	7.0	<1.0	12	-223
05/16/2002	9.1	32	268	2.0	13	<1.0	0.13	7.0	<1.0	13	-223
07/25/2002	8.1	36	390	2.0	12	8.0	0.10	7.0	<1.0	13	-225
09/26/2002	7.6	40	272	2.0	11	<1.0	0.10	7.0	<1.0	13	-226
11/27/2002	8.1	45	288	2.0	11	7.0	0.08	7.0	<1.0	10	-225
01/30/2003	7.9	24	326	3.0	12	8.0	0.09	7.0	<1.0	11	-225
03/20/2003	8.0	31	294	2.0	11	1.0	0.13	7.0	<1.0	12	-223
07/31/2003	8.0	30	288	2.0	12	1.0	0.97	7.0	<1.0	13	-225
09/18/2003	8.2	43	330	1.0	16	<0.70	0.11	6.0	<1.0	13	-226
11/19/2003	9.1	28	268	1.0	11	2.0	0.11	7.0	<1.0	12	-225
01/29/2004	7.9	28	270	1.0	12	<0.40	0.08	7.0	<1.0	11	-234
03/31/2004	8.0	31	260	1.0	18	<0.40	0.08	6.0	<1.0	12	-228
05/13/2004	7.8	44	284	1.0	15	<0.40	0.09	6.0	<1.0	14	-226
07/21/2004	7.9	33	268	1.0	15	4.0	0.08	7.0	<1.0	13	-233
09/23/2004	8.0	29	276	1.0	13	1.0	0.02	7.0	<1.0	13	-228
11/17/2004	8.2	31	261	1.0	13	<0.40	0.06	7.0	<1.0	12	-228
01/13/2005	7.9	35	284	1.0	12	1.0	0.05	7.0	<1.0	12	-228
03/17/2005	7.5	33	228	1.0	11	<0.40	0.07	7.0	<1.0	12	-228
05/19/2005	7.8	27	294	1.0	12	1.0	0.04	7.0	<1.0	13	-227
07/14/2005	8.0	28	298	1.0	12	1.0	0.07	6.0	<1.0	14	-228
09/01/2005	7.6	37	274	<0.30	12	2.0	<0.02	6.0	<1.0	14	-225
11/03/2005	7.8	22	276	<0.30	12	1.0	0.02	6.0	<1.0	12	-227
05/25/2006	9.3	45	298	0.20	13	1.0	0.09	7.0	<1.0	14	-230
08/17/2006	7.7	23	324	0.20	12	1.0	0.03	7.0	<1.0	13	-231

TABLE 3-27 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-26
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
11/16/2006	8.0	28	388	0.20	36	1.0	<0.02	7.0	<1.0	12	-228
04/05/2007	7.5	41	276	<0.20	12	3.0	0.07	7.0	<1.0	11	-227
08/01/2007	7.9	26	302	<0.20	14	1.0	0.07	7.0	<1.0	13	-229
10/18/2007	7.9	28	294	<0.20	12	2.0	0.06	6.0	<1.0	13	-231
05/15/2008	8.2	26	288	<1.0	13	2.0	0.06	6.0	<1.0	12	-231
12/04/2008	7.8	40	266	<1.0	11	3.0	0.02	9.0	<1.0	11	-227
01/08/2009	8.8	31	316	<1.0	12	<2.0	<0.10	6.0	<1.0	11	-246
04/01/2009	8.8	33	286	<1.0	14	<2.0	0.10	7.0	<1.0	12	-230
07/23/2009	8.4	36	278	<1.0	12	<2.0	<0.10	6.0	<1.0	12	-207
01/14/2010	8.3	35	264	<1.0	<15	<2.0	0.09	6.0	<1.0	12	-229
03/04/2010	9.0	29	300	<1.0	<15	<2.0	0.07	6.0	<1.0	12	-236
09/23/2010	8.6	32	248	<1.0	<15	<2.0	0.08	8.0	<1.0	12	-208
03/10/2011	9.0	31	270	<1.0	<15	<2.0	<0.10	6.0	<1.0	11	-233
06/23/2011	7.5	47	474	<1.0	<15	<2.0	<0.10	58	<1.0	13	-222
09/15/2011	8.7	31	308	<1.0	32	<2.0	<0.10	8.0	<1.0	13	-230
03/29/2012	9.1	40	272	<1.0	12	<5.0	<0.10	6.0	<1.0	13	-228
05/10/2012	8.5	31	274	<1.0	11	<5.0	<0.10	7.0	<1.0	13	-222
08/02/2012	7.8	32	266	11	10	<5.0	0.11	6.0	<1.0	13	-226
03/21/2013	8.5	30	244	<1.0	11	17	0.11	68	<1.0	11	-222
08/08/2013	8.9	35	284	<1.0	11	<5.0	<0.10	9.0	<1.0	13	-229
12/19/2013	9.3	32	278	<1.0	11	<5.0	0.11	6.0	<1.0	13	-228

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-28: GROUNDWATER QUALITY DATA FOR WELL QC-27 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/22/1999	7.9	35	270	1.0	29	12	0.28	27	<1.0	16	-136
09/16/1999	8.3	30	302	1.0	29	10	<0.01	25	<1.0	13	-143
11/05/1999	8.6	19	266	2.0	30	5.0	0.23	25	<1.0	13	-154
01/27/2000	7.6	43	340	1.0	35	6.0	0.18	29	<1.0	12	-189
03/17/2000	8.5	36	352	3.0	43	7.0	0.18	35	<1.0	12	-197
05/18/2000	8.6	35	302	6.0	41	8.0	0.18	35	<1.0	13	-199
07/20/2000	8.1	44	276	2.0	39	6.0	0.19	33	<1.0	13	-201
09/14/2000	8.4	34	312	1.0	37	9.0	0.19	48	<1.0	13	-202
11/16/2000	8.5	33	276	1.0	37	9.0	0.18	32	<1.0	12	-202
01/11/2001	9.2	29	240	1.0	13	<1.0	0.17	14	<1.0	11	-203
03/08/2001	7.5	46	312	1.0	34	<1.0	0.21	34	<1.0	12	-150
05/24/2001	6.8	33	268	1.0	33	<1.0	0.20	33	<1.0	13	-203
07/05/2001	8.9	31	272	2.0	15	<1.0	0.13	15	<1.0	15	-240
09/13/2001	8.1	34	300	1.0	36	<1.0	0.24	23	<1.0	13	-204
11/29/2001	8.7	31	302	1.0	33	10	0.17	27	<1.0	12	-203
01/31/2002	8.0	32	288	2.0	34	<1.0	0.15	37	<1.0	12	-204
03/14/2002	7.0	38	334	2.0	17	6.0	0.16	31	<1.0	13	-204
05/16/2002	8.6	31	286	1.0	35	<1.0	0.06	28	<1.0	13	-205
07/18/2002	7.2	38	336	2.0	29	7.0	0.20	27	<1.0	14	-205
09/19/2002	7.8	40	274	2.0	31	9.0	0.19	26	<1.0	15	-207
11/27/2002	7.8	47	304	2.0	34	5.0	0.16	26	<1.0	12	-203
01/16/2003	8.8	43	290	2.0	32	<0.70	0.16	30	<1.0	13	-207
03/13/2003	7.0	29	338	2.0	30	1.0	0.16	28	<1.0	12	-205
05/08/2003	7.6	40	276	2.0	32	<0.70	0.12	26	<1.0	13	-205
07/17/2003	6.8	38	252	2.0	37	1.0	0.13	26	<1.0	14	-205
09/18/2003	8.3	41	322	2.0	33	<0.70	0.09	26	<1.0	14	-205
11/19/2003	8.3	28	298	2.0	29	3.0	0.17	25	<1.0	12	-205
01/28/2004	7.5	23	240	1.0	34	<0.40	0.18	26	<1.0	12	-205
03/31/2004	7.6	27	260	1.0	35	1.0	0.28	25	<1.0	12	-207
05/13/2004	7.5	41	290	<2.0	38	<0.40	0.14	26	<1.0	14	-205
07/22/2004	7.4	37	286	2.0	33	4.0	0.16	25	<1.0	14	-207
09/30/2004	7.5	25	316	1.0	34	3.0	0.17	26	<1.0	13	-207
11/17/2004	7.7	27	266	1.0	32	1.0	0.14	25	<1.0	13	-207
01/13/2005	7.5	27	266	1.0	32	<0.40	0.11	26	<1.0	12	-205
03/17/2005	7.6	32	248	1.0	33	<0.40	0.13	26	<1.0	12	-206
07/14/2005	7.7	26	254	1.0	32	1.0	0.16	23	<1.0	13	-207
05/25/2006	8.5	43	302	0.30	31	<0.40	0.29	25	<1.0	14	-210
08/17/2006	7.8	26	346	<0.20	31	1.0	0.09	26	<1.0	13	-206
11/16/2006	7.9	28	250	0.30	31	1.0	0.07	27	<1.0	11	-206
04/05/2007	7.7	39	254	0.20	29	3.0	0.11	24	<1.0	12	-208

TABLE 3-28 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-27
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/01/2007	7.8	27	294	0.30	30	0.40	0.13	25	<1.0	13	-206
10/18/2007	7.6	25	250	0.20	32	1.0	0.14	22	<1.0	13	-207
01/31/2008	7.7	37	204	<1.0	37	<2.0	0.22	27	<1.0	10	-213
05/15/2008	7.6	25	264	<1.0	32	<2.0	0.14	24	<1.0	12	-206
08/21/2008	7.7	50	268	<1.0	27	<2.0	0.14	24	<1.0	14	-213
01/08/2009	8.4	30	264	<1.0	31	<2.0	0.15	23	<1.0	12	-207
04/01/2009	8.4	30	252	<1.0	33	<2.0	0.16	23	<1.0	12	-244
07/23/2009	8.6	40	294	<1.0	30	<2.0	0.15	22	<1.0	12	-246
01/14/2010	8.6	32	228	<1.0	28	<2.0	0.16	26	<1.0	12	-208
03/04/2010	7.9	33	236	<1.0	29	<2.0	0.16	26	<1.0	11	-246
09/23/2010	8.5	28	216	<1.0	<15	<2.0	0.15	25	<1.0	11	-248
03/10/2011	8.2	29	236	<1.0	33	<2.0	0.14	25	<1.0	12	-206
06/23/2011	7.6	37	348	<1.0	25	<2.0	0.15	24	<1.0	13	-205
09/15/2011	8.2	28	268	<1.0	32	<2.0	0.13	24	<1.0	13	-208
03/29/2012	8.4	37	244	<1.0	31	5.8	0.16	24	<1.0	13	-204
05/10/2012	8.2	29	258	<1.0	32	<5.0	0.15	25	<1.0	12	-206
08/02/2012	7.9	27	262	4.2	28	<5.0	0.18	25	<1.0	13	-212
03/21/2013	8.3	31	246	<1.0	29	<5.0	0.17	10	<1.0	11	-210
08/08/2013	7.9	34	250	<1.0	29	<5.0	0.19	28	<1.0	14	-206
12/19/2013	8.2	30	232	<1.0	30	<5.0	0.18	24	<1.0	13	-205

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-29: GROUNDWATER QUALITY DATA FOR WELL QC-28 IN
THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/22/1999	8.0	36	286	3.0	15	11	0.25	15	<1.0	17	-49
09/16/1999	8.6	32	286	3.0	16	5.0	<0.01	14	<1.0	13	-67
11/17/1999	8.9	21	342	3.0	15	8.0	0.14	14	<1.0	13	-172
01/27/2000	8.3	31	312	3.0	14	10	0.15	15	<1.0	12	-184
03/16/2000	8.9	34	390	5.0	17	7.0	0.15	17	<1.0	12	-195
05/11/2000	8.9	34	296	6.0	14	10	0.17	15	<1.0	14	-198
07/20/2000	7.9	44	260	3.0	13	9.0	0.16	16	<1.0	14	-229
09/14/2000	8.7	31	282	2.0	13	7.0	0.18	12	<1.0	13	-235
11/16/2000	8.5	31	280	2.0	14	4.0	0.15	15	<1.0	12	-237
01/11/2001	8.8	33	270	1.0	36	<1.0	0.18	34	<1.0	12	-239
03/08/2001	7.6	43	266	2.0	11	<1.0	0.17	19	<1.0	12	-185
05/10/2001	8.5	36	252	2.0	13	1.0	0.14	17	<1.0	15	-239
07/05/2001	8.9	31	272	2.0	15	<1.0	0.13	15	<1.0	15	-240
09/13/2001	8.5	32	372	2.0	17	<1.0	0.10	8.0	<1.0	13	-240
11/29/2001	7.6	29	264	2.0	13	10	0.10	13	<1.0	13	-241
01/31/2002	8.6	31	282	3.0	16	<1.0	0.10	20	<1.0	12	-242
03/14/2002	7.2	31	324	3.0	38	7.0	0.11	16	<1.0	13	-242
07/18/2002	7.5	35	322	2.0	17	6.0	0.08	15	<1.0	15	-243
09/19/2002	7.8	38	278	3.0	15	6.0	0.03	17	<1.0	14	-251
11/14/2002	7.7	39	284	3.0	18	1.0	0.03	17	<1.0	13	-243
01/16/2003	7.6	17	240	3.0	16	<0.70	0.03	17	<1.0	12	-245
03/13/2003	7.0	29	310	3.0	16	<0.70	0.03	16	<1.0	12	-243
05/21/2003	6.4	31	310	3.0	15	<0.70	0.24	17	<1.0	13	-245
07/17/2003	7.2	30	252	3.0	16	1.0	<0.02	16	<1.0	15	-255
09/18/2003	8.7	41	284	2.0	17	<0.70	0.02	16	<1.0	15	-244
11/19/2003	7.6	25	270	2.0	13	2.0	0.06	15	<1.0	13	-244
01/28/2004	7.8	26	230	2.0	15	<0.40	0.01	16	<1.0	12	-244
03/31/2004	7.0	27	276	2.0	17	<0.40	0.07	16	<1.0	12	-246
05/26/2004	7.8	30	268	4.0	14	589	<0.02	16	<1.0	13	-245
07/22/2004	7.3	33	312	2.0	14	137	0.05	16	<1.0	14	-247
09/30/2004	7.3	23	322	3.0	15	1.0	0.06	16	<1.0	13	-245
11/17/2004	7.5	30	261	2.0	16	<0.40	<0.02	15	<1.0	13	-246
01/13/2005	7.8	27	260	2.0	16	1.0	0.03	16	<1.0	12	-246
03/17/2005	7.6	31	272	2.0	29	<0.40	0.01	17	<1.0	12	-245
07/14/2005	7.8	23	252	1.0	13	1.0	0.06	15	<1.0	13	-245
05/25/2006	8.8	43	342	0.80	15	1.0	0.02	16	<1.0	16	-244
08/17/2006	7.6	27	332	1.3	15	1.0	0.02	16	<2.0	14	-244
11/16/2006	8.0	28	282	0.80	15	1.0	<0.02	16	<1.0	11	-243
04/05/2007	7.5	39	256	1.1	15	1.0	0.03	15	<1.0	12	-248
08/01/2007	7.9	28	274	1.6	17	1.0	0.05	16	<1.0	14	-245

TABLE 3-29 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-28
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/18/2007	7.7	26	272	0.80	14	4.0	0.05	15	<1.0	14	-246
05/15/2008	8.0	29	284	2.1	14	2.0	0.04	19	<1.0	13	-246
08/21/2008	7.9	61	294	1.0	13	3.0	0.02	13	<1.0	14	-252
01/08/2009	8.4	30	266	1.0	14	<2.0	<0.10	15	<1.0	12	-244
04/01/2009	8.6	40	262	1.1	15	<2.0	<0.10	15	<1.0	12	-246
07/23/2009	8.8	30	286	1.5	15	<2.0	<0.10	15	<1.0	14	-246
01/28/2010	7.9	40	268	3.4	<10	2.2	0.07	17	<1.0	11	-241
03/10/2010	8.5	87	270	1.2	<15	2.4	0.06	19	<1.0	11	-248
09/23/2010	8.9	74	228	<1.0	<15	3.4	0.05	19	<1.0	16	-244
03/10/2011	8.8	29	236	1.2	13	<5.0	<0.10	21	<1.0	12	-246
06/23/2011	7.6	39	408	1.2	<15	<5.0	<0.10	22	<1.0	13	-240
09/15/2011	8.5	28	278	1.3	13	<5.0	<0.10	17	<1.0	13	-244
03/29/2012	8.1	39	264	1.6	13	<5.0	<0.10	16	<1.0	13	-243
05/10/2012	8.1	27	304	1.1	12	<5.0	<0.10	16	<1.0	13	-244
08/02/2012	8.0	30	290	5.4	12	<5.0	<0.10	17	<1.0	13	-244
03/21/2013	8.2	33	258	1.0	12	<5.0	<0.10	10	<1.0	12	-240
08/08/2013	8.3	35	314	1.0	16	<5.0	0.12	20	<1.0	16	-246
12/19/2013	8.8	32	268	1.0	12	<5.0	<0.10	17	<1.0	13	-245

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-30: GROUNDWATER QUALITY DATA FOR WELL QC-29 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/09/2003	8.2	41	382	3.0	9.0	33	0.41	41	<1.0	11	-4.0
03/27/2003	7.4	40	404	3.0	11	49	0.27	40	<1.0	7.0	-2.0
05/15/2003	7.5	39	392	3.0	10	46	0.32	45	<1.0	12	0.0
07/02/2003	7.2	41	458	2.0	15	65	0.52	45	<1.0	13	-2.0
09/11/2003	7.9	26	400	2.0	11	64	0.30	42	<1.0	12	-2.0
11/20/2003	8.0	59	342	2.0	9.0	77	0.38	44	<1.0	12	-13
01/08/2004	7.4	75	470	1.0	39	94	0.39	111	<1.0	11	-62
03/11/2004	7.0	41	522	4.0	42	95	0.43	112	<1.0	11	-71
05/20/2004	7.9	39	558	2.0	47	106	0.42	124	<1.0	13	-64
07/15/2004	6.7	46	548	2.0	56	73	0.47	120	<1.0	13	-63
09/22/2004	7.6	66	594	5.0	55	79	0.41	135	<1.0	12	-58
12/01/2004	7.5	41	571	1.0	57	88	0.51	134	<1.0	11	-57
01/06/2005	7.8	48	564	1.0	66	90	0.54	149	<1.0	11	-55
05/05/2005	7.5	63	564	1.0	59	97	0.48	156	<1.0	12	-54
07/20/2005	7.5	69	564	1.0	69	90	0.49	155	<1.0	12	-55
09/01/2005	7.5	66	552	1.0	71	103	0.35	175	<1.0	14	-52
11/10/2005	7.0	74	608	1.0	88	106	0.52	177	<1.0	12	-55
01/26/2006	7.4	105	522	0.60	89	97	0.50	189	<1.0	11	-56
03/09/2006	7.7	100	596	0.70	101	122	0.61	202	<1.0	12	-57
04/19/2006	7.5	108	524	1.1	121	108	0.54	228	<1.0	12	-49
06/15/2006	7.8	99	692	0.90	113	100	0.56	221	<1.0	14	-63
08/31/2006	7.9	106	682	0.50	115	124	0.48	249	<1.0	14	-46
09/21/2006	7.6	33	714	1.2	123	114	0.52	243	<1.0	12	-60
01/11/2007	7.7	84	694	0.90	130	119	0.53	237	<1.0	11	-64
03/22/2007	7.5	115	688	0.80	136	133	0.53	238	<1.0	12	-64
05/24/2007	7.3	92	718	1.0	142	112	0.54	260	<1.0	12	-66
07/19/2007	7.8	116	780	0.80	162	122	0.62	275	<1.0	13	-78
09/27/2007	7.6	75	762	1.0	142	140	0.54	263	<1.0	12	-70
11/29/2007	7.2	75	754	0.90	136	145	0.61	285	<1.0	11	-67
01/17/2008	7.5	50	828	0.90	167	128	0.61	321	<1.0	11	-63
03/20/2008	7.2	97	688	0.80	142	120	0.63	255	<1.0	-	-72
05/21/2008	7.8	107	778	0.90	155	145	0.63	299	<1.0	12	-69
08/07/2008	7.2	148	848	0.70	162	135	0.71	338	<1.0	13	-69
10/01/2008	7.7	77	816	1.0	144	135	0.64	332	<1.0	12	-67
12/11/2008	7.3	51	806	1.0	150	137	0.67	300	<1.0	11	-71
01/15/2009	7.4	53	848	1.3	190	148	0.69	332	<1.0	11	-70
03/12/2009	7.2	80	824	1.3	156	137	0.66	300	<1.0	11	-25
05/07/2009	7.2	67	876	1.4	173	141	0.66	293	<1.0	13	-62
07/01/2009	7.3	72	828	1.4	166	203	0.69	292	<1.0	13	-68
09/03/2009	7.1	98	824	1.2	178	144	0.66	314	<1.0	13	-66

TABLE 3-30 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-29
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
12/03/2009	7.4	66	840	1.4	172	144	0.70	319	<1.0	12	-68
01/28/2010	7.2	40	884	1.4	190	162	0.71	383	<1.0	11	-65
03/10/2010	7.6	87	860	1.4	178	151	0.65	365	<1.0	11	-68
04/22/2010	7.4	74	858	1.3	173	152	0.70	344	<1.0	12	-65
06/17/2010	7.5	83	968	1.2	174	159	0.71	349	<1.0	15	-65
09/23/2010	7.2	82	804	1.0	162	146	0.68	323	<1.0	14	-63
11/18/2010	7.3	70	856	1.4	188	165	0.75	356	<1.0	11	-69
03/10/2011	7.0	100	982	1.5	228	190	0.75	422	<1.0	12	-66
04/28/2011	7.0	123	928	1.5	195	175	0.77	306	<1.0	13	-71
06/23/2011	7.9	110	1032	1.2	176	150	0.69	361	<1.0	12	-63
08/26/2011	7.3	86	1102	1.7	216	189	0.76	518	<1.0	13	-68
10/27/2011	7.4	89	894	1.3	195	164	0.77	380	<1.0	12	-66
12/08/2011	7.4	85	828	<1.0	177	150	0.71	343	<1.0	11	-63
02/02/2012	7.4	51	716	1.3	168	129	0.54	257	<1.0	11	-60
06/14/2012	7.4	86	1096	1.6	204	184	0.79	426	<1.0	14	-58
08/02/2012	7.6	50	950	6.5	189	180	0.73	404	<1.0	15	-58
10/18/2012	7.0	41	890	1.3	182	168	0.71	368	<1.0	12	-62
11/15/2012	6.7	83	954	1.6	70	188	0.76	408	<1.0	12	-56
03/14/2013	7.7	81	904	1.0	174	180	0.80	351	<1.0	11	-58
07/18/2013	8.2	47	466	1.0	<10	76	0.43	63	<1.0	15	-53
08/15/2013	7.2	110	976	2.0	-	190	0.80	457	<1.0	14	-57
09/05/2013	7.2	106	1090	1.0	181	169	0.75	409	<1.0	13	-57
10/03/2013	7.1	125	870	1.0	174	179	0.72	372	<1.0	12	-59
11/20/2013	7.3	114	978	1.0	198	197	0.78	424	<1.0	12	-55

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-31: GROUNDWATER QUALITY DATA FOR WELL QC-30 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/09/2003	7.4	39	416	2.0	10	49	0.32	46	<1.0	11	-6.0
03/27/2003	6.8	38	370	3.0	6.0	32	0.37	42	<1.0	12	-6.0
05/15/2003	7.7	36	358	3.0	5.0	33	0.39	45	<1.0	11	-22
07/02/2003	7.2	39	462	3.0	6.0	66	0.41	49	<1.0	12	-51
09/11/2003	8.0	37	414	2.0	7.0	91	0.41	52	<1.0	12	-64
11/20/2003	8.6	60	394	2.0	6.0	113	0.44	47	<1.0	12	-126
01/08/2004	8.5	64	462	3.0	11	96	0.38	52	<1.0	11	-141
03/11/2004	7.9	33	464	9.0	12	89	0.36	55	<1.0	11	-144
05/20/2004	7.7	38	468	4.0	35	97	0.39	57	<1.0	14	-143
07/15/2004	7.4	38	444	3.0	8.0	69	0.38	56	<1.0	12	-139
09/22/2004	7.6	58	414	3.0	13	72	0.33	60	<1.0	13	-137
12/01/2004	7.6	39	468	2.0	15	76	0.24	57	<1.0	10	-139
05/05/2005	7.5	50	450	2.0	14	74	0.11	60	<1.0	11	-139
07/20/2005	7.5	53	440	1.0	15	70	0.10	63	<1.0	13	-139
09/01/2005	7.5	52	432	1.0	14	71	0.09	59	<1.0	14	-140
11/10/2005	7.2	48	442	1.0	16	70	0.06	57	<1.0	11	-138
01/26/2006	8.5	65	204	0.80	16	66	0.09	55	<1.0	12	-140
03/09/2006	7.6	61	426	0.70	16	79	<0.02	57	<1.0	12	-137
04/19/2006	7.5	60	322	0.90	15	61	0.27	56	4.0	12	-100
06/15/2006	8.4	59	450	1.5	17	55	0.21	57	<1.0	15	-136
08/24/2006	7.6	31	444	0.90	10	61	0.02	55	<1.0	12	-143
09/21/2006	7.5	25	466	1.2	19	64	0.24	55	49	12	-143
03/22/2007	7.7	57	404	1.8	22	54	0.13	49	<1.0	12	-143
05/24/2007	8.0	46	414	1.0	13	56	0.10	55	<1.0	12	-145
07/19/2007	7.7	58	416	1.2	10	55	0.18	57	<1.0	14	-141
09/27/2007	7.4	60	430	0.90	12	60	0.20	51	<1.0	12	-146
11/29/2007	8.3	35	384	1.2	7.0	65	0.31	54	<1.0	5.0	-145
01/17/2008	7.8	35	468	3.5	30	66	0.24	61	4.0	11	-142
05/21/2008	8.2	52	358	4.0	15	61	0.34	51	<1.0	12	-147
08/07/2008	8.2	62	382	1.1	10	1.0	0.35	60	<1.0	13	-150
10/01/2008	7.8	37	414	6.9	11	61	0.25	57	<1.0	12	-146
12/11/2008	8.2	44	364	1.6	10	53	0.27	49	<1.0	10	-147
01/15/2009	8.2	44	390	1.7	<10	64	0.36	51	<1.0	8.6	-144
03/12/2009	7.7	39	440	<1.0	<10	69	0.41	53	1.0	11	-30
05/07/2009	8.3	44	368	1.9	25	65	0.12	52	<1.0	13	-139
07/01/2009	8.3	44	404	1.2	19	81	0.39	50	<1.0	12	-138
09/03/2009	8.3	48	400	1.0	11	69	0.17	57	<1.0	13	-144
12/03/2009	8.6	42	368	1.3	<10	51	0.26	42	<1.0	11	-143
03/10/2010	7.5	38	372	1.1	<15	67	0.28	55	<1.0	11	-144
04/22/2010	8.0	37	410	<1.0	<15	71	0.28	55	<1.0	12	-140

TABLE 3-31 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-30
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
06/17/2010	8.2	37	482	<1.0	<15	73	0.28	54	<1.0	14	-142
09/23/2010	8.3	41	386	<1.0	<15	76	0.39	64	<1.0	13	-142
11/18/2010	8.4	38	386	<1.0	<15	78	0.44	61	<1.0	11	-145
03/10/2011	8.4	37	358	1.1	<10	53	<0.10	58	<1.0	8.8	-137
04/28/2011	7.9	40	548	1.2	27	175	0.77	234	<1.0	12	-142
08/26/2011	6.9	41	502	<1.0	<10	72	<0.10	105	<1.0	14	-139
10/27/2011	8.2	34	320	<1.0	<10	51	0.14	42	<1.0	12	-136
12/08/2011	7.8	45	358	<1.0	<10	74	0.13	52	<1.0	11	-144
02/02/2012	7.6	70	380	<1.0	<10	70	0.15	55	<1.0	11	-139
05/17/2012	7.8	42	402	1.2	<10	85	0.40	65	<1.0	13	-137
06/14/2012	8.3	43	500	3.6	<10	65	0.14	54	<1.0	24	-134
08/02/2012	8.1	33	434	10	<10	65	0.13	55	<1.0	13	-133
10/18/2012	7.7	39	406	<1.0	<10	76	0.40	57	<1.0	13	-131
11/21/2012	8.1	40	384	1.1	<10	73	0.23	58	-	11	-129
12/06/2012	7.6	42	408	<1.0	<10	79	0.30	61	<1.0	10	-136
03/14/2013	7.9	45	582	2.0	<10	77	0.41	57	<1.0	11	-138
07/18/2013	8.3	40	892	1.0	161	154	0.66	352	<1.0	15	-138
08/15/2013	8.1	50	446	<1.0	-	77	0.45	65	<1.0	12	-132
09/05/2013	8.3	49	544	<1.0	<10	81	0.43	66	<1.0	13	-133
10/03/2013	8.1	49	398	1.0	10	87	0.42	64	<1.0	13	-138
11/20/2013	8.1	22	418	<1.0	<10	85	0.40	69	<1.0	11	-132

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-32: GROUNDWATER QUALITY DATA FOR WELL QC-31 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
01/09/2003	7.5	49	502	5.0	10	162	0.93	211	<1.0	13	-3.0
03/27/2003	6.8	58	482	6.0	9.0	171	0.86	185	<1.0	13	-1.0
05/15/2003	7.5	55	526	3.0	9.0	186	0.92	212	<1.0	12	-3.0
07/02/2003	7.6	53	526	3.0	8.0	198	0.94	214	<1.0	14	-6.0
09/11/2003	7.8	46	500	3.0	8.0	200	0.90	206	<1.0	13	-6.0
11/20/2003	7.6	84	518	3.0	12	229	1.0	209	<1.0	12	-100
01/08/2004	7.8	85	540	3.0	32	195	0.86	237	<1.0	11	-113
03/11/2004	7.9	34	556	4.0	27	188	0.91	257	<1.0	11	-115
05/20/2004	7.6	47	584	2.0	32	192	0.96	245	<1.0	14	-110
07/15/2004	7.0	41	578	2.0	37	141	1.0	236	<1.0	13	-110
09/22/2004	7.5	78	560	3.0	32	156	0.91	243	<1.0	13	-109
12/01/2004	7.4	47	555	2.0	26	164	0.97	231	<1.0	11	-110
01/06/2005	7.7	49	576	1.0	27	169	1.0	250	<1.0	12	-110
05/05/2005	7.4	65	550	2.0	28	169	0.95	246	<1.0	13	-99
07/20/2005	7.5	67	546	1.0	28	166	0.92	244	<1.0	14	-100
09/01/2005	7.3	71	544	1.0	25	172	0.78	253	<1.0	13	-94
11/10/2005	7.4	67	576	1.0	21	184	0.94	230	<1.0	12	-94
01/26/2006	7.6	91	520	0.90	18	164	0.91	230	<1.0	12	-89
03/09/2006	7.5	84	534	0.90	18	192	0.78	234	<1.0	12	-87
04/19/2006	7.5	82	636	0.90	17	166	0.94	238	<1.0	13	-87
06/15/2006	7.8	80	542	0.80	18	152	0.89	235	<1.0	16	-98
08/24/2006	7.5	44	552	0.70	18	160	0.81	219	<1.0	13	-92
09/21/2006	7.7	32	546	1.1	18	175	0.81	221	<1.0	12	-90
01/11/2007	7.7	65	562	1.1	18	177	0.95	225	6.0	12	-88
03/22/2007	7.6	86	538	0.80	18	188	0.91	222	<1.0	12	-93
05/24/2007	7.8	64	564	0.80	17	195	0.92	229	1.0	14	-98
07/19/2007	7.5	77	524	0.90	17	167	0.67	197	<1.0	14	-110
09/27/2007	7.7	64	564	0.90	17	204	0.90	212	<1.0	12	-101
11/29/2007	7.6	48	560	1.2	16	211	1.1	229	<1.0	11	-93
01/17/2008	7.7	42	566	0.90	14	184	0.88	236	9.0	12	-82
03/20/2008	7.7	65	542	0.80	17	176	0.93	235	<1.0	12	-100
05/21/2008	7.8	55	516	0.80	16	202	0.99	235	<1.0	12	-93
08/07/2008	7.8	94	584	0.60	13	184	1.0	236	<1.0	13	-93
10/01/2008	8.8	48	564	1.0	11	182	0.98	238	<1.0	13	-84
12/11/2008	8.1	45	566	1.0	15	187	0.99	229	<1.0	11	-90
01/15/2009	7.9	50	574	1.2	14	188	1.0	231	<1.0	12	-90
03/12/2009	7.5	47	566	1.1	17	173	1.0	219	<1.0	12	-64
05/07/2009	7.7	49	574	1.1	21	179	1.0	213	<1.0	14	-76
07/01/2009	8.1	51	542	1.1	17	81	1.0	201	<1.0	13	-83
10/22/2009	7.5	58	592	1.2	15	191	1.1	228	<1.0	17	-122

TABLE 3-32 (Continued): GROUNDWATER QUALITY DATA FOR WELL QC-31
IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
12/10/2009	7.4	48	562	1.1	17	162	1.0	226	<1.0	11	-75
01/28/2010	7.8	49	562	1.2	<10	186	1.0	240	<1.0	10	-76
03/10/2010	7.6	49	590	1.1	15	178	1.1	248	<1.0	12	-76
04/22/2010	6.8	45	582	1.1	16	181	1.1	231	<1.0	13	-73
06/17/2010	7.6	46	582	<1.0	16	186	1.1	228	<1.0	16	-75
09/23/2010	7.6	53	554	<1.0	15	178	1.0	230	<1.0	14	-66
11/18/2010	7.7	45	552	1.1	<15	183	1.1	228	<1.0	12	-85
03/10/2011	7.4	54	576	1.2	<15	177	1.0	239	<1.0	12	-72
04/28/2011	7.3	75	568	1.9	13	169	1.1	239	<1.0	12	-77
06/23/2011	7.8	69	530	<1.0	<15	164	0.92	208	<1.0	13	-58
08/26/2011	7.8	55	560	1.1	15	173	0.59	214	<1.0	16	-88
10/27/2011	7.8	53	568	1.0	13	184	1.0	237	<1.0	12	-105
12/08/2011	8.0	50	572	<1.0	13	198	1.0	240	<1.0	11	-83
02/02/2012	7.1	53	564	1.0	15	184	1.1	245	<1.0	12	-72
05/17/2012	7.6	51	574	1.1	15	182	1.1	242	<1.0	14	-58
06/14/2012	7.7	51	584	1.5	15	184	0.98	235	<1.0	14	-62
08/02/2012	7.6	43	588	7.3	14	186	1.0	246	<1.0	14	-61
10/18/2012	7.6	48	574	1.2	15	183	1.1	234	<1.0	13	-60
11/21/2012	7.9	55	552	1.2	14	190	1.0	238	-	13	-59
12/06/2012	7.6	50	574	1.1	<15	200	1.1	237	<1.0	12	-65
03/14/2013	7.6	56	490	<1.0	15	170	0.85	182	<1.0	12	-64
07/18/2013	8.0	28	626	1.0	13	189	1.1	264	<1.0	15	-67
08/15/2013	7.6	70	582	1.0	-	177	1.1	254	<1.0	13	-59
09/05/2013	7.8	67	604	1.0	15	183	1.0	240	<1.0	13	-65
10/03/2013	7.7	68	552	1.0	16	190	1.0	241	<1.0	13	-68
11/20/2013	8.1	63	548	1.0	16	182	1.0	220	<1.0	12	-62

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988

TABLE 3-33: GROUNDWATER QUALITY DATA FOR WELL QC-32 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
05/15/2003	7.9	69	754	66	22	128	0.82	40	<1.0	13	-168
07/10/2003	7.8	75	804	50	24	166	0.66	47	<1.0	16	-171
01/06/2005	7.9	55	740	24	28	49	0.63	46	<1.0	12	-168
05/21/2008	8.1	85	584	1.9	20	73	0.24	41	<1.0	13	-172
10/01/2008	8.2	54	660	1.6	21	77	0.03	41	<1.0	13	-172
05/07/2009	8.4	64	602	2.0	26	69	0.15	41	<1.0	15	-169

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-34: GROUNDWATER QUALITY DATA FOR WELL QC-33 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	-----		mg/L	-----			MPN/ 100 mL	°C	ft ²
12/11/2008	8.3	54	590	1.2	23	89	0.07	15	<1.0	11	-177

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 198

TABLE 3-35: GROUNDWATER QUALITY DATA FOR WELL QC-34 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	-----	-----	mg/L	-----	-----	-----	MPN/ 100 mL	°C	ft ²
07/22/2004	8.1	124	954	21	28	16	0.44	21	<1.0	17	-161
07/19/2007	8.6	86	1054	3.8	24	161	0.29	30	<1.0	15	-163
10/16/2008	8.4	23	142	3.5	10	18	0.11	24	32	13	-169
12/11/2008	8.9	36	284	1.0	10	45	0.02	9.0	<1.0	11	-165
05/07/2009	9.0	65	504	1.1	21	65	<0.10	15	<1.0	15	-160
07/01/2009	9.0	62	562	1.1	17	44	<0.10	20	<1.0	13	-160
08/26/2010	8.5	68	804	1.5	17	111	<0.02	19	<1.0	15	-159

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 198

TABLE 3-36: GROUNDWATER QUALITY DATA FOR WELL QC-35 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/09/2003	9.5	98	974	15	38	168	0.35	16	<1.0	12	-78
03/27/2003	8.9	95	944	14	35	108	0.11	17	<1.0	13	-101
07/22/2004	7.5	156	1134	11	38	10	0.18	22	<1.0	15	-149
08/07/2008	7.5	145	1168	0.60	29	245	0.03	38	1.0	15	-153
09/03/2009	8.5	125	1076	1.1	33	196	<0.10	25	<1.0	15	-151
08/26/2010	8.0	110	1090	1.2	31	138	<0.02	22	<1.0	15	-151
03/17/2011	8.4	95	910	<1.0	37	95	<0.10	22	<1.0	13	-152
12/21/2011	8.6	108	930	1.2	32	90	<0.10	20	<1.0	12	-151
10/24/2012	8.3	102	942	1.0	32	88	<0.10	24	<1.0	23	-152

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 3-37: GROUNDWATER QUALITY DATA FOR WELL QC-36 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/09/2003	9.2	89	990	21	36	75	0.26	14	<1.0	12	-118
01/17/2008	8.2	65	770	<1.0	29	20	0.02	13	<1.0	9.0	-130
03/20/2008	8.5	140	780	<1.0	31	16	0.08	12	<1.0	8.0	-137
03/17/2011	8.6	92	794	1.2	36	<15	<0.10	12	2.0	14	-130
10/24/2012	8.6	90	856	<1.0	32	28	<0.10	14	<1.0	21	-130

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 198

TABLE 3-38: GROUNDWATER QUALITY DATA FOR WELL QC-37 IN THE CALUMET TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/09/2003	9.5	57	662	21	30	15	0.11	11	<1.0	12	-47
05/15/2003	6.9	36	720	9.0	26	54	0.21	12	<1.0	13	-120
07/10/2003	8.6	81	748	12	27	80	0.10	11	<1.0	15	-123
09/18/2003	7.9	65	832	3.0	31	85	0.01	14	<1.0	14	-129
03/11/2004	7.2	134	1066	53	29	52	0.20	22	<1.0	12	-130
05/27/2004	7.9	124	1054	7.0	29	52	0.16	20	<1.0	14	-129
11/18/2004	7.5	98	884	27	26	17	0.25	19	<1.0	14	-130
03/09/2006	8.1	71	1050	4.5	25	121	0.12	22	<1.0	14	-133
01/17/2008	8.2	85	984	2.1	28	64	0.20	17	<1.0	10	-132
10/16/2008	8.9	140	956	2.3	24	69	0.19	16	<1.0	15	-136
12/30/2009	8.6	118	1126	2.4	35	87	0.41	25	<1.0	9.6	-133
02/24/2010	8.3	95	1010	1.7	26	93	0.09	-	<1.0	8.8	-134

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 198

TABLE 4-1: GROUNDWATER QUALITY DATA FOR WELL MW-1 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/10/1994	6.9	106	788	1.0	30	327	0.40	400	<1.0	13	33
04/07/1994	8.5	100	774	2.0	32	-	0.39	417	<1.0	13	-27
06/06/1994	8.0	97	-	2.0	-	328	0.39	468	<1.0	13	28
08/04/1994	7.9	96	848	2.0	27	399	0.36	451	<1.0	14	27
10/06/1994	7.1	90	758	3.0	28	368	0.35	463	<1.0	14	-24
12/01/1994	7.9	105	758	2.0	28	338	0.39	419	<1.0	13	28
02/08/1995	8.3	73	752	1.0	41	346	0.40	384	<1.0	11	28
04/27/1995	7.8	104	778	3.0	35	357	0.30	442	<1.0	13	28
06/15/1995	7.9	99	836	3.0	27	273	0.40	452	<1.0	14	29
08/17/1995	7.2	102	750	2.0	29	349	0.32	437	1.0	21	26
10/26/1995	7.2	107	824	5.0	30	416	0.34	440	<1.0	13	30
12/20/1995	8.5	90	796	2.0	30	375	0.32	457	<1.0	13	27
02/22/1996	7.6	104	820	10	33	306	0.34	571	<1.0	13	27
04/18/1996	7.6	98	820	3.0	28	356	0.29	461	<1.0	15	28
06/26/1996	7.8	100	796	5.0	33	362	0.30	433	<1.0	14	28
08/29/1996	7.8	95	878	2.0	30	286	0.30	374	<1.0	16	25
10/10/1996	7.9	98	722	2.0	27	375	0.32	451	<1.0	13	27
12/19/1996	7.5	104	826	3.0	28	341	0.31	471	<1.0	12	26
02/06/1997	8.1	94	826	6.0	29	365	0.24	463	<1.0	12	29
04/10/1997	8.1	88	812	2.0	38	332	0.14	457	<1.0	13	-27
06/19/1997	8.1	96	814	1.0	27	359	0.30	463	<1.0	15	24
08/20/1997	7.8	89	764	8.0	32	361	0.25	451	<1.0	14	24
10/16/1997	7.8	98	786	4.0	28	329	0.20	489	<1.0	14	26
12/02/1997	8.1	97	792	2.0	29	302	0.21	471	<1.0	13	24
02/26/1998	8.4	97	810	3.0	30	339	0.22	464	<1.0	14	26
04/29/1998	7.8	87	816	2.0	38	361	0.15	416	<1.0	13	28
06/04/1998	8.1	94	782	3.0	28	313	0.16	452	<1.0	15	27
08/20/1998	8.0	92	774	2.0	29	346	0.29	424	<1.0	16	26
10/21/1998	7.7	77	764	2.0	31	328	0.58	417	<1.0	13	28
12/17/1998	7.7	89	802	2.0	32	300	0.44	452	<1.0	13	27
02/25/1999	7.6	98	770	2.0	38	352	0.27	444	<1.0	15	27
04/21/1999	6.9	98	790	2.0	31	361	0.42	454	<1.0	15	28
06/24/1999	7.0	90	766	2.0	34	313	0.24	452	<1.0	17	27
08/26/1999	7.9	106	786	2.0	28	354	0.20	514	<1.0	14	26
10/28/1999	7.7	107	784	2.0	29	334	0.81	477	<1.0	14	25
12/16/1999	7.6	106	776	6.0	29	317	0.40	445	<1.0	13	17
02/03/2000	8.1	84	806	2.0	31	319	0.34	453	<1.0	13	27
04/26/2000	7.7	104	790	4.0	36	352	0.35	452	<1.0	14	30
06/22/2000	7.9	107	812	3.0	32	369	0.32	451	<1.0	14	26
08/17/2000	7.6	106	778	1.0	30	332	0.31	456	<1.0	14	26

TABLE 4-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-1 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/04/2000	7.0	104	804	2.0	28	344	0.33	459	<1.0	14	4.0
12/07/2000	7.1	107	892	1.0	29	380	0.17	422	<1.0	12	26
02/22/2001	8.0	78	782	2.0	35	372	0.33	499	<1.0	13	27
04/19/2001	8.2	78	804	2.0	30	375	0.30	431	<1.0	14	5.0
06/14/2001	7.7	108	824	1.0	30	351	0.32	445	<1.0	15	27
08/23/2001	7.7	100	832	1.0	33	295	0.37	446	<1.0	14	24
10/04/2001	7.0	83	824	2.0	29	315	0.36	403	<1.0	14	16
12/05/2001	8.3	80	812	1.0	33	349	0.31	462	<1.0	14	1.0
02/28/2002	7.8	77	790	2.0	31	336	0.35	443	<1.0	12	27
04/18/2002	8.1	83	850	3.0	27	344	0.44	451	<1.0	15	29
06/06/2002	7.3	104	810	2.0	35	365	0.39	436	<1.0	14	10
08/15/2002	6.9	49	684	2.0	37	340	0.41	490	<1.0	15	23
10/03/2002	7.9	93	834	3.0	31	348	0.37	433	<1.0	14	8.0
12/11/2002	7.6	100	842	2.0	32	370	0.33	416	<1.0	14	25
02/06/2003	7.6	77	802	3.0	31	356	0.30	423	<1.0	14	27
04/03/2003	7.5	102	828	3.0	28	367	0.34	431	<1.0	14	27
06/05/2003	6.9	82	812	2.0	36	340	0.31	424	<1.0	14	27
08/28/2003	6.8	42	828	2.0	33	587	0.31	447	<1.0	15	24
10/30/2003	7.6	82	804	2.0	29	431	0.32	415	<1.0	14	27
12/04/2003	7.7	67	846	1.0	64	374	0.32	428	<1.0	13	24
02/26/2004	7.9	60	778	2.0	37	377	0.38	424	<1.0	12	27
04/29/2004	8.0	95	822	2.0	66	365	0.33	413	<1.0	14	28
06/10/2004	7.2	85	812	2.0	32	309	0.31	410	<1.0	14	28
08/19/2004	8.0	77	798	2.0	34	339	0.23	413	<1.0	15	27
10/28/2004	7.4	39	858	2.0	29	372	0.29	423	<1.0	14	26
12/09/2004	7.4	61	800	2.0	31	334	0.33	413	<1.0	14	29
02/03/2005	6.9	101	854	1.0	51	351	0.34	428	<1.0	13	28
04/21/2005	7.6	68	794	1.0	32	351	0.32	422	<1.0	14	28
06/23/2005	7.4	89	818	1.0	29	316	0.27	477	<1.0	14	6.0
02/23/2006	6.8	100	858	0.70	32	403	0.25	432	<1.0	14	10
03/16/2006	7.8	94	792	0.60	42	355	0.26	444	<1.0	14	12
04/06/2006	7.8	42	786	0.60	36	369	0.25	437	<1.0	14	8.0
03/29/2007	7.7	89	748	0.70	46	406	0.29	425	<1.0	14	7.0
05/23/2007	7.8	89	792	0.70	35	342	0.23	423	<1.0	15	3.0
07/12/2007	7.6	50	790	0.60	29	370	0.24	424	<1.0	15	1.0
04/10/2008	7.5	47	838	0.60	29	367	0.37	432	<1.0	14	6.0
07/10/2008	7.6	81	810	1.0	25	369	0.27	435	<1.0	14	3.0
11/19/2008	7.5	56	820	1.0	28	368	0.25	406	<1.0	13	3.0
02/25/2009	7.9	63	856	<1.0	34	350	0.39	425	<1.0	14	14
06/11/2009	7.7	55	1576	<1.0	41	356	0.28	392	2.0	14	9.0

TABLE 4-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-1 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/24/2009	7.5	61	830	<1.0	30	352	0.26	425	<1.0	16	3.0
02/25/2010	7.5	99	788	1.0	31	357	0.31	436	<1.0	11	3.8
05/22/2010	7.3	78	848	<1.0	28	379	0.31	415	<1.0	19	1.8
07/01/2010	7.5	58	920	<1.0	35	369	0.28	415	<1.0	13	2.8
03/31/2011	7.5	77	750	1.1	33	346	0.36	374	<1.0	14	7.8
07/14/2011	7.8	69	968	<1.0	31	331	0.26	435	<1.0	15	13
12/01/2011	7.1	65	764	<1.0	44	342	0.24	418	11	14	19
01/26/2012	7.5	77	1070	<1.0	248	327	0.26	415	<1.0	13	16
03/15/2012	7.3	78	796	<1.0	27	338	0.28	439	<1.0	15	14
05/24/2012	7.2	58	772	<1.0	29	353	0.31	458	<1.0	15	14
08/16/2012	7.2	80	814	10	29	368	0.32	440	<1.0	20	11
10/17/2012	7.4	31	782	1.0	31	356	0.33	407	<1.0	16	12
12/12/2012	7.0	73	786	<1.0	30	350	0.43	440	<1.0	15	16
01/16/2013	7.2	88	808	<1.0	28	355	0.29	475	<1.0	12	14
03/27/2013	7.6	70	792	<1.0	30	357	0.34	477	2.0	14	15
05/23/2013	7.2	79	818	<1.0	<10	363	0.42	447	<1.0	15	29
07/10/2013	7.5	82	818	1.0	128	360	0.29	448	2.0	15	13
09/12/2013	7.7	88	814	<1.0	30	374	0.25	452	<1.0	13	10
11/07/2013	7.7	83	766	1.0	30	357	0.36	418	<1.0	13	13

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-2: GROUNDWATER QUALITY DATA FOR WELL MW-2 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/23/1994	7.2	114	828	2.0	30	366	0.54	445	<1.0	14	45
04/18/1994	8.4	104	834	3.0	20	-	0.57	441	<1.0	13	44
06/07/1994	8.1	100	826	2.0	13	343	0.63	468	<1.0	14	43
08/16/1994	8.4	97	830	2.0	7.0	397	0.51	438	<1.0	16	42
10/11/1994	8.4	93	828	3.0	12	433	0.52	471	<1.0	14	41
12/14/1994	7.7	104	806	2.0	13	423	0.52	441	<1.0	12	41
02/14/1995	8.4	105	792	2.0	18	446	0.51	444	<1.0	12	41
04/12/1995	8.4	103	862	2.0	24	453	0.49	435	<1.0	12	39
06/14/1995	8.1	98	816	3.0	11	431	0.56	474	<1.0	14	44
08/09/1995	8.6	99	832	2.0	13	348	0.52	461	<1.0	14	40
10/04/1995	8.5	96	854	3.0	14	402	0.48	476	<1.0	12	41
12/06/1995	8.5	128	848	3.0	13	417	0.54	463	<1.0	13	44
02/22/1996	8.3	118	852	2.0	23	389	0.52	456	<1.0	12	33
08/27/1997	7.7	95	832	6.0	14	390	0.15	478	<1.0	15	39
10/15/1997	8.2	95	862	4.0	13	383	0.62	508	<1.0	14	39
12/07/1997	7.9	95	834	2.0	14	398	0.49	485	<1.0	13	38
02/04/1998	8.7	98	866	3.0	14	382	0.48	478	<1.0	13	39
04/14/1998	8.2	86	816	2.0	15	393	0.50	438	<1.0	13	41
06/10/1998	8.0	96	906	2.0	33	366	0.45	413	<1.0	15	40
08/04/1998	8.5	93	896	2.0	24	374	0.52	438	<1.0	15	38
10/28/1998	8.4	92	854	2.0	16	445	0.57	490	<1.0	15	38
12/09/1998	8.0	92	840	2.0	19	432	0.48	482	<1.0	14	39
02/10/1999	7.4	96	878	2.0	27	419	0.50	482	<1.0	12	40
04/23/1999	7.3	98	826	2.0	17	407	0.49	493	<1.0	14	41
06/29/1999	6.8	94	832	2.0	18	425	0.49	482	<1.0	16	40
08/30/1999	7.8	96	848	2.0	19	418	0.44	486	<1.0	11	38
10/18/1999	7.7	92	894	2.0	18	354	0.52	480	<1.0	13	39
12/01/1999	7.9	92	854	3.0	18	426	0.50	524	<1.0	14	39
02/02/2000	8.5	120	824	3.0	22	351	0.62	467	<1.0	12	39
04/27/2000	7.8	115	860	3.0	21	365	0.55	475	<1.0	13	40
06/19/2000	7.9	82	1034	5.0	18	583	0.51	489	<1.0	14	39
08/16/2000	7.9	107	1042	2.0	32	427	0.43	605	<1.0	14	37
10/04/2000	7.6	109	848	2.0	20	440	0.54	449	<1.0	14	38
12/06/2000	7.2	111	854	1.0	19	454	0.50	492	<1.0	13	37
02/14/2001	8.6	75	830	2.0	22	409	0.54	514	39	13	39
04/24/2001	8.3	106	832	2.0	21	446	0.54	508	<1.0	13	40
06/13/2001	8.1	132	888	1.0	23	354	0.54	477	<1.0	14	40
08/15/2001	8.0	116	898	1.0	28	411	0.57	484	<1.0	15	39
10/02/2001	8.4	108	896	2.0	22	444	0.54	441	<1.0	14	39
12/11/2001	8.1	105	982	2.0	24	406	0.57	456	<1.0	13	39

TABLE 4-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-2 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/14/2002	8.1	100	822	4.0	29	383	0.54	455	<1.0	13	40
04/24/2002	7.4	113	846	2.0	22	406	0.55	479	<1.0	14	41
06/12/2002	7.6	39	890	2.0	23	416	0.55	485	<1.0	14	39
10/15/2003	8.1	103	848	2.0	29	420	0.55	439	<1.0	14	39
06/29/2004	7.4	88	855	3.0	31	371	0.63	459	<1.0	14	41
08/25/2004	7.2	110	826	5.0	30	397	0.58	412	<1.0	14	39
10/27/2004	7.3	42	930	3.0	32	388	0.55	464	<1.0	14	37
12/08/2004	7.2	41	857	2.0	31	385	0.57	430	<1.0	13	39
06/08/2005	7.8	92	926	1.0	63	374	0.52	453	<1.0	14	40
11/02/2005	7.6	33	874	1.0	30	437	0.49	452	<1.0	14	36
12/14/2005	7.6	88	872	1.0	31	422	0.50	451	<1.0	13	40
04/25/2006	7.8	106	970	0.70	42	408	0.51	451	<1.0	14	40
06/28/2006	7.7	36	900	0.60	31	422	0.46	463	<1.0	14	38
07/12/2006	7.4	49	908	0.80	34	421	0.50	471	<1.0	14	37
09/07/2006	7.7	45	902	0.70	31	409	0.49	452	<1.0	14	38
10/12/2006	7.5	36	870	0.80	34	469	0.45	445	2.0	12	38
01/04/2007	7.6	49	872	0.80	33	414	0.50	452	<1.0	13	40
02/22/2007	7.8	106	862	0.70	34	384	0.50	460	<1.0	12	40
03/21/2007	7.8	52	874	0.80	40	467	0.52	458	<1.0	14	39
05/31/2007	7.8	92	888	1.2	37	451	0.50	459	<1.0	15	39
07/11/2007	7.6	88	884	0.60	34	390	0.54	458	<1.0	14	40
09/11/2007	7.8	109	858	0.90	35	406	0.53	451	<1.0	14	38
09/17/2008	7.3	88	902	1.0	37	369	0.57	445	10	18	40
11/13/2008	7.8	59	900	1.0	36	411	0.55	434	<1.0	13	40
02/10/2009	7.4	67	890	1.7	1149	400	0.57	458	<1.0	14	37
06/10/2009	7.9	47	854	1.0	38	391	0.58	429	<1.0	14	43
09/10/2009	7.9	47	818	1.0	38	405	0.57	411	<1.0	14	43
11/24/2009	7.6	63	822	1.0	39	398	0.56	414	<1.0	13	37
12/16/2009	7.6	63	838	1.0	38	409	0.56	469	<1.0	13	40
01/20/2010	7.9	58	828	<1.0	43	379	0.55	472	<1.0	13	40
07/28/2010	7.6	79	888	<1.0	37	408	0.56	398	<1.0	13	44
09/15/2010	7.5	67	900	<1.0	32	421	0.60	473	<1.0	16	39
10/06/2010	7.6	61	842	1.0	37	402	0.58	474	<1.0	15	40

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-3: GROUNDWATER QUALITY DATA FOR WELL MW-3 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/10/1994	7.0	105	808	1.0	17	403	0.26	400	<1.0	14	37
04/14/1994	8.2	99	804	2.0	13	-	0.18	431	<1.0	14	36
06/02/1994	7.8	99	830	2.0	43	413	0.15	468	<1.0	13	34
08/04/1994	8.2	96	842	2.0	7.0	470	0.24	456	<1.0	16	40
10/20/1994	8.5	92	784	2.0	7.0	413	0.24	431	<1.0	15	36
12/15/1994	7.9	104	802	3.0	9.0	434	0.27	420	<1.0	13	34
02/02/1995	8.1	100	844	2.0	17	359	0.24	418	<1.0	14	36
04/13/1995	7.7	98	824	3.0	16	416	0.16	425	<1.0	14	36
06/01/1995	8.1	89	808	1.0	9.0	423	0.21	434	<1.0	18	36
08/03/1995	8.6	92	768	1.0	9.0	436	0.21	437	<1.0	16	36
10/12/1995	6.9	96	824	2.0	9.0	434	0.22	445	<1.0	12	36
12/14/1995	7.9	101	822	3.0	14	406	0.24	424	<1.0	11	36
02/07/1996	7.8	100	812	3.0	6.0	429	0.21	438	<1.0	13	36
04/11/1996	7.8	97	806	2.0	9.0	409	0.22	443	<1.0	14	36
06/26/1996	7.9	96	830	3.0	10	426	0.21	439	<1.0	15	37
08/28/1996	8.1	96	796	2.0	8.0	344	0.20	432	<1.0	14	36
10/03/1996	7.6	96	860	2.0	8.0	411	0.20	436	<1.0	14	36
12/12/1996	8.1	98	804	2.0	8.0	409	0.12	431	<1.0	13	36
02/27/1997	7.9	96	836	2.0	22	395	0.14	450	<1.0	13	36
04/10/1997	7.9	98	840	1.0	10	340	0.04	449	<1.0	14	37
06/12/1997	8.0	93	982	1.0	10	425	0.14	439	<1.0	15	89
08/08/1997	7.6	94	822	3.0	8.0	378	0.19	424	<1.0	14	36
10/16/1997	8.1	96	810	3.0	9.0	390	0.23	475	<1.0	14	36
12/03/1997	7.8	87	814	2.0	10	387	0.26	453	<1.0	13	36
02/05/1998	7.9	97	824	2.0	14	412	0.27	448	<1.0	14	36
04/15/1998	7.8	91	798	2.0	12	430	0.30	439	<1.0	14	36
06/04/1998	7.9	92	784	2.0	11	401	0.25	443	<1.0	15	36
08/27/1998	7.8	97	918	2.0	11	447	0.22	447	<1.0	14	37
10/08/1998	7.9	91	768	1.0	12	470	0.29	420	<1.0	15	38
12/10/1998	7.8	77	774	1.0	11	434	0.23	445	<1.0	13	37
02/18/1999	7.8	94	776	1.0	21	583	0.20	441	<1.0	15	38
04/01/1999	8.0	87	810	2.0	10	439	0.32	447	<1.0	15	38
06/30/1999	7.0	90	824	1.0	12	386	0.32	448	<1.0	16	37
08/18/1999	7.4	89	894	2.0	40	412	0.24	462	<1.0	17	37
10/27/1999	7.8	84	766	2.0	9.0	408	0.21	470	<1.0	14	37
12/09/1999	8.0	84	784	3.0	11	418	0.33	447	<1.0	14	37
02/10/2000	8.0	86	788	2.0	30	346	0.37	450	<1.0	14	37
04/12/2000	7.0	94	826	3.0	20	390	0.37	430	<1.0	14	37
06/22/2000	8.2	101	820	4.0	44	445	0.34	449	<1.0	14	37
08/24/2000	8.0	103	810	1.0	11	416	0.34	434	<1.0	15	37

TABLE 4-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-3 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/25/2000	8.0	101	796	2.0	9.0	449	0.36	448	<1.0	15	37
12/14/2000	7.8	77	798	1.0	11	421	0.37	447	<1.0	13	30
02/15/2001	8.1	79	814	2.0	10	466	0.35	487	<1.0	13	37
04/26/2001	8.1	79	828	1.0	12	435	0.32	468	<1.0	14	38
06/21/2001	7.9	105	796	1.0	11	463	0.37	468	<1.0	15	38
08/16/2001	8.3	113	852	1.0	34	438	0.30	455	<1.0	14	37
10/18/2001	6.9	104	820	1.0	9.0	408	0.25	363	<1.0	14	37
12/06/2001	8.6	78	850	1.0	9.0	416	0.33	433	<1.0	14	34
02/27/2002	8.3	78	822	2.0	11	396	0.34	474	<1.0	12	37
04/25/2002	7.2	110	804	2.0	22	421	0.30	445	<1.0	14	37
06/13/2002	7.8	105	944	2.0	51	431	0.31	431	4.0	14	39
08/15/2002	7.8	95	890	3.0	48	343	0.67	434	24	15	38
10/24/2002	6.8	98	828	2.0	11	419	0.43	412	<1.0	14	37
12/19/2002	7.3	93	842	2.0	20	406	0.31	411	<1.0	14	36
02/06/2003	8.0	102	834	2.0	15	420	0.34	420	<1.0	13	37
04/24/2003	7.2	93	834	2.0	10	464	0.32	423	<1.0	14	38
06/12/2003	7.9	78	820	3.0	10	412	0.33	436	<1.0	15	38
08/14/2003	7.7	89	888	2.0	24	339	0.33	451	<1.0	15	37
10/16/2003	7.5	96	806	2.0	12	426	0.39	411	<1.0	14	37
12/18/2003	7.4	43	838	2.0	8.0	425	0.30	419	<1.0	12	36
02/25/2004	6.9	41	806	2.0	13	434	0.41	445	<1.0	14	36
04/29/2004	7.9	60	844	2.0	12	421	0.33	409	<1.0	14	37
06/10/2004	7.1	65	858	2.0	12	375	0.32	431	<1.0	15	37
08/19/2004	7.5	88	812	3.0	14	411	0.30	418	<1.0	14	37
10/28/2004	7.4	104	870	3.0	14	408	0.31	432	<1.0	14	37
12/16/2004	7.4	82	804	1.0	12	411	0.31	416	<1.0	13	38
02/03/2005	7.4	49	873	2.0	19	437	0.36	437	<1.0	13	37
04/20/2005	7.2	90	868	1.0	14	435	0.32	430	<1.0	15	38
06/09/2005	7.6	56	832	1.0	11	402	0.28	434	<1.0	14	37
08/18/2005	7.4	87	788	1.0	12	420	0.26	422	<1.0	15	37
10/20/2005	7.3	32	832	1.0	13	442	0.46	417	<1.0	14	35
02/09/2006	7.7	45	768	0.90	14	588	0.30	431	<1.0	13	36
03/22/2006	7.9	89	866	0.60	13	429	0.36	448	<1.0	14	37
04/13/2006	7.0	51	756	0.70	12	425	0.26	459	<1.0	15	37
06/29/2006	7.6	110	812	0.60	14	443	0.27	436	<1.0	16	36
10/19/2006	8.2	95	854	0.70	17	446	0.25	418	<1.0	14	37
11/30/2006	8.0	91	800	0.70	11	471	0.27	429	<1.0	14	37
01/25/2007	7.7	51	892	0.50	14	430	0.27	423	<1.0	14	37
03/15/2007	7.8	99	846	0.60	13	386	0.27	435	<1.0	14	35

TABLE 4-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-3 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
04/26/2007	7.5	98	842	0.60	14	408	0.28	438	<1.0	14	41
08/09/2007	7.6	94	896	0.60	12	417	0.31	435	<1.0	17	35
11/01/2007	7.7	50	844	0.50	12	454	0.33	437	<1.0	14	36
12/06/2007	7.6	53	852	0.70	11	444	0.31	432	<1.0	13	36
04/03/2008	7.5	89	834	0.50	13	447	0.32	424	<1.0	14	38
05/08/2008	7.5	109	794	0.50	14	426	0.32	427	<1.0	14	38
06/26/2008	7.5	91	814	0.60	11	420	0.33	431	<1.0	16	39
07/31/2008	7.4	56	880	0.40	10	433	0.33	428	<1.0	15	36
09/11/2008	7.9	113	862	1.0	10	447	0.35	428	3.0	16	37
11/19/2008	7.6	55	852	1.0	11	443	0.34	403	<1.0	14	37
04/02/2009	7.4	64	806	<1.0	16	417	0.34	418	<1.0	12	37
05/14/2009	7.6	62	852	1.0	21	456	0.33	399	<1.0	15	39
06/11/2009	7.5	66	1576	<1.0	14	441	0.34	413	<1.0	15	38
07/11/2009	7.6	59	882	<1.0	18	423	0.32	433	<1.0	15	39
09/24/2009	7.4	64	812	<1.0	11	415	0.31	427	<1.0	16	37
12/02/2009	7.6	60	856	1.0	16	432	0.31	405	<1.0	14	39
04/29/2010	7.6	49	840	<1.0	<15	471	0.32	420	<1.0	15	38
05/27/2010	7.2	57	956	<1.0	<15	435	0.33	429	<1.0	16	39
08/12/2010	7.5	58	1034	<1.0	<15	447	0.34	440	<1.0	13	40
10/07/2010	7.3	57	818	<1.0	<15	423	0.33	433	<1.0	15	36
11/04/2010	7.8	50	808	<1.0	<15	392	0.29	443	<1.0	14	34
12/01/2010	7.8	40	836	<1.0	17	442	0.34	458	<1.0	13	33
01/27/2011	7.0	85	854	<1.0	16	450	0.34	445	<1.0	14	36
03/31/2011	7.3	51	852	<1.0	19	432	0.26	426	<1.0	13	32
05/19/2011	7.0	97	872	<1.0	21	413	0.28	442	2.0	16	38
07/20/2011	7.4	46	960	1.1	12	398	0.35	445	<1.0	16	40
09/22/2011	7.9	68	804	<1.0	15	447	0.32	429	6.0	15	39
11/22/2011	7.7	60	804	<1.0	13	407	0.36	456	<1.0	14	38
01/26/2012	7.0	68	898	1.0	99	412	0.37	423	<1.0	13	36
03/15/2012	7.8	58	828	<1.0	14	408	0.34	449	<1.0	15	41
05/24/2012	7.6	66	820	<1.0	13	431	0.34	474	<1.0	16	42
08/16/2012	7.7	54	830	9.0	13	458	0.33	427	<1.0	20	37
10/17/2012	7.5	49	838	<1.0	12	447	0.33	464	<1.0	15	40
12/12/2012	7.5	63	772	<1.0	15	424	0.33	410	<1.0	14	34
02/21/2013	7.3	75	804	<1.0	17	447	0.34	483	<1.0	13	34
05/23/2013	7.5	97	838	<1.0	<10	426	0.34	471	<1.0	14	34
08/28/2013	7.7	77	852	<1.0	13	451	0.34	460	<1.0	16	39
09/12/2013	7.8	87	836	<1.0	12	448	0.34	443	<1.0	16	31
10/16/2013	7.3	81	828	<1.0	15	397	0.32	452	<1.0	14	39

TABLE 4-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-3 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
11/14/2013	7.7	70	808	1.0	14	424	0.34	469	<1.0	14	38

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-4: GROUNDWATER QUALITY DATA FOR WELL MW-4 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
03/10/1994	7.1	126	944	1.0	47	397	0.16	546	<1.0	13	-3.0
04/07/1994	8.1	114	956	2.0	47	-	0.09	577	<1.0	13	21
06/02/1994	7.6	111	966	2.0	54	386	0.11	610	<1.0	13	-4.0
08/04/1994	7.9	117	1030	3.0	43	473	0.11	608	<1.0	13	-3.0
10/20/1994	8.2	115	942	4.0	42	380	0.12	581	<1.0	14	-1.0
12/01/1994	8.0	124	976	2.0	47	389	0.12	576	<1.0	13	-1.0
02/02/1995	7.5	123	948	1.0	55	311	0.12	563	<1.0	11	-6.0
04/13/1995	7.8	119	958	5.0	48	445	0.05	572	<1.0	13	-8.0
06/01/1995	7.5	114	980	1.0	51	413	0.11	589	<1.0	18	-1.0
08/03/1995	8.8	113	944	2.0	45	420	0.10	593	<1.0	15	0
10/12/1995	6.8	115	1016	3.0	44	427	0.22	599	<1.0	12	0
12/14/1995	8.0	123	966	5.0	44	396	0.17	582	<1.0	12	-1.0
02/07/1996	7.5	121	998	3.0	46	416	0.09	600	<1.0	12	-1.0
04/11/1996	7.6	114	952	5.0	48	376	0.08	592	<1.0	14	-1.0
06/26/1996	7.6	117	1010	5.0	46	405	0.11	596	<1.0	14	0
08/28/1996	7.8	112	856	4.0	44	383	0.10	583	<1.0	14	-1.0
10/03/1996	7.7	118	992	4.0	45	405	0.09	592	<1.0	13	-1.0
12/12/1996	8.0	119	936	4.0	45	378	0.04	583	<1.0	13	0
02/27/1997	7.6	116	976	3.0	57	376	<0.10	596	<1.0	12	-1.0
04/10/1997	7.4	114	934	1.0	48	384	<0.10	606	<1.0	13	-75
06/12/1997	7.0	109	838	2.0	48	404	<0.10	576	<1.0	17	-2.0
08/08/1997	7.4	112	996	7.0	49	360	0.03	557	<1.0	14	-3.0
10/16/1997	7.8	114	946	6.0	46	350	0.01	623	<1.0	14	-1.0
12/03/1997	8.0	110	958	2.0	46	358	0.02	601	<1.0	12	-1.0
02/05/1998	7.5	120	968	2.0	47	383	<0.01	604	<1.0	12	-1.0
04/15/1998	8.0	112	956	2.0	48	384	0.04	586	<1.0	14	-1.0
06/04/1998	7.8	111	936	2.0	47	384	<0.01	594	<1.0	15	0
08/27/1998	8.0	98	1110	2.0	48	420	0.09	612	<1.0	14	1.0
10/08/1998	7.5	111	918	2.0	48	649	0.05	577	<1.0	15	1.0
12/10/1998	7.6	101	940	1.0	49	383	<0.01	605	<1.0	12	-1.0
02/18/1999	7.5	116	924	2.0	49	400	<0.01	603	<1.0	15	0
04/01/1999	7.6	106	1014	2.0	47	400	0.09	590	<1.0	15	-2.0
06/30/1999	6.9	112	1000	2.0	49	355	0.08	606	<1.0	16	-2.0
08/18/1999	7.6	113	1046	2.0	97	360	<0.01	610	<1.0	16	-4.0
10/27/1999	7.6	117	942	3.0	48	363	<0.01	626	<1.0	13	-3.0
12/09/1999	7.6	121	924	5.0	51	443	0.07	629	<1.0	13	-32
02/10/2000	7.6	100	942	2.0	69	314	0.14	596	<1.0	13	-2.0
04/12/2000	7.2	119	956	3.0	49	363	0.14	571	<1.0	13	-1.0
08/24/2000	7.6	119	958	2.0	51	390	0.15	552	<1.0	14	-2.0
02/22/2001	7.8	114	1042	1.0	50	405	0.20	619	<1.0	12	-2.0

TABLE 4-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-4 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
04/26/2001	7.9	93	976	2.0	50	405	0.13	600	4.0	14	-4.0
06/21/2001	7.6	119	938	1.0	52	340	0.15	598	<1.0	14	-6.0
08/16/2001	7.7	116	936	1.0	49	402	0.11	589	<1.0	14	-5.0
10/18/2001	7.4	117	958	1.0	49	367	0.08	512	<1.0	13	0
12/06/2001	8.0	122	972	1.0	50	374	0.08	558	<1.0	13	-54
02/27/2002	7.7	111	934	2.0	56	350	0.10	624	<1.0	10	-5.0
04/25/2002	7.7	123	954	2.0	56	374	0.11	575	<1.0	13	-5.0
06/13/2002	7.5	117	976	2.0	46	384	0.09	549	<1.0	14	-3.0
08/15/2002	7.4	93	1014	3.0	53	396	0.16	649	<1.0	14	-7.0
10/24/2002	6.9	108	957	2.0	51	371	0.11	529	<1.0	13	-4.0
12/19/2002	7.3	106	1016	3.0	48	361	0.20	528	<1.0	13	-3.0
02/06/2003	7.6	122	936	3.0	49	385	0.11	541	<1.0	13	-8.0
04/24/2003	7.5	108	979	3.0	48	403	0.12	541	<1.0	14	-2.0
06/12/2003	7.6	105	972	3.0	47	369	0.10	562	<1.0	14	-3.0
08/14/2003	7.9	102	982	2.0	48	327	0.11	533	<1.0	14	-3.0
10/16/2003	7.8	95	938	2.0	55	416	0.12	522	<1.0	14	-2.0
12/18/2003	7.4	36	982	2.0	47	412	0.08	543	<1.0	12	-2.0
02/25/2004	6.8	39	934	2.0	50	452	0.17	560	<1.0	13	-4.0
04/29/2004	8.1	53	961	2.0	55	386	0.09	526	<1.0	14	-5.0
06/10/2004	7.2	54	996	2.0	48	380	0.10	554	<1.0	14	1.0
08/19/2004	7.8	101	918	3.0	44	366	0.04	529	<1.0	14	-4.0
10/28/2004	7.2	127	1036	2.0	48	375	0.02	535	<1.0	14	-5.0
02/03/2005	7.6	61	950	1.0	48	374	0.13	543	<1.0	13	-2.0
06/09/2005	7.5	66	1012	2.0	46	341	0.12	491	<1.0	14	-2.0
08/18/2005	7.3	102	946	1.0	47	373	2.24	522	<1.0	14	-5.0
10/20/2005	7.5	46	912	1.0	50	381	0.08	509	<1.0	13	-2.0
02/09/2006	7.3	49	820	0.80	49	509	0.11	530	<1.0	13	-5.0
03/22/2006	7.5	103	968	0.80	59	371	<0.02	545	<1.0	14	-6.0
04/13/2006	7.0	110	910	0.60	48	378	0.07	559	<1.0	14	-9.0
06/29/2006	7.7	135	954	0.70	54	375	0.09	520	<1.0	15	-6.0
10/19/2006	8.0	110	916	0.60	47	389	0.06	533	<1.0	13	-5.0
11/30/2006	7.7	108	850	0.60	44	402	0.05	542	<1.0	13	-5.0
01/25/2007	7.6	55	970	0.50	52	421	0.03	517	<1.0	13	-6.0
03/15/2007	7.8	113	944	0.50	51	339	0.04	540	<1.0	13	-7.0
04/26/2007	7.7	110	952	0.60	68	349	0.05	532	<1.0	14	0
08/09/2007	7.5	105	1012	0.60	58	353	0.09	543	<1.0	16	-1.0
11/01/2007	7.6	55	926	0.40	56	400	0.09	517	<1.0	13	-8.0
12/06/2007	7.4	59	928	0.50	45	384	0.07	516	<1.0	11	-7.0
04/03/2008	7.5	95	910	0.50	64	380	0.10	507	<1.0	14	-5.0
05/08/2008	7.8	128	906	0.50	65	372	0.08	526	<1.0	14	-5.0

TABLE 4-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-4 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
06/26/2008	7.5	99	914	0.40	56	357	0.11	531	<1.0	14	-3.0
07/31/2008	7.5	61	1046	0.30	50	366	0.06	541	<1.0	14	-5.0
09/11/2008	7.8	133	940	1.0	56	378	0.06	512	2.0	15	-6.0
11/19/2008	7.7	80	2486	1.0	68	382	0.04	490	<1.0	13	-9.0
04/02/2009	7.6	73	940	<1.0	67	356	0.12	499	<1.0	13	-7.0
05/14/2009	7.7	75	952	<1.0	63	389	0.06	491	<1.0	14	-9.0
07/16/2009	7.1	80	984	<1.0	67	365	0.07	482	1.0	15	-6.0
09/24/2009	7.6	69	930	<1.0	60	351	0.04	513	<1.0	13	-6.0
12/02/2009	7.6	69	914	1.4	68	365	0.08	516	1.0	13	-2.0
04/29/2010	8.1	83	972	<1.0	60	377	0.11	519	<1.0	14	-6.1
05/27/2010	7.6	77	1052	<1.0	54	373	0.07	519	<1.0	15	-5.1
08/12/2010	8.0	90	1174	<1.0	71	381	0.10	535	2.0	17	-2.1
10/07/2010	7.5	67	956	<1.0	65	371	0.08	523	<1.0	14	-8.1
11/04/2010	7.8	65	924	<1.0	55	347	0.08	547	<1.0	13	-12
12/01/2010	7.6	55	910	<1.0	59	375	0.07	560	<1.0	11	-13
01/27/2011	7.4	101	952	<1.0	70	375	<0.10	555	<1.0	12	-16
03/31/2011	7.6	67	926	<1.0	60	366	<0.10	534	<1.0	13	-13
05/19/2011	7.5	104	988	<1.0	59	364	<0.10	548	<1.0	14	-7.1
07/20/2011	7.4	67	1102	<1.0	59	354	<0.10	556	<1.0	15	-18
09/22/2011	7.8	80	964	<1.0	62	419	<0.10	560	2.0	14	-7.1
11/22/2011	7.6	64	922	<1.0	64	359	0.14	555	<1.0	13	-12
01/26/2012	7.6	70	912	<1.0	69	372	<0.10	558	<1.0	13	-13
03/15/2012	7.8	79	944	<1.0	58	361	<0.10	566	<1.0	14	-3.0
05/24/2012	7.6	74	904	<1.0	63	368	0.11	587	<1.0	14	-3.0
08/16/2012	7.6	69	958	9.0	60	386	0.10	555	<1.0	22	-2.0
10/17/2012	7.6	56	940	<1.0	62	372	<0.10	543	<1.0	16	-7.0
12/12/2012	7.6	70	880	<1.0	64	368	0.23	541	<1.0	13	-20
02/21/2013	7.8	74	882	1.0	84	356	<0.10	521	<1.0	13	-23
05/23/2013	7.4	99	952	<1.0	<10	365	<0.10	536	<1.0	14	-20
08/28/2013	7.7	103	1024	<1.0	65	368	0.17	564	<1.0	14	-10
09/12/2013	7.6	100	958	<1.0	62	382	0.11	573	<1.0	14	-25
10/16/2013	7.8	101	956	<1.0	67	378	0.31	558	2.0	14	-7.1
11/14/2013	7.7	96	952	<1.0	66	379	<0.10	564	<1.0	14	-9.1

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-5: GROUNDWATER QUALITY DATA FOR WELL MW-5 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
03/10/1994	7.2	126	954	2.0	64	401	0.41	454	<1.0	13	-49
04/14/1994	8.1	112	850	2.0	57	-	0.38	407	<1.0	13	-53
06/02/1994	8.4	114	902	2.0	9.0	376	0.35	498	<1.0	13	-49
08/04/1994	8.1	121	1020	2.0	59	476	0.33	530	<1.0	16	-48
10/06/1994	7.4	111	972	3.0	70	428	0.34	525	1.0	14	-58
12/01/1994	8.2	127	966	2.0	68	386	0.24	490	<1.0	14	-48
02/02/1995	8.2	116	910	2.0	78	333	0.38	415	<1.0	14	-49
04/13/1995	8.4	119	914	3.0	68	449	0.36	465	<1.0	13	-50
06/01/1995	8.2	107	888	2.0	54	406	0.33	443	<1.0	15	-49
08/03/1995	8.8	113	876	2.0	54	400	0.12	452	<1.0	18	-46
10/12/1995	6.8	111	902	2.0	55	393	0.01	457	<1.0	13	-45
12/14/1995	7.8	100	922	4.0	104	324	0.04	399	<1.0	11	-46
02/07/1996	8.0	149	1084	3.0	187	378	0.10	394	<1.0	12	-47
04/11/1996	8.0	135	1066	4.0	191	344	0.04	405	<1.0	14	-47
06/26/1996	8.1	112	856	5.0	106	15	0.02	347	2.0	18	-45
08/28/1996	8.1	108	1028	3.0	74	341	0.05	370	<1.0	16	-42
10/03/1996	8.2	110	856	4.0	65	350	<0.01	380	<1.0	14	-44
12/12/1996	8.2	125	890	4.0	66	385	<0.01	461	<1.0	12	-44
02/27/1997	7.5	110	1406	2.0	398	342	<0.10	424	<1.0	13	-39
04/10/1997	8.0	110	1146	1.0	151	408	<0.10	530	<1.0	14	-122
06/12/1997	7.0	124	1130	2.0	90	444	<0.10	594	16	16	-54
08/08/1997	7.5	111	1086	7.0	60	422	<0.10	565	6.0	14	-42
10/16/1997	7.8	101	1008	6.0	58	310	<0.10	607	<1.0	16	-40
12/03/1997	8.5	108	900	2.0	58	377	<0.10	457	<1.0	13	-45
02/05/1998	8.5	123	906	2.0	133	315	<0.01	374	<1.0	13	-48
04/15/1998	7.8	110	888	2.0	137	339	0.29	359	<1.0	14	-47
06/04/1998	8.2	108	838	3.0	106	326	0.48	445	<1.0	15	-49
08/27/1998	7.8	112	818	3.0	115	318	<0.01	314	<1.0	17	-46
10/08/1998	8.2	101	754	2.0	94	393	0.02	308	<1.0	17	-50
12/10/1998	7.8	77	670	2.0	75	271	<0.01	287	<1.0	14	-49
02/18/1999	7.7	112	806	1.0	99	303	0.10	343	<1.0	16	-38
04/01/1999	8.0	106	852	1.0	107	333	0.02	355	<1.0	15	-45
06/30/1999	6.9	114	864	2.0	124	275	0.16	363	2.0	18	-36
08/18/1999	7.2	129	956	2.0	78	351	0.07	513	<1.0	17	-36
10/27/1999	7.4	136	974	2.0	104	343	<0.01	552	<1.0	14	-36
12/09/1999	7.6	114	1028	3.0	79	418	0.03	597	<1.0	14	-35
02/10/2000	7.5	109	1006	2.0	73	332	0.07	563	<1.0	14	-37
04/12/2000	7.8	102	996	3.0	114	307	0.12	442	<1.0	14	-36
06/22/2000	7.9	100	950	6.0	85	348	0.10	456	<1.0	15	-37
08/24/2000	7.3	107	942	2.0	121	319	0.06	416	<1.0	15	-37

TABLE 4-5 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-5 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
10/25/2000	7.8	101	924	2.0	88	349	0.09	437	<1.0	15	-37
12/14/2000	7.5	99	816	1.0	83	314	0.08	348	<1.0	14	-38
02/15/2001	8.0	138	1172	2.0	271	340	0.07	415	3.0	13	-35
04/26/2001	8.5	109	1032	1.0	171	309	0.06	291	<1.0	14	-53
06/21/2001	8.1	117	970	2.0	215	293	0.09	281	2.0	15	-54
08/16/2001	8.2	114	882	1.0	185	302	0.06	273	6.0	15	-57
10/18/2001	7.6	121	794	1.0	110	268	0.02	335	14	14	-25
12/06/2001	8.5	87	818	2.0	101	294	0.04	280	<1.0	14	-54
02/27/2002	8.6	90	670	2.0	54	247	0.04	215	<1.0	14	-44
04/25/2002	7.3	98	606	2.0	52	271	0.11	224	<1.0	14	-48
06/13/2002	7.9	77	772	3.0	59	270	0.09	255	80	14	-37
08/15/2002	7.7	88	926	2.0	14	440	0.35	504	2.0	15	-44
10/24/2002	6.8	110	798	2.0	49	310	0.03	316	<1.0	14	-37
12/19/2002	8.1	88	764	2.0	40	292	<0.02	227	<1.0	12	-47
02/06/2003	8.2	92	754	2.0	66	306	0.04	215	<1.0	14	-47
04/24/2003	7.4	106	792	3.0	87	298	0.12	245	<1.0	14	-45
06/12/2003	7.9	85	758	2.0	73	259	0.04	269	<1.0	15	-46
08/14/2003	7.5	92	696	3.0	87	193	0.06	222	<1.0	16	-50
10/16/2003	7.5	107	658	3.0	79	282	0.09	218	<1.0	14	-50
12/18/2003	7.3	33	674	2.0	52	268	0.18	245	<1.0	12	-50
02/25/2004	7.1	49	912	2.0	179	298	0.21	277	<1.0	14	-50
04/29/2004	8.0	55	872	2.0	132	297	0.25	297	<1.0	15	-51
06/10/2004	7.0	55	720	2.0	66	255	0.10	263	<1.0	15	-39
08/19/2004	7.6	84	690	4.0	60	263	<0.02	232	<1.0	15	-49
10/28/2004	7.4	99	696	2.0	50	274	0.19	236	<1.0	15	-53
12/16/2004	7.5	73	642	2.0	49	233	0.19	240	<1.0	14	-49
02/03/2005	7.6	76	884	1.0	218	211	0.11	229	<1.0	12	-45
04/20/2005	7.5	117	906	5.0	150	262	0.14	277	<1.0	14	-50
06/09/2005	7.9	72	854	2.0	110	251	0.22	296	<1.0	15	-51
10/20/2005	7.6	49	846	1.0	149	252	0.21	252	<1.0	14	-50
02/09/2006	7.2	82	1248	1.3	424	378	<0.02	295	<1.0	13	-57
03/22/2006	7.3	160	1208	0.90	343	256	<0.02	306	<1.0	13	-55
04/13/2006	7.0	144	1008	1.1	233	267	<0.02	313	<1.0	15	-57
06/29/2006	8.1	170	1006	1.2	287	206	<0.02	211	2.0	16	-53
11/30/2006	8.3	105	686	2.3	121	210	0.05	202	<1.0	14	-55
12/14/2006	8.1	48	748	1.0	136	214	0.12	225	<1.0	14	-53
01/25/2007	7.9	50	642	1.5	153	151	0.02	157	<1.0	12	-54
03/15/2007	7.6	165	2166	0.50	961	176	0.02	225	<1.0	11	-56
04/26/2007	7.5	183	792	0.50	330	92	0.02	66	<1.0	14	-52
08/09/2007	7.8	159	1058	1.2	341	185	0.24	237	1700	17	-51

TABLE 4-5 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-5 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
11/01/2007	7.8	52	684	0.80	49	284	0.10	299	2.0	14	-53
12/06/2007	7.5	61	832	2.0	54	322	0.02	359	<1.0	12	-54
04/03/2008	7.4	109	916	0.40	133	334	0.12	381	<1.0	12	-51
05/08/2008	7.9	133	886	0.60	119	321	0.02	364	1.0	14	-53
06/26/2008	7.6	111	890	0.70	127	298	0.02	338	<1.0	16	-51
07/31/2008	7.5	94	984	0.40	176	280	0.02	297	9.0	14	-55
09/11/2008	8.2	143	856	1.0	149	261	0.02	250	6.0	15	-52
11/19/2008	7.7	81	914	1.0	132	313	0.05	316	1.0	14	-54
04/02/2009	9.0	134	1378	<1.0	597	150	0.06	146	1.0	13	-55
05/14/2009	8.3	105	988	<1.0	264	390	<0.02	234	<1.0	14	-57
06/11/2009	7.6	78	1936	<1.0	211	309	0.02	275	<1.0	14	-56
07/19/2009	7.9	92	886	1.9	189	354	0.18	304	23	16	-57
09/24/2009	7.3	106	890	<1.0	226	205	0.09	197	2.0	19	-56
12/02/2009	8.2	85	810	1.3	184	227	0.05	201	<1.0	13	-56
04/29/2010	8.9	87	780	<1.0	277	126	<0.02	116	<1.0	14	-56
05/27/2010	8.4	87	784	<1.0	206	179	0.03	174	<1.0	15	-54

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-6: GROUNDWATER QUALITY DATA FOR WELL MW-6 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/23/1994	7.2	110	816	2.0	38	351	0.50	424	<1.0	13	39
04/20/1994	7.8	109	870	3.0	47	-	0.53	446	<1.0	14	61
06/22/1994	7.9	129	1002	3.0	50	427	0.57	572	<1.0	14	23
08/18/1994	8.7	117	1020	2.0	47	415	0.55	487	<1.0	16	12
10/13/1994	7.4	119	1042	3.0	53	472	0.54	571	<1.0	14	13
12/22/1994	7.2	130	970	2.0	60	457	0.53	565	<1.0	13	42
02/14/1995	8.1	112	884	2.0	48	55	0.48	449	<1.0	12	51
04/12/1995	7.6	109	876	3.0	46	431	0.52	435	<1.0	13	53
06/14/1995	7.9	98	808	4.0	36	375	0.54	436	<1.0	14	44
08/09/1995	7.7	106	874	3.0	37	383	0.49	447	<1.0	14	50
10/04/1995	8.0	95	840	4.0	40	370	0.46	451	<1.0	12	50
12/06/1995	8.1	112	804	3.0	38	374	0.49	427	<1.0	12	54
02/21/1996	7.9	104	802	4.0	35	329	0.48	429	<1.0	12	55
04/10/1996	8.0	93	820	4.0	36	347	0.47	428	<1.0	15	55
06/12/1996	7.2	90	772	5.0	34	356	0.46	433	<1.0	14	56
08/01/1996	8.0	102	892	3.0	37	403	0.47	410	<1.0	14	52
10/02/1996	7.7	99	840	3.0	34	378	0.47	422	<1.0	13	50
12/11/1996	7.9	96	805	3.0	37	305	0.45	410	<1.0	12	54
02/25/1997	8.1	99	774	3.0	37	358	0.37	426	<1.0	12	50
04/02/1997	7.6	96	790	2.0	38	262	0.38	387	<1.0	14	56
06/18/1997	7.0	95	774	2.0	33	354	0.49	418	<1.0	15	53
08/13/1997	8.0	89	782	9.0	34	276	0.46	428	<1.0	14	51
10/15/1997	8.1	95	798	4.0	32	300	0.51	454	<1.0	14	52
12/17/1997	8.1	94	826	2.0	33	323	0.45	433	<1.0	14	53
02/04/1998	7.8	98	802	4.0	33	312	0.43	419	<1.0	12	55
04/14/1998	8.0	84	768	3.0	33	362	0.44	402	<1.0	13	56
06/10/1998	8.0	95	980	3.0	15	427	0.48	445	<1.0	15	51
08/04/1998	8.3	93	864	2.0	31	342	0.45	411	<1.0	17	48
10/15/1998	8.2	100	772	2.0	37	363	0.50	433	<1.0	14	50
12/16/1998	7.7	76	716	2.0	40	322	0.31	398	<1.0	13	54
02/03/1999	8.0	95	780	2.0	39	347	0.42	391	<1.0	13	57
04/28/1999	8.1	87	692	2.0	34	325	0.39	386	<1.0	15	57
06/03/1999	7.0	93	810	2.0	36	366	0.43	409	<1.0	16	56
08/30/1999	8.3	99	762	2.0	34	351	0.39	424	<1.0	13	53
10/12/1999	8.0	101	808	2.0	34	362	0.40	416	<1.0	13	53
12/01/1999	8.9	104	770	4.0	36	365	0.45	450	<1.0	12	56
02/07/2000	8.3	109	794	2.0	40	276	0.50	418	<1.0	13	57
04/06/2000	8.3	107	770	4.0	33	314	0.52	421	<1.0	13	57
06/14/2000	7.9	107	770	4.0	33	352	0.52	416	<1.0	14	56
08/23/2000	8.1	104	782	2.0	36	338	0.49	384	<1.0	14	53

TABLE 4-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-6 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/04/2000	6.8	88	774	2.0	36	355	0.51	394	<1.0	13	54
02/15/2001	7.3	101	750	2.0	37	320	0.50	447	<1.0	12	57
04/04/2001	8.1	76	924	2.0	35	342	0.52	420	<1.0	13	58
06/06/2001	7.8	106	918	2.0	63	344	0.49	412	<1.0	13	56
08/08/2001	8.0	113	810	2.0	37	353	0.52	395	<1.0	15	49
10/04/2001	8.3	81	822	2.0	36	295	0.47	359	14	14	55
12/12/2001	7.2	77	772	3.0	35	120	0.51	387	2.0	13	59
02/14/2002	8.0	72	742	4.0	40	321	0.47	381	<1.0	12	58
04/10/2002	8.3	103	776	4.0	32	303	0.46	389	<1.0	13	59
06/19/2002	7.2	61	480	3.0	36	337	0.50	378	1.0	14	54
08/28/2002	7.7	86	920	3.0	93	320	0.60	389	15	14	52
10/02/2002	7.4	81	816	3.0	41	335	0.62	402	<1.0	14	55
12/04/2002	7.3	101	818	3.0	35	323	0.51	376	<1.0	12	57
02/25/2003	8.4	91	788	3.0	40	330	0.51	386	<1.0	13	58
04/23/2003	6.5	103	754	3.0	36	336	0.45	366	1.0	14	58
06/25/2003	7.5	92	786	3.0	38	354	0.51	386	<1.0	14	53
08/27/2003	7.5	92	790	2.0	36	432	0.48	386	<1.0	14	52
10/29/2003	7.9	81	798	2.0	36	371	0.53	369	<1.0	13	56
12/03/2003	7.8	30	834	2.0	43	351	0.50	379	<1.0	13	56
02/25/2004	7.5	22	726	2.0	37	344	0.57	355	<1.0	12	58
04/01/2004	7.4	37	770	4.0	37	348	0.55	360	<1.0	13	56
06/24/2004	7.4	86	744	3.0	38	305	0.50	387	1.0	14	57
08/24/2004	7.1	41	806	4.0	38	340	0.54	378	1.0	14	55
10/27/2004	7.5	85	984	3.0	36	318	0.52	381	<1.0	13	56
12/08/2004	7.4	61	770	2.0	40	303	0.48	346	<1.0	13	58
01/31/2005	6.6	54	816	2.0	41	328	0.48	377	<1.0	13	57
03/23/2005	7.6	53	744	2.0	37	308	0.50	399	<1.0	13	59
05/25/2005	7.7	83	704	2.0	37	206	0.44	380	<1.0	12	59
07/07/2005	7.6	86	770	1.0	42	310	0.54	368	<1.0	15	58
09/14/2005	7.4	40	812	1.0	37	329	0.49	388	<1.0	14	51
11/22/2005	6.9	86	776	1.0	42	323	0.45	381	<1.0	12	57
01/11/2006	7.5	84	732	0.80	39	315	0.46	367	<1.0	13	59
06/14/2006	7.8	108	622	0.80	37	300	0.47	382	<1.0	14	55
07/26/2006	8.3	77	748	0.80	38	338	0.45	388	<1.0	14	58
08/30/2006	7.6	44	784	0.30	40	347	0.41	382	<1.0	15	56
10/04/2006	7.8	98	692	1.2	36	229	0.42	337	480	14	57
11/21/2006	7.6	45	750	1.4	36	315	0.46	372	8.0	12	58
01/29/2007	8.0	45	762	0.90	39	316	0.44	363	<1.0	6.0	59
02/21/2007	8.0	109	732	0.90	42	322	0.46	380	<1.0	12	58
05/15/2007	7.9	50	760	1.0	40	310	0.45	373	<1.0	14	58

TABLE 4-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-6 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
06/13/2007	6.3	83	768	0.80	40	342	0.46	371	<1.0	14	57
09/13/2007	7.7	96	752	0.80	32	325	0.36	372	25	14	58
11/07/2007	7.6	99	802	0.80	53	336	0.50	379	<1.0	13	58
05/29/2008	7.5	87	944	0.60	35	396	0.49	527	<1.0	14	56
07/01/2008	7.5	79	804	0.80	37	330	0.57	378	<1.0	15	60
10/29/2008	7.4	57	758	1.0	35	313	0.47	336	4.0	13	60
11/25/2008	7.8	33	746	1.0	45	318	0.49	343	1.0	13	61
12/03/2008	7.6	99	772	1.0	34	327	0.48	341	<1.0	12	59
02/10/2009	7.6	33	664	2.6	41	252	0.40	294	<1.0	13	57
03/12/2009	7.6	44	718	2.1	41	288	0.45	336	<1.0	13	57
05/25/2009	7.6	80	730	1.8	43	326	0.50	346	37	14	62
06/24/2009	7.7	53	678	1.7	35	278	0.46	306	80	14	61
07/29/2009	7.7	85	738	1.2	37	315	0.53	333	16	14	58
09/29/2009	7.7	60	768	1.1	40	319	0.52	372	<1.0	14	60
01/12/2010	7.6	90	700	1.2	36	295	0.47	365	<1.0	6.1	57
02/09/2010	7.9	66	666	1.4	37	288	0.46	347	<1.0	13	63
05/28/2010	7.7	91	784	1.3	36	327	0.53	364	<1.0	12	58
08/18/2010	7.5	67	750	1.2	35	330	0.51	367	3.0	15	59
09/22/2010	7.4	50	748	1.0	37	321	0.55	361	<1.0	14	59
12/21/2010	7.9	47	734	1.1	36	350	0.57	368	<1.0	12	62
02/01/2011	7.4	91	746	<1.0	41	337	0.53	384	<1.0	11	56
04/06/2011	7.8	55	804	1.3	34	382	0.40	378	<1.0	13	62
06/20/2011	7.8	63	1044	1.0	37	293	0.48	369	7.0	15	64
08/19/2011	7.3	44	710	2.1	29	259	0.43	313	52	16	60
10/20/2011	7.9	56	710	1.2	38	324	0.55	374	1.0	13	58
01/19/2012	7.0	35	412	2.0	23	187	0.35	240	<1.0	12	59
02/22/2012	7.5	37	482	1.0	37	319	0.51	373	<1.0	14	59
04/11/2012	7.0	55	744	1.0	38	347	0.57	392	<1.0	14	59
06/06/2012	7.3	35	768	1.0	36	323	0.53	384	<1.0	15	60
08/21/2012	7.1	57	788	1.0	39	319	0.52	386	<1.0	15	56
10/03/2012	7.3	40	778	<1.0	40	339	0.48	379	<1.0	13	58
01/30/2013	7.1	64	696	2.0	36	297	0.48	375	<1.0	15	60
04/29/2013	7.6	78	714	1.0	34	301	0.46	376	1.0	18	60
06/19/2013	7.6	37	724	2.0	33	299	0.52	376	24	14	63
08/14/2013	7.6	79	748	1.0	34	316	0.53	400	9.0	14	63
10/21/2013	7.7	79	768	1.0	40	325	0.58	390	<1.0	14	60
11/13/2013	7.4	124	702	1.0	36	302	0.51	383	<1.0	9.5	59

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-7: GROUNDWATER QUALITY DATA FOR WELL MW-7 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/11/1998	7.9	117	950	3.0	33	407	0.34	575	<1.0	13	14
04/22/1998	7.7	103	962	5.0	35	440	0.42	577	<1.0	15	17
06/17/1998	7.8	109	1064	2.0	34	423	0.35	634	<1.0	17	17
08/05/1998	8.0	105	1042	2.0	34	480	0.42	604	<1.0	18	15
10/28/1998	8.1	101	1022	2.0	31	448	0.48	624	<1.0	13	16
12/09/1998	8.0	99	982	2.0	36	474	0.38	609	<1.0	14	16
02/02/2000	7.9	98	1012	3.0	22	387	0.50	587	<1.0	14	16
04/27/2000	7.6	99	996	7.0	35	468	0.49	593	140	15	16
06/19/2000	7.5	97	1220	7.0	31	458	0.45	613	<1.0	16	14
08/16/2000	7.7	96	888	2.0	21	389	0.51	486	<1.0	16	5.0
10/16/2000	7.7	94	972	2.0	34	452	0.47	553	<1.0	16	15
12/06/2000	7.5	123	978	1.0	33	485	0.47	629	<1.0	15	15
02/14/2001	7.8	111	970	2.0	32	452	0.47	652	<1.0	14	16
04/24/2001	7.9	122	952	1.0	33	468	0.48	566	<1.0	15	16
06/13/2001	7.8	98	1012	2.0	33	409	0.49	579	<1.0	15	16
08/15/2001	7.7	94	1072	2.0	38	446	0.50	588	<1.0	15	16
10/02/2001	7.9	119	1024	2.0	33	413	0.48	536	150	15	13
12/11/2001	7.6	119	880	2.0	35	434	0.30	609	<1.0	13	11
02/14/2002	7.5	110	940	3.0	36	407	0.52	549	<1.0	13	12
04/24/2002	7.3	121	984	4.0	34	412	0.48	568	<1.0	15	15
06/12/2002	7.3	119	976	2.0	33	430	0.50	567	200	15	12
08/29/2002	7.9	112	984	2.0	34	430	0.57	611	230	15	12
10/02/2002	8.1	109	1022	3.0	49	425	0.55	587	2.0	15	67
12/04/2002	7.6	108	992	2.0	33	405	0.48	518	<1.0	14	13
02/05/2003	7.1	97	904	3.0	33	412	0.48	525	<1.0	14	14
04/23/2003	7.8	113	962	2.0	35	443	0.44	543	<1.0	14	33
06/25/2003	7.3	102	954	2.0	33	444	0.48	544	<1.0	16	23
08/27/2003	7.8	105	1014	3.0	33	492	0.46	544	<1.0	16	15
10/15/2003	7.7	124	950	2.0	33	448	0.49	521	<1.0	15	13
12/10/2003	7.5	35	866	2.0	35	424	0.48	543	7.0	15	13
02/10/2004	7.8	56	970	2.0	37	407	0.46	544	<1.0	14	14
04/01/2004	7.8	70	984	2.0	50	443	0.56	517	<1.0	13	14
06/29/2004	7.3	101	944	3.0	34	390	0.58	525	<1.0	15	11
08/25/2004	7.1	116	1008	5.0	35	421	0.52	518	<1.0	18	13
10/27/2004	7.2	46	812	3.0	35	399	0.50	539	<1.0	16	12
12/08/2004	7.0	41	955	1.0	34	396	0.53	501	<1.0	15	11
02/03/2005	7.1	48	946	1.0	35	312	0.50	522	<1.0	14	22
04/27/2005	7.4	101	984	2.0	35	419	0.50	525	<1.0	14	16
06/08/2005	7.6	106	968	1.0	34	381	0.45	520	<1.0	16	13
08/29/2005	7.5	94	890	1.0	32	398	0.44	523	<1.0	16	14

TABLE 4-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-7 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
11/02/2005	7.5	50	918	1.0	34	441	0.48	509	<1.0	16	13
12/14/2005	7.5	99	954	1.0	34	471	0.47	517	<1.0	14	14
02/15/2006	7.2	45	934	0.60	34	310	0.84	518	<1.0	14	14
04/25/2006	7.6	115	990	0.50	37	395	0.46	522	<1.0	14	14
06/28/2006	7.6	48	454	0.40	35	407	0.42	520	<1.0	15	14
07/12/2006	7.7	48	980	0.50	36	418	0.45	533	<1.0	16	14
09/07/2006	7.8	52	952	0.60	34	409	0.48	515	<1.0	15	14
10/12/2006	7.6	50	918	0.60	35	32	0.39	502	<1.0	13	15
01/04/2007	7.7	51	920	0.50	36	420	0.45	511	<1.0	14	15
03/21/2007	7.6	61	914	0.50	41	398	0.46	519	<1.0	14	15
05/31/2007	7.5	97	928	0.80	38	407	0.44	517	<1.0	16	16
07/11/2007	7.8	95	940	0.40	36	389	0.48	510	<1.0	15	18
09/11/2007	7.6	119	908	0.80	37	384	0.49	503	210	15	16
11/15/2007	7.5	58	884	0.50	36	400	0.63	511	<1.0	14	13
02/14/2008	7.5	83	906	0.70	43	416	0.48	523	<1.0	14	16
05/29/2008	7.7	101	796	0.80	37	336	0.50	375	<1.0	14	14
06/30/2008	7.6	51	960	0.60	33	387	0.53	518	<1.0	14	15
07/23/2008	7.3	119	908	0.40	31	408	0.62	510	<1.0	16	16
09/17/2008	7.5	92	890	1.0	46	312	0.54	490	6000	17	26
11/13/2008	7.4	64	996	1.0	36	406	0.48	460	<1.0	14	14
01/27/2009	7.2	98	898	<1.0	35	397	0.52	485	11	13	12
02/10/2009	7.5	61	926	1.2	36	398	0.51	493	2.0	14	12
05/28/2009	7.7	53	798	1.0	39	385	0.48	446	<1.0	15	14
09/10/2009	7.6	79	876	<1.0	37	412	0.51	483	<1.0	16	14
11/24/2009	7.6	79	798	<1.0	34	386	0.51	463	<1.0	16	14
12/16/2009	7.6	96	870	<1.0	35	386	0.54	465	<1.0	13	14
01/20/2010	8.1	73	854	<1.0	36	371	0.50	519	<1.0	14	16
02/09/2010	7.3	90	874	1.4	99	385	0.54	515	<1.0	14	16
07/28/2010	7.4	82	884	<1.0	35	391	0.50	472	2.0	14	16
09/15/2010	7.5	74	892	<1.0	28	401	0.54	497	<1.0	16	16
10/06/2010	7.5	68	908	<1.0	34	386	0.54	505	<1.0	15	15
11/03/2010	7.2	45	876	1.0	30	374	0.49	475	<1.0	9.8	11
01/26/2011	7.2	54	892	<1.0	36	411	0.54	498	<1.0	13	16
02/01/2011	7.3	62	892	<1.0	38	394	0.52	522	<1.0	14	15
04/13/2011	7.0	100	872	<1.0	36	375	0.44	492	<1.0	15	17
07/27/2011	7.3	78	1170	1.0	38	324	0.51	460	5100	15	15
09/08/2011	7.0	72	928	1.0	40	399	0.54	487	2.0	15	12
11/16/2011	7.4	51	842	1.0	36	377	0.55	509	<1.0	14	14
01/18/2012	7.1	62	850	<1.0	37	383	0.54	518	<1.0	15	17
03/07/2012	6.8	67	882	1.0	41	374	0.56	504	<1.0	15	18

TABLE 4-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-7 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
04/11/2012	7.4	94	868	<1.0	37	405	0.54	527	<1.0	14	19
06/27/2012	7.1	91	936	<1.0	36	385	0.53	513	28	17	18
08/21/2012	7.5	66	896	1.0	35	353	0.56	499	<1.0	15	17
10/24/2012	6.8	68	936	<1.0	37	370	0.54	501	<1.0	17	17
02/20/2013	6.8	62	880	<1.0	35	395	0.53	558	<1.0	13	18
04/29/2013	7.4	97	832	<1.0	38	354	0.56	482	36	13	20

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-8: GROUNDWATER QUALITY DATA FOR WELL MW-8 IN
THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/16/1997	7.9	99	830	4.0	32	297	0.33	470	<1.0	15	-4.0
12/04/1997	8.3	105	866	2.0	31	392	<0.10	502	<1.0	14	15
02/26/1998	8.5	103	864	2.0	34	360	0.09	497	<1.0	16	14
04/29/1998	7.9	99	816	3.0	85	326	0.17	380	<1.0	14	19
06/04/1998	8.5	100	824	2.0	55	356	<0.01	449	<1.0	16	19
08/20/1998	8.1	102	834	1.0	37	386	0.12	490	<1.0	16	16
10/21/1998	7.8	88	790	3.0	33	373	0.48	424	<1.0	14	18
12/17/1998	8.0	93	864	2.0	46	389	0.26	462	<1.0	14	19
02/03/2000	7.9	87	842	2.0	37	306	0.08	441	<1.0	14	-32
04/26/2000	7.8	114	868	5.0	52	360	0.09	469	<1.0	14	-13
06/22/2000	8.0	109	858	4.0	42	347	0.06	428	<1.0	15	-21
08/17/2000	7.9	106	784	1.0	41	352	0.04	436	<1.0	15	-27
10/04/2000	8.3	85	658	2.0	34	253	0.11	326	79	15	-58
12/07/2000	7.8	114	824	1.0	35	411	0.07	450	<1.0	14	-23
02/22/2001	8.1	126	1054	2.0	223	374	0.12	434	<1.0	13	-5.0
04/19/2001	8.5	93	924	2.0	82	369	0.05	448	<1.0	14	-54
06/14/2001	7.9	132	936	2.0	114	278	0.11	383	<1.0	15	-24
08/23/2001	7.1	124	986	2.0	91	335	0.06	432	7.0	15	-29
10/02/2001	7.0	83	688	2.0	65	285	0.05	379	750	14	-29
12/05/2001	8.7	55	472	1.0	81	100	0.09	147	5.0	15	-47
02/28/2002	8.2	79	786	3.0	67	283	0.18	435	<1.0	13	-23
04/18/2002	8.6	105	770	2.0	57	307	0.04	342	<1.0	15	-35
06/06/2002	7.3	102	754	2.0	40	324	0.04	347	<1.0	15	-62
08/15/2002	7.0	96	852	2.0	34	358	0.04	454	<1.0	15	-36
10/03/2002	8.4	81	728	2.0	36	313	0.04	365	16	15	-61
12/11/2002	8.2	93	786	2.0	52	357	0.04	347	<1.0	14	-50
02/06/2003	7.7	76	814	2.0	48	368	0.05	379	<1.0	14	-38
04/03/2003	7.2	106	812	3.0	40	364	0.05	390	<1.0	14	-39
06/05/2003	6.9	85	754	3.0	60	292	0.08	355	<1.0	15	-28
08/28/2003	7.1	41	779	2.0	45	365	<0.02	398	<1.0	16	-24
10/30/2003	8.2	81	758	2.0	34	375	0.03	362	12	15	-33
12/04/2003	8.0	54	632	2.0	28	311	0.01	323	<1.0	14	-48
02/26/2004	8.5	58	1182	2.0	53	345	0.18	387	<1.0	14	-28
04/29/2004	8.2	92	822	2.0	73	335	0.04	385	<1.0	15	-24
06/10/2004	7.5	89	761	4.0	55	276	0.03	355	<1.0	14	-34
08/19/2004	8.0	82	761	35	39	571	<0.02	364	<1.0	15	-31
10/28/2004	7.8	41	818	2.0	37	323	0.03	366	<1.0	15	-36
12/09/2004	7.3	57	659	2.0	33	286	0.03	315	<1.0	14	-46
02/03/2005	6.9	82	762	2.0	58	374	0.04	346	<1.0	13	-35
04/21/2005	7.6	54	830	1.0	44	359	0.06	418	<1.0	15	-35

TABLE 4-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-8 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
06/23/2005	7.5	92	796	1.0	41	294	0.12	389	<1.0	15	-47
08/31/2005	7.5	57	804	1.0	38	340	<0.02	429	4.0	14	-26
11/17/2005	7.5	90	768	1.0	37	348	<0.02	385	<1.0	14	-31
12/15/2005	7.5	55	818	1.0	39	680	<0.02	393	<1.0	14	-55
02/23/2006	6.9	103	782	0.80	39	379	<0.02	395	<1.0	13	-56
03/16/2006	8.4	82	728	0.70	45	317	<0.02	343	<1.0	14	-59
04/06/2006	8.1	79	764	0.80	42	345	0.05	389	<1.0	14	-59
06/29/2006	7.5	46	744	0.70	39	345	<0.02	375	<1.0	15	-51
07/20/2006	8.1	93	732	0.80	42	288	<0.02	379	1.0	16	-59
09/14/2006	8.1	100	834	0.70	36	25	0.17	427	46	15	-54
02/08/2007	7.6	78	590	0.70	29	206	0.09	309	<1.0	10	-51
03/29/2007	8.9	45	360	0.60	72	68	0.02	90	<1.0	14	-43
05/23/2007	8.8	75	600	0.60	72	226	0.02	265	<1.0	15	-57
07/12/2007	7.8	59	780	0.70	77	305	0.02	357	<1.0	14	-60
09/13/2007	7.6	89	742	0.80	33	306	0.44	353	2.0	15	-60
12/06/2007	7.6	54	804	0.70	37	350	0.02	403	<1.0	12	-53
04/10/2008	8.0	47	556	0.60	131	146	0.03	152	<1.0	14	-52
05/08/2008	7.8	56	786	0.60	65	308	0.02	361	<1.0	14	-56
07/10/2008	7.6	83	698	0.90	53	292	0.02	333	<1.0	14	-62
09/11/2008	7.5	56	798	1.0	45	327	0.02	399	94	15	-57
11/19/2008	8.1	50	584	1.0	40	235	0.07	258	14	13	-62
12/11/2008	8.8	37	606	1.0	36	278	0.02	277	4.0	13	-61
02/25/2009	8.5	92	966	1.0	352	139	0.16	211	<1.0	14	-54
04/30/2009	7.8	90	786	1.0	63	286	0.18	318	9.0	14	-61
06/11/2009	8.3	60	1536	1.1	35	352	0.42	367	<1.0	15	-60
07/16/2009	7.3	100	688	1.1	58	225	<0.02	289	12	15	-62
09/24/2009	8.6	69	742	1.3	51	284	<0.02	341	1.0	16	-60
05/22/2010	8.4	125	742	1.0	126	234	0.02	238	<1.0	15	-57
07/01/2010	7.8	51	860	<1.0	62	354	<0.02	340	<1.0	14	-62
08/12/2010	8.1	69	820	1.3	54	249	<0.02	313	840	17	-52
10/27/2010	8.8	61	768	1.1	52	303	0.06	406	<1.0	15	-58
11/04/2010	7.2	72	776	1.3	48	340	<0.02	406	1.0	15	-58
01/27/2011	8.0	70	864	<1.0	58	361	<0.10	466	<1.0	14	-30
03/31/2011	8.6	121	570	<1.0	18	208	<0.10	253	<1.0	14	-58
05/19/2011	8.0	80	844	1.0	54	313	<0.10	397	<1.0	16	-53
07/14/2011	8.0	56	640	<1.0	44	214	<0.10	263	33	17	-63
09/22/2011	8.0	72	840	<1.0	50	387	<0.10	441	1.0	15	-30
12/01/2011	8.6	48	498	<1.0	38	200	<0.10	237	1.0	14	-62
01/26/2012	7.8	62	490	1.0	114	135	<0.10	178	<1.0	13	-30
06/20/2013	8.7	45	600	2.0	172	72	0.37	92	<1.0	16	-34

TABLE 4-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-8 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/28/2013	8.2	86	804	1.0	48	327	<0.10	384	1000	16	-59
09/12/2013	8.4	85	730	1.0	43	343	<0.10	363	100	17	-62
10/16/2013	8.4	62	522	2.0	49	190	<0.10	246	3700	15	-56
11/07/2013	8.5	70	624	1.0	39	269	<0.10	298	75	14	-62
12/19/2013	8.5	82	704	1.0	64	387	<0.10	351	5.0	15	-54

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 4-9: GROUNDWATER QUALITY DATA FOR WELL MW-9 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/06/1997	8.1	101	816	7.0	35	366	0.33	440	<1.0	13	-2.0
04/10/1997	8.1	91	810	2.0	34	375	0.28	457	<1.0	14	-73
06/19/1997	8.1	93	838	1.0	36	361	0.42	448	<1.0	15	-3.0
08/20/1997	7.8	93	792	10	31	378	0.37	463	<1.0	14	-5.0
12/04/1997	8.2	102	848	2.0	32	360	0.39	456	<1.0	14	-4.0
02/26/1998	8.5	100	826	3.0	34	370	0.36	454	<1.0	15	-6.0
04/29/1998	7.7	90	738	3.0	36	354	0.22	354	<1.0	14	-2.0
06/04/1998	7.9	98	798	2.0	34	351	0.33	452	<1.0	16	-1.0
08/20/1998	7.9	95	862	2.0	34	343	0.35	443	<1.0	16	-4.0
10/21/1998	7.7	85	840	2.0	44	389	0.39	465	<1.0	14	-2.0
12/17/1998	7.9	91	822	2.0	40	384	0.36	444	<1.0	13	-3.0
02/03/2000	7.8	88	850	3.0	37	289	0.43	436	<1.0	14	-6.0
04/26/2000	7.8	109	838	6.0	37	337	0.43	451	<1.0	14	-4.0
06/22/2000	7.7	105	812	4.0	31	374	0.43	451	<1.0	15	-4.0
08/17/2000	7.6	107	798	2.0	32	318	0.39	439	<1.0	14	-5.0
10/04/2000	7.8	107	800	2.0	32	376	0.43	431	<1.0	15	-3.0
12/07/2000	6.9	111	870	1.0	31	392	0.45	424	<1.0	14	-5.0
02/22/2001	7.8	109	812	2.0	42	306	0.41	464	<1.0	13	-6.0
04/19/2001	8.0	106	826	2.0	33	368	0.44	432	<1.0	14	-3.0
06/14/2001	7.8	114	848	2.0	33	296	0.41	426	<1.0	15	-3.0
08/23/2001	7.7	99	812	2.0	34	343	0.40	448	<1.0	15	-6.0
10/04/2001	7.3	107	1240	2.0	39	229	0.35	387	<1.0	14	-8.0
12/05/2001	8.0	96	736	2.0	41	291	0.33	365	<1.0	15	-7.0
02/28/2002	7.7	95	772	2.0	34	311	0.42	436	<1.0	13	-8.0
04/18/2002	7.9	112	806	3.0	33	356	0.32	430	<1.0	15	-4.0
06/06/2002	7.2	104	818	3.0	33	368	0.42	422	6.0	14	-4.0
08/15/2002	7.2	91	932	3.0	39	299	0.38	346	4.0	15	-10
10/03/2002	7.9	85	768	3.0	31	312	0.40	378	<1.0	14	-8.0
12/11/2002	7.7	36	816	3.0	35	360	0.37	385	<1.0	14	-8.0
02/06/2003	8.0	100	806	2.0	31	360	0.39	397	<1.0	14	-7.0
04/03/2003	7.4	107	800	2.0	32	355	0.38	405	<1.0	14	-10
06/05/2003	6.8	92	802	3.0	37	345	0.40	408	<1.0	15	-10
08/28/2003	7.1	40	708	2.0	37	317	0.27	326	<1.0	15	-6.0
10/30/2003	7.8	91	784	2.0	29	390	0.41	370	<1.0	15	-8.0
12/04/2003	7.8	63	744	2.0	30	361	0.35	390	<1.0	14	-8.0
02/26/2004	8.1	58	792	2.0	34	365	0.60	403	<1.0	14	-7.0
04/29/2004	8.0	89	822	2.0	42	341	0.39	383	<1.0	15	-5.0
06/10/2004	7.6	90	808	2.0	35	307	0.39	395	<1.0	14	-7.0
08/19/2004	8.0	82	756	3.0	38	326	0.29	358	<1.0	14	-7.0
10/28/2004	8.0	40	802	2.0	35	323	0.36	387	<1.0	14	-9.0

TABLE 4-9 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-9 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
12/09/2004	7.4	64	778	2.0	33	328	0.39	380	<1.0	14	-7.0
02/03/2005	6.8	86	774	1.0	49	405	0.28	371	<1.0	14	-6.0
04/21/2005	7.7	51	788	2.0	34	347	0.38	396	<1.0	14	-6.0
06/23/2005	7.3	88	808	1.0	32	311	0.39	398	<1.0	14	-2.0
08/31/2005	7.3	43	772	1.0	31	331	0.34	380	<1.0	14	-7.0
11/17/2005	7.2	90	792	1.0	3.0	346	0.34	384	<1.0	14	-5.0
12/15/2005	7.7	54	798	1.0	32	737	0.30	378	<1.0	14	-6.0
02/23/2006	6.9	104	802	0.80	32	400	0.31	395	<1.0	14	-5.0
03/16/2006	7.9	88	690	0.70	33	315	0.06	344	<1.0	14	-4.0
04/06/2006	7.8	90	768	0.80	34	352	0.29	398	<1.0	14	-3.0
07/20/2006	7.7	49	780	0.90	34	360	0.31	388	5.0	15	-2.0
09/14/2006	7.9	97	798	0.70	32	322	0.48	374	<1.0	15	-2.0
12/14/2006	7.8	85	698	0.90	29	301	0.24	333	<1.0	14	-1.0
02/08/2007	7.3	96	776	0.90	34	284	0.33	391	<1.0	12	-1.0
03/29/2007	7.7	92	762	0.80	63	366	0.34	383	<1.0	13	-1.0
05/23/2007	8.0	87	758	0.90	40	318	0.35	390	<1.0	15	0
07/12/2007	7.7	61	806	0.70	36	351	0.40	384	<1.0	14	-1.0
09/13/2007	7.6	86	762	0.80	39	334	0.36	355	<1.0	14	-9.0
12/06/2007	7.8	54	772	0.90	31	346	0.37	395	<1.0	11	-4.0
04/10/2008	7.7	47	786	0.80	36	346	0.41	371	<1.0	14	-4.0
05/08/2008	7.8	57	782	0.70	44	340	0.40	386	<1.0	14	-1.0
07/10/2008	7.7	85	736	0.80	38	339	0.30	353	<1.0	14	-2.0
09/11/2008	7.7	57	770	1.0	30	357	0.42	385	<1.0	14	-4.0
11/19/2008	7.7	57	802	1.0	33	351	0.42	359	<1.0	14	-3.0
12/11/2008	8.0	40	778	1.0	28	350	0.43	364	<1.0	14	-4.0
02/25/2009	8.0	67	844	1.1	71	323	0.42	365	<1.0	14	-4.0
04/30/2009	7.7	87	810	1.1	37	347	0.42	371	<1.0	14	0
06/11/2009	8.0	62	1536	1.1	66	302	<0.02	367	<1.0	14	0
07/16/2009	7.6	85	774	1.1	43	359	0.36	347	<1.0	14	-2.0
09/24/2009	7.3	70	756	1.4	34	357	0.39	376	<1.0	17	0
12/17/2009	7.5	54	542	1.3	31	341	0.43	377	<1.0	14	0
05/22/2010	7.6	85	842	1.0	33	348	0.43	364	<1.0	16	1.8
07/01/2010	7.8	56	910	1.0	31	396	0.41	371	<1.0	14	3.2
08/12/2010	7.7	71	946	1.0	30	349	0.43	387	<1.0	16	-7.2
10/27/2010	8.5	59	756	1.0	32	326	0.40	391	<1.0	14	0.20
11/04/2010	7.3	50	760	1.4	33	344	0.38	388	<1.0	15	-8.2
01/27/2011	7.5	47	756	1.0	34	346	0.40	377	<1.0	13	-5.2
03/31/2011	7.8	81	818	1.0	32	362	0.29	430	<1.0	13	-3.2
05/19/2011	7.5	75	826	1.1	32	337	0.32	413	<1.0	14	0.20
07/14/2011	7.6	71	854	<1.0	38	289	0.28	343	<1.0	14	-2.2

TABLE 4-9 (Continued): GROUNDWATER QUALITY DATA FOR WELL MW-9 IN THE UPPER DES PLAINES TUNNEL SYSTEM OF THE TUNNEL AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/22/2011	7.9	69	810	1.0	32	389	0.43	410	<1.0	14	0.80
12/01/2011	8.0	63	702	<1.0	31	321	0.29	354	<1.0	14	0.80
01/26/2012	7.8	58	750	1.0	32	341	0.45	395	<1.0	14	-2.0
03/15/2012	7.8	70	740	1.0	29	325	0.43	377	<1.0	15	2.0
06/20/2013	7.7	50	800	1.0	81	209	0.26	250	<1.0	15	3.8
07/10/2013	7.6	60	754	1.0	39	339	0.36	388	<1.0	18	3.8
08/28/2013	7.9	89	848	1.0	30	346	0.44	399	1.0	15	2.8
09/12/2013	7.9	84	760	1.0	31	348	0.43	392	<1.0	15	1.8
10/16/2013	7.8	81	732	1.0	38	320	0.29	363	2.0	14	3.8
11/07/2013	8.0	82	744	1.0	31	327	0.41	367	<1.0	143	0.80

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-1: GROUNDWATER QUALITY DATA FOR WELL QD-21 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/15/1995	7.4	159	1320	5.0	267	252	0.24	701	<1.0	12	-76
04/05/1995	7.2	174	1264	3.0	236	297	0.32	721	<1.0	12	-77
06/28/1995	7.0	218	1670	5.0	230	410	0.26	905	<1.0	13	-74
08/30/1995	7.4	198	1604	3.0	274	482	0.23	809	<1.0	13	-75
10/04/1995	7.1	195	1626	9.0	268	437	0.21	1002	<1.0	13	-77
12/05/1995	7.8	168	1480	6.0	293	296	0.25	791	<1.0	12	-76
02/01/1996	7.3	138	1430	2.0	298	314	0.27	773	<1.0	11	-78
04/15/1996	7.5	197	1192	9.0	238	224	0.23	711	<1.0	12	-77
06/19/1996	7.3	137	1320	8.0	223	190	0.24	673	<1.0	13	-74
08/01/1996	7.1	195	1628	9.0	246	305	0.27	776	<1.0	14	-75
10/23/1996	7.9	222	1196	9.0	189	298	0.22	746	<1.0	12	-76
12/03/1996	7.9	189	1576	7.0	279	399	0.19	929	<1.0	12	-76
02/05/1997	7.4	200	1224	13	243	246	0.15	713	<1.0	11	-76
04/02/1997	7.4	179	1556	3.0	232	288	0.06	772	<1.0	12	-74
06/11/1997	7.0	145	1598	3.0	219	332	0.18	880	<1.0	13	-73
08/20/1997	7.2	219	1488	15	222	253	0.14	795	<1.0	13	-74
10/29/1997	7.3	221	1568	2.0	245	256	0.34	842	<1.0	12	-78
12/17/1997	7.7	195	1755	6.0	317	415	0.19	986	<1.0	13	-78
02/19/1998	7.7	133	1006	4.0	168	190	0.12	616	<1.0	12	-76
04/08/1998	7.2	207	1554	6.0	285	224	0.28	794	<1.0	13	-70
06/03/1998	8.0	197	1190	7.0	211	343	0.15	846	<1.0	14	-76
08/05/1998	7.2	179	1708	5.0	232	385	0.21	895	<1.0	13	-78
10/07/1998	7.4	180	1624	4.0	240	477	0.20	872	<1.0	13	-79
12/02/1998	7.0	200	1636	4.0	259	317	0.19	776	<1.0	13	-81
02/18/1999	7.2	186	1192	4.0	197	264	0.14	791	<1.0	11	-83
04/14/1999	7.3	195	1372	3.0	231	305	0.28	814	<1.0	14	-81
06/03/1999	7.4	180	1578	2.0	208	287	0.11	810	<1.0	13	-80
08/18/1999	7.6	215	1514	2.0	197	315	0.20	852	<1.0	13	-82
10/20/1999	7.0	166	1458	3.0	233	436	0.33	933	<1.0	14	-84
12/01/1999	7.3	216	1390	5.0	225	359	0.21	909	<1.0	12	-85
02/24/2000	7.1	153	1580	2.0	249	246	0.25	711	<1.0	12	-86
04/17/2000	6.9	152	1370	7.0	277	237	0.30	707	<1.0	12	-86
06/01/2000	7.2	166	1436	5.0	253	235	0.26	744	<1.0	14	-85
08/02/2000	7.1	162	1458	2.0	238	304	0.29	830	<1.0	13	-83
10/11/2000	7.3	138	1486	3.0	257	372	0.26	740	<1.0	12	-84
12/13/2000	7.2	203	1614	3.0	351	345	0.28	902	<1.0	11	-29
02/07/2001	7.6	217	1662	3.0	353	272	0.33	795	<1.0	11	-85
04/10/2001	7.5	154	1698	3.0	330	288	0.30	876	<1.0	13	-81
06/06/2001	6.8	173	1708	2.0	264	362	0.28	877	<1.0	13	-82
08/30/2001	7.2	123	1802	3.0	344	457	0.33	954	<1.0	13	-82

TABLE 5-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-21 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/03/2001	7.2	174	1622	2.0	306	282	0.32	791	<1.0	13	-82
12/05/2001	7.1	180	1316	2.0	224	284	0.27	819	<1.0	13	-83
02/06/2002	6.8	133	1132	5.0	224	255	0.23	783	<1.0	12	-86
04/03/2002	7.1	182	1552	5.0	288	304	0.26	776	<1.0	13	-83
06/11/2002	7.0	136	1466	5.0	210	304	0.27	797	<1.0	13	-77
08/14/2002	7.8	187	1606	5.0	204	305	0.29	869	<1.0	13	-79
10/09/2002	7.5	140	1398	6.0	230	343	0.26	789	<1.0	12	-81
12/04/2002	6.8	153	1406	4.0	255	327	0.24	795	<1.0	12	-82
02/19/2003	6.9	178	1558	5.0	363	325	0.28	819	<1.0	12	-84
04/09/2003	7.2	187	1204	5.0	256	197	0.22	640	<1.0	12	-92
06/11/2003	7.2	158	1638	5.0	257	304	0.31	842	<1.0	13	-82
08/20/2003	7.1	137	1510	3.0	249	313	0.20	743	<1.0	14	-81
10/15/2003	7.8	150	1436	4.0	267	358	0.23	761	<1.0	12	-81
12/15/2003	7.8	115	1272	4.0	294	266	0.22	659	<1.0	10	-78
02/26/2004	7.1	239	1356	4.0	294	298	0.32	775	<1.0	12	-79
04/14/2004	7.5	150	1406	3.0	284	331	0.24	744	<1.0	12	-77
06/22/2004	7.0	208	1376	8.0	246	275	0.26	747	<1.0	13	-74
08/18/2004	7.4	178	1604	7.0	248	308	0.12	746	<1.0	13	-75
10/14/2004	7.4	52	1709	1.0	311	377	0.24	893	<1.0	13	-77
12/15/2004	6.8	178	1302	2.0	280	243	0.27	679	<1.0	12	-75
02/08/2005	6.8	157	1250	2.0	245	244	0.23	701	<1.0	12	-77
04/13/2005	7.6	84	1368	2.0	267	309	0.25	792	<1.0	12	-74
06/08/2005	7.4	82	1398	2.0	198	241	0.20	699	<1.0	14	-75
08/24/2005	6.4	201	1480	1.0	232	313	0.16	776	<1.0	13	-74
10/06/2005	7.1	186	1516	1.0	285	360	0.14	819	<1.0	13	-76
12/07/2005	7.6	135	1432	1.0	316	318	0.17	793	<1.0	12	-78
05/31/2006	7.0	263	1670	1.3	355	283	0.25	817	<1.0	13	-76
08/16/2006	6.8	151	1636	1.0	302	316	0.32	769	<1.0	15	-75
11/28/2006	8.2	85	1318	1.1	103	289	0.18	733	<1.0	13	-76
04/11/2007	7.0	175	1298	0.90	246	347	0.19	663	<1.0	12	-72
06/27/2007	6.9	182	1638	0.90	251	334	0.17	783	<1.0	16	-72
10/24/2007	6.8	238	1476	0.70	239	298	0.20	701	<1.0	12	-73
02/13/2008	7.4	58	1606	0.70	372	404	0.24	930	<1.0	12	-72
06/11/2008	7.5	85	1474	0.70	213	279	0.24	716	<1.0	13	-68
02/09/2010	7.0	118	1328	4.6	269	308	0.20	788	<1.0	12	-65
06/24/2010	7.1	80	1656	2.0	245	322	0.21	750	<1.0	14	-76
11/09/2010	7.0	119	1366	1.7	233	351	0.24	739	<1.0	13	-68
01/20/2011	7.0	97	1394	2.0	296	320	0.26	815	<1.0	12	-65
02/24/2011	6.9	135	1510	1.5	330	315	0.25	854	<1.0	12	-64
05/18/2011	6.9	141	1530	1.2	270	303	0.22	774	<1.0	13	-61

TABLE 5-1 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-21 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
02/15/2012	6.6	117	1398	1.0	258	309	0.24	796	<1.0	12	-57
03/28/2012	7.0	112	1688	1.0	166	335	0.28	875	<1.0	13	-60
06/20/2012	6.8	111	1402	1.0	265	308	0.23	819	<1.0	12	-62
12/18/2012	6.8	110	1476	1.0	294	303	0.25	783	<1.0	12	-74
03/06/2013	6.8	121	1354	1.0	270	288	0.24	772	<1.0	11	-57
06/25/2013	7.0	97	1706	1.0	232	308	0.25	807	<1.0	18	-55
09/30/2013	7.2	135	1432	1.0	263	313	0.22	772	<1.0	14	-60

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-2: GROUNDWATER QUALITY DATA FOR WELL QD-22 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/15/1995	7.3	139	1072	5.0	108	295	0.36	774	<1.0	12	-34
04/05/1995	7.4	151	1102	4.0	124	342	0.43	799	<1.0	12	-34
06/28/1995	7.2	152	1128	5.0	114	326	0.39	827	<1.0	13	-30
08/30/1995	7.9	145	1142	5.0	120	358	0.36	738	<1.0	13	-32
10/04/1995	6.8	178	1374	7.0	114	323	0.33	817	<1.0	13	-31
12/05/1995	7.7	210	1246	8.0	111	303	0.39	794	<1.0	12	-32
02/01/1996	7.2	158	1084	7.0	114	326	0.38	800	<1.0	10	-34
04/15/1996	7.4	141	1122	9.0	109	288	0.34	805	<1.0	12	-35
06/19/1996	7.0	140	1354	10	114	284	0.36	840	<1.0	13	-30
08/01/1996	7.6	140	1490	9.0	115	339	0.38	782	<1.0	13	-31
10/23/1996	7.6	139	1312	8.0	118	342	0.38	837	<1.0	12	-32
12/03/1996	7.5	144	1172	6.0	113	319	0.33	846	<1.0	12	-33
02/05/1997	7.4	148	1116	12	112	304	0.30	807	<1.0	11	-38
04/02/1997	7.9	164	1294	2.0	103	273	0.25	767	<1.0	11	-30
06/11/1997	6.7	141	1334	3.0	108	288	0.27	835	<1.0	13	-31
08/20/1997	7.3	146	1402	5.0	116	342	0.31	850	<1.0	13	-30
10/29/1997	7.1	149	1272	2.0	113	301	0.25	819	<1.0	12	-34
12/17/1997	7.2	136	1190	5.0	114	329	0.33	859	<1.0	13	-35
02/19/1998	7.4	133	1164	5.0	116	294	0.30	845	<1.0	12	-32
04/08/1998	7.1	148	1402	6.0	127	281	0.36	838	<1.0	13	-30
06/03/1998	7.4	156	1140	8.0	107	107	0.27	806	<1.0	14	-25
08/05/1998	7.2	143	1474	5.0	117	334	0.32	834	<1.0	13	-34
10/07/1998	7.3	135	1346	4.0	119	351	0.43	822	<1.0	13	-34
12/02/1998	7.0	145	1454	4.0	138	309	0.33	791	<1.0	14	-35
02/18/1999	7.7	131	1082	3.0	104	305	0.22	845	<1.0	12	-36
04/14/1999	7.2	134	1214	3.0	113	339	38	839	<1.0	14	-34
06/03/1999	7.2	155	1380	2.0	109	271	0.25	785	<1.0	13	-32
08/18/1999	7.5	169	1378	3.0	118	312	0.34	871	<1.0	13	-36
10/20/1999	7.4	131	1198	3.0	117	284	0.38	869	<1.0	14	-38
12/01/1999	7.2	163	1152	7.0	125	324	0.36	883	<1.0	12	-40
02/24/2000	6.7	124	1312	5.0	115	277	0.36	772	<1.0	12	-41
04/17/2000	7.4	140	1212	6.0	122	262	0.39	786	<1.0	12	-41
06/01/2000	7.1	145	1338	9.0	115	270	0.37	822	<1.0	13	-38
08/02/2000	7.3	141	1250	3.0	122	256	0.39	816	<1.0	13	-38
10/11/2000	7.1	145	1306	3.0	130	363	0.46	751	<1.0	13	-39
12/13/2000	7.3	153	1142	2.0	141	284	0.38	902	<1.0	11	0.10
02/07/2001	7.6	153	1298	3.0	112	264	0.42	796	<1.0	11	-40
04/10/2001	7.6	139	1308	3.0	121	251	0.39	814	<1.0	13	-37
06/06/2001	6.9	144	1430	2.0	154	310	0.44	811	<1.0	13	-36
08/22/2001	7.2	156	1402	3.0	132	315	0.42	850	<1.0	13	-38

TABLE 5-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-22 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/03/2001	7.1	129	1334	3.0	125	265	0.40	756	<1.0	13	-36
12/05/2001	7.4	146	1166	3.0	120	289	0.44	807	<1.0	13	-38
02/06/2002	6.9	115	1082	5.0	125	291	0.40	893	<1.0	12	-39
04/03/2002	7.2	113	1122	6.0	115	260	0.39	809	<1.0	12	-37
06/11/2002	7.2	123	1168	5.0	112	272	0.40	724	<1.0	13	-32
08/14/2002	7.3	146	1534	3.0	126	302	0.45	880	<1.0	13	-36
10/09/2002	7.6	125	1197	2.0	132	320	0.46	806	<1.0	12	-36
12/04/2002	6.9	106	1110	5.0	109	313	0.40	771	<1.0	12	-37
02/19/2003	7.3	110	1192	6.0	154	293	0.41	777	<1.0	12	-42
04/09/2003	7.5	136	1130	5.0	137	259	0.37	741	<1.0	12	-39
06/11/2003	7.1	116	1436	4.0	146	291	0.41	777	<1.0	13	-36
08/20/2003	7.1	132	1446	6.0	139	335	0.36	791	<1.0	14	-36
10/15/2003	7.5	120	1238	3.0	136	348	0.42	747	<1.0	13	-37
12/15/2003	7.9	89	1198	4.0	158	345	0.40	753	<1.0	12	-35
02/26/2004	7.3	159	1112	4.0	135	314	0.52	737	<1.0	13	-37
04/14/2004	8.0	123	1174	3.0	147	317	0.38	734	<1.0	12	-34
06/22/2004	7.3	130	1200	4.0	149	275	0.41	766	<1.0	13	-32
08/18/2004	7.5	122	1450	6.0	146	279	0.30	748	<1.0	14	-34
10/14/2004	7.4	47	1230	4.0	138	278	0.41	755	<1.0	13	-36
12/15/2004	6.8	118	1110	2.0	159	261	0.43	706	<1.0	11	-34
02/08/2005	6.8	119	1100	2.0	129	264	0.40	740	<1.0	12	-36
04/13/2005	7.5	76	1044	2.0	117	269	0.35	747	<1.0	12	-30
06/08/2005	7.5	73	1414	2.0	138	270	0.34	754	<1.0	14	-32
08/24/2005	6.1	119	1284	1.0	137	277	0.32	723	<1.0	13	-32
10/06/2005	7.2	122	1110	1.0	131	262	0.33	684	<1.0	12	-37
12/07/2005	7.5	88	1126	1.0	140	264	0.33	722	<1.0	11	-38
05/31/2006	7.0	157	1284	1.0	157	280	0.37	734	<1.0	14	-35
08/16/2006	7.3	131	1342	1.1	147	1038	0.45	732	<1.0	14	-34
11/28/2006	7.8	68	1134	1.1	141	286	0.34	743	<1.0	13	-34
04/11/2007	7.0	111	1050	0.90	126	297	0.31	692	<1.0	12	-30
06/27/2007	7.0	132	1284	0.90	115	271	0.28	713	<1.0	13	-32
10/24/2007	7.4	186	1354	0.90	152	303	0.36	721	<1.0	11	-34
02/13/2008	7.6	66	1030	0.90	147	316	0.38	795	<1.0	12	-33
06/11/2008	7.6	83	1362	0.60	121	277	0.41	744	<1.0	14	-28
11/25/2008	7.5	71	1164	1.0	133	288	0.38	703	<1.0	12	-30
02/18/2009	7.6	121	772	1.7	87	164	0.49	510	<1.0	12	-39
05/27/2009	6.8	124	1228	1.2	115	259	0.33	662	<1.0	14	-23
10/06/2009	6.9	122	1248	1.2	133	274	0.40	758	<1.0	14	-42
02/09/2010	7.5	100	1070	1.4	137	273	0.39	774	<1.0	10	-26
06/24/2010	7.0	79	1276	1.1	111	275	0.38	802	<1.0	14	-24

TABLE 5-2 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-22 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
11/09/2010	6.9	93	1278	1.4	149	375	0.36	798	<1.0	13	-27
01/20/2011	7.2	80	1084	1.4	144	275	0.44	771	<1.0	12	-30
02/24/2011	7.2	102	1192	1.3	141	279	0.42	790	<1.0	12	-27
05/18/2011	6.7	110	1274	1.2	133	355	0.36	778	<1.0	13	-23
02/15/2012	7.2	98	1152	1.0	136	275	0.42	783	87	12	-24
03/28/2012	7.0	92	1332	1.0	140	266	0.43	795	<1.0	14	-30
06/20/2012	6.8	61	1134	1.0	126	231	0.42	730	53	17	-27
12/18/2012	7.2	67	1114	1.0	131	248	0.43	715	66	11	-34
03/06/2013	7.1	88	1000	1.0	125	240	0.40	739	<1.0	12	-31
06/25/2013	6.9	70	1480	1.0	126	273	0.44	809	<1.0	21	-22
09/30/2013	7.4	118	1168	1.0	127	233	0.43	741	<1.0	13	-26

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-3: GROUNDWATER QUALITY DATA FOR WELL QD-23 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/15/1995	7.2	153	1156	6.0	128	321	0.45	776	<1.0	12	-39
04/05/1995	7.0	148	1258	4.0	139	96	0.47	818	<1.0	12	-40
06/28/1995	7.1	126	1242	4.0	126	369	0.48	845	<1.0	13	-34
08/30/1995	7.3	163	1246	4.0	135	297	0.46	757	<1.0	14	-36
10/04/1995	7.0	145	1456	7.0	122	364	0.43	848	<1.0	14	-39
12/05/1995	7.8	113	1356	10	123	348	0.47	828	<1.0	13	-38
02/01/1996	7.1	142	1174	7.0	125	367	0.47	798	<1.0	11	-40
04/15/1996	7.2	149	1182	8.0	119	327	0.44	834	<1.0	12	-40
06/19/1996	7.0	151	1362	3.0	122	357	0.47	827	<1.0	14	-35
08/01/1996	7.3	153	1482	4.0	126	356	0.46	782	<1.0	13	-35
10/23/1996	7.4	159	1268	3.0	125	376	0.47	834	<1.0	12	-36
12/03/1996	7.2	149	1198	8.0	121	353	0.43	807	<1.0	12	-38
02/05/1997	7.5	138	1180	8.0	126	338	0.39	807	<1.0	12	-38
04/02/1997	7.8	130	1400	3.0	131	314	0.34	796	<1.0	12	-33
06/11/1997	6.8	148	1488	4.0	131	317	0.39	857	<1.0	13	-34
08/20/1997	7.3	160	1432	9.0	121	375	0.41	883	<1.0	13	-34
10/29/1997	6.9	126	1278	3.0	123	248	0.36	817	<1.0	13	-39
12/17/1997	7.3	144	1228	7.0	123	326	0.46	899	<1.0	13	-40
02/19/1998	6.9	136	1202	6.0	124	342	0.39	837	<1.0	12	-38
04/08/1998	7.3	156	1374	8.0	130	311	0.45	815	<1.0	13	-33
06/03/1998	7.3	122	1292	8.0	137	336	0.40	850	<1.0	12	-34
08/05/1998	7.2	136	1504	6.0	130	350	0.44	860	<1.0	13	-39
10/07/1998	7.1	145	1394	4.0	129	417	0.43	825	<1.0	13	-40
12/02/1998	7.0	153	1454	5.0	139	338	0.40	786	<1.0	14	-41
02/18/1999	7.2	131	1164	3.0	123	339	0.36	857	<1.0	13	-42
04/14/1999	7.5	135	1222	5.0	122	353	0.52	831	<1.0	14	-39
06/03/1999	7.1	123	1500	3.0	138	300	0.36	827	<1.0	13	-36
08/18/1999	7.4	154	1440	5.0	128	327	0.41	884	<1.0	13	-42
10/20/1999	7.0	136	1268	4.0	120	323	0.65	869	<1.0	14	-44
12/01/1999	7.1	170	1186	7.0	115	343	0.44	906	<1.0	13	-46
02/24/2000	6.8	120	1560	7.0	313	234	0.63	683	<1.0	13	-48
04/17/2000	7.1	144	1234	10	108	284	0.47	801	<1.0	12	-48
06/01/2000	7.1	146	1338	7.0	115	303	0.43	833	<1.0	14	-44
08/02/2000	7.1	122	1264	4.0	108	279	0.46	810	<1.0	14	-44
10/11/2000	7.1	120	1260	3.0	119	361	0.48	744	<1.0	13	-45
12/13/2000	7.2	159	1114	3.0	122	299	0.45	796	<1.0	11	5.0
02/07/2001	7.7	156	1260	3.0	105	277	0.51	803	<1.0	12	-49
04/10/2001	7.6	142	1302	3.0	118	265	0.47	900	<1.0	13	-43
06/06/2001	7.1	154	1376	3.0	126	286	0.48	818	<1.0	13	-42
08/22/2001	7.1	161	1412	3.0	139	313	0.48	821	<1.0	13	-43

TABLE 5-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-23 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/03/2001	7.1	140	1364	3.0	132	238	0.48	778	<1.0	14	-43
12/05/2001	7.1	140	1088	4.0	125	301	0.46	812	<1.0	13	-43
02/06/2002	6.5	68	1102	4.0	133	297	0.48	680	<1.0	12	-44
04/03/2002	7.5	139	1228	7.0	126	268	0.45	792	<1.0	13	-43
06/11/2002	7.1	116	1306	6.0	135	334	0.48	805	<1.0	14	-37
08/14/2002	7.5	157	1612	6.0	137	316	0.57	958	<1.0	13	-42
10/09/2002	7.2	127	1244	6.0	157	331	0.57	780	<1.0	13	-42
12/04/2002	6.9	127	1172	4.0	129	315	0.47	747	<1.0	12	-40
02/19/2003	7.0	114	1158	5.0	132	306	0.48	756	<1.0	13	-47
04/09/2003	7.3	139	1194	4.0	118	291	0.44	761	<1.0	13	-45
06/11/2003	7.1	109	1436	5.0	119	313	0.48	770	<1.0	13	-42
08/20/2003	7.3	129	1456	5.0	131	352	0.47	782	<1.0	16	-43
10/15/2003	7.6	120	1208	4.0	87	358	0.49	716	<1.0	13	-43
12/15/2003	7.8	84	1198	5.0	140	367	0.48	763	<1.0	11	-41
02/26/2004	7.1	161	932	5.0	133	344	0.64	744	<1.0	13	-44
04/14/2004	7.6	127	1166	4.0	151	336	0.45	748	<1.0	13	-40
06/22/2004	7.2	129	1282	7.0	145	278	0.51	779	<1.0	14	-37
08/18/2004	7.7	128	1372	9.0	152	294	0.37	738	<1.0	13	-39
10/14/2004	7.7	48	1262	3.0	134	297	0.48	763	<1.0	13	-38
12/15/2004	6.9	128	1148	3.0	139	286	0.48	713	<1.0	12	-39
02/08/2005	6.8	63	1140	3.0	141	298	0.47	753	<1.0	12	-43
04/13/2005	7.5	73	1094	4.0	143	291	0.44	776	<1.0	13	-37
06/08/2005	7.2	80	1444	3.0	151	284	0.42	765	<1.0	14	-39
08/24/2005	6.3	131	1284	2.0	140	361	0.41	762	<1.0	13	-38
10/06/2005	7.1	137	1132	2.0	142	297	0.40	727	<1.0	14	-37
12/07/2005	7.6	93	1114	2.0	136	302	0.41	743	<1.0	12	-45
05/31/2006	7.0	173	1282	1.6	141	295	0.43	765	<1.0	14	-41
08/16/2006	7.1	141	1342	1.7	138	1287	0.52	756	<1.0	14	-41
11/28/2006	7.7	73	1126	1.8	138	303	0.41	754	<1.0	13	-40
04/11/2007	7.0	128	1148	1.4	167	324	0.42	709	<1.0	13	-35
06/27/2007	7.0	141	1512	1.5	173	327	0.39	784	<1.0	14	-36
10/24/2007	6.9	170	1350	1.5	153	352	0.44	716	<1.0	13	-38
02/13/2008	7.6	74	1138	1.3	161	340	0.45	784	<1.0	12	-40
06/11/2008	7.8	93	1444	1.1	150	303	0.50	773	<1.0	14	-34
11/25/2008	7.9	82	1270	1.1	173	320	0.48	727	<1.0	13	-36
02/18/2009	7.5	109	1502	1.6	181	333	0.48	786	<1.0	13	-52
05/27/2009	6.8	163	1552	1.8	211	366	0.46	783	<1.0	14	-25
08/31/2009	7.0	64	1540	1.6	195	413	0.47	848	<1.0	14	-30
02/10/2010	7.3	73	1316	1.9	175	369	0.38	853	<1.0	13	-32
06/24/2010	6.9	97	1646	1.6	194	364	0.49	305	<1.0	13	-27

TABLE 5-3 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-23 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
11/09/2010	7.1	112	1448	1.7	199	396	0.45	857	<1.0	13	-32
01/20/2011	7.0	95	1260	1.7	186	355	0.53	825	<1.0	12	-35
02/24/2011	6.8	115	1134	1.6	162	333	0.50	851	<1.0	13	-34
05/18/2011	6.9	111	1468	1.7	188	326	0.44	818	<1.0	14	-30
02/15/2012	7.5	117	1358	2.0	201	329	0.51	846	<1.0	13	-29
03/28/2012	7.1	104	1490	2.0	80	343	0.52	862	<1.0	13	-31
06/20/2012	6.7	106	1364	2.0	179	303	0.53	829	<1.0	14	-35
12/18/2012	6.9	108	1380	2.0	196	334	0.52	820	<1.0	13	-39
03/06/2013	6.9	100	1228	2.0	171	307	0.50	812	<1.0	12	-29
06/25/2013	6.8	83	1688	2.0	206	315	0.52	850	<1.0	19	-33
09/30/2013	7.3	150	1506	2.0	219	319	0.52	738	<1.0	14	-32

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-4: GROUNDWATER QUALITY DATA FOR WELL QD-24 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/15/1995	7.4	102	844	4.0	96	252	0.26	597	<1.0	11	9.0
04/05/1995	7.0	137	990	3.0	113	262	0.27	659	<1.0	11	9.0
06/28/1995	7.2	136	948	4.0	97	256	0.32	667	<1.0	11	12
08/30/1995	7.6	123	1360	2.0	82	292	0.30	498	<1.0	12	-8.0
10/04/1995	6.7	134	1016	8.0	88	224	0.30	660	<1.0	12	11
12/05/1995	7.9	111	762	8.0	74	164	0.31	524	<1.0	11	23
02/01/1996	7.2	142	684	5.0	77	143	0.29	507	<1.0	10	9.0
04/15/1996	7.4	101	656	5.0	69	117	0.27	476	<1.0	10	9.0
06/19/1996	7.3	122	1100	9.0	120	221	0.30	635	<1.0	12	13
08/01/1996	7.3	137	854	3.0	68	156	0.28	507	<1.0	12	16
10/23/1996	7.9	90	654	5.0	68	301	0.29	468	<1.0	11	11
12/03/1996	7.6	126	868	7.0	78	209	0.28	609	<1.0	10	11
02/05/1997	7.8	117	928	12	104	209	0.25	646	<1.0	10	-1.0
04/02/1997	7.9	81	756	3.0	67	175	0.13	538	<1.0	13	14
06/11/1997	6.8	121	1558	4.0	102	230	0.69	695	<1.0	12	17
08/20/1997	7.3	143	1186	14	104	272	0.31	709	<1.0	11	13
10/29/1997	7.4	140	1060	4.0	106	241	0.25	689	<1.0	11	11
12/17/1997	7.3	119	996	6.0	111	260	<0.01	725	<1.0	12	11
02/19/1998	7.8	87	678	5.0	59	140	0.20	521	<1.0	10	12
04/08/1998	7.4	127	1184	8.0	119	251	0.35	697	<1.0	12	15
06/03/1998	7.6	122	984	8.0	99	213	0.28	685	<1.0	12	14
08/05/1998	8.0	119	1798	7.0	108	251	0.68	753	<1.0	11	12
10/07/1998	7.5	121	948	5.0	97	267	0.33	595	<1.0	12	14
12/02/1998	7.2	117	1078	5.0	107	186	0.27	584	<1.0	12	13
02/18/1999	7.4	119	1002	5.0	128	244	0.30	722	<1.0	11	12
04/14/1999	7.5	102	840	5.0	94	202	0.36	590	<1.0	14	14
06/03/1999	7.4	92	1094	4.0	89	194	0.28	623	<1.0	12	16
08/18/1999	7.5	141	826	5.0	74	151	0.31	550	<1.0	12	-12
10/20/1999	7.4	91	812	5.0	76	174	0.30	589	<1.0	13	11
12/01/1999	7.6	126	974	8.0	116	207	0.41	719	<1.0	10	10
02/24/2000	7.2	98	1154	8.0	115	202	0.45	645	<1.0	11	10
04/17/2000	7.2	107	894	14	87	190	0.42	626	<1.0	12	89
06/01/2000	7.3	102	1044	7.0	130	188	0.35	633	<1.0	12	12
08/02/2000	7.1	105	870	3.0	85	190	0.39	606	<1.0	12	12
10/11/2000	7.2	139	1120	5.0	134	232	0.48	639	<1.0	11	11
12/13/2000	7.2	129	940	3.0	106	201	0.37	614	<1.0	9.0	23
02/07/2001	7.8	138	1068	5.0	110	216	0.49	659	<1.0	10	10
04/10/2001	7.6	90	1128	4.0	113	215	0.17	719	<1.0	11	12
06/06/2001	7.2	96	1020	4.0	74	193	0.42	632	<1.0	11	15
08/30/2001	7.5	79	1214	5.0	140	214	0.50	676	<1.0	12	12

TABLE 5-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-24 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/03/2001	7.4	100	1062	4.0	109	193	0.38	524	<1.0	12	13
12/05/2001	7.6	97	836	4.0	112	156	0.36	560	<1.0	12	12
02/06/2002	6.1	58	872	5.0	117	208	0.01	667	<1.0	11	8.0
04/03/2002	7.2	100	894	5.0	79	163	0.44	598	<1.0	11	15
06/11/2002	7.3	94	1146	6.0	123	222	0.27	651	48	12	16
08/14/2002	7.6	101	1064	5.0	90	185	0.51	677	<1.0	11	13
10/09/2002	7.6	87	856	7.0	95	183	0.53	576	<10	11	12
12/04/2002	7.2	95	1080	6.0	138	224	0.50	620	<1.0	11	10
02/19/2003	7.2	95	1002	8.0	133	211	0.58	634	<1.0	11	8.0
04/09/2003	7.3	130	1024	7.0	119	208	0.51	624	<1.0	11	10
06/11/2003	7.4	40	1010	5.0	75	185	0.40	584	<1.0	12	13
08/20/2003	7.6	97	1114	5.0	109	238	0.44	596	<1.0	14	13
10/15/2003	7.7	84	902	4.0	88	235	0.45	565	<1.0	11	11
12/15/2003	7.5	77	864	4.0	89	208	0.40	551	<1.0	10	14
02/26/2004	7.0	148	1324	6.0	123	236	0.60	591	<1.0	11	12
04/14/2004	7.9	124	858	4.0	125	212	0.39	530	<1.0	11	14
06/22/2004	7.3	115	818	7.0	93	161	0.40	532	<1.0	12	16
08/18/2004	7.8	119	988	6.0	87	165	0.35	545	<1.0	12	14
10/14/2004	8.0	44	644	2.0	71	131	0.34	394	<1.0	11	10
12/15/2004	6.9	101	856	3.0	97	182	0.47	547	<1.0	10	22
02/08/2005	6.9	107	742	5.0	79	170	0.40	549	<1.0	10	21
04/13/2005	7.8	64	1048	4.0	122	219	0.62	630	<1.0	11	14
06/08/2005	7.3	66	996	3.0	81	172	0.37	562	<1.0	12	14
08/24/2005	6.5	110	1056	2.0	132	213	0.56	638	<1.0	12	15
10/06/2005	7.3	114	894	2.0	106	193	0.45	568	<1.0	12	16
12/07/2005	7.8	79	834	2.0	87	166	0.41	546	<1.0	10	9.0
05/31/2006	7.2	156	756	1.5	95	137	0.41	456	<1.0	13	11
08/16/2006	7.2	124	1002	1.9	101	830	0.52	588	<1.0	13	13
11/28/2006	7.8	73	768	1.6	87	180	0.39	475	<1.0	12	14
04/11/2007	7.5	82	762	1.3	79	168	0.39	494	<1.0	11	18
06/27/2007	7.0	131	1016	1.8	106	184	0.41	547	<1.0	14	13
10/24/2007	7.2	146	836	1.5	104	145	0.44	420	<1.0	11	15
02/13/2008	7.5	63	956	1.7	148	236	0.02	650	<1.0	10	14
06/11/2008	7.7	74	850	1.3	83	145	0.47	453	<1.0	12	18
11/25/2008	7.3	77	702	1.3	100	139	0.46	416	<1.0	11	16
02/18/2009	7.4	85	1220	1.3	144	315	0.48	810	<1.0	11	7.0
05/27/2009	7.2	95	824	1.8	102	167	0.47	457	<1.0	13	22
08/31/2009	7.5	62	954	2.1	110	177	0.53	492	<1.0	13	19
02/10/2010	7.2	74	634	2.0	92	91	0.33	423	<1.0	11	19
07/08/2010	7.8	103	682	1.0	<15	123	0.22	66	<1.0	12	12

TABLE 5-4 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-24 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
11/09/2010	6.9	96	754	1.9	99	159	0.43	468	<1.0	12	18
01/20/2011	7.3	83	840	2.0	111	180	0.54	545	<1.0	11	16
04/27/2011	6.8	84	764	1.9	98	159	0.49	524	1.0	12	22
07/07/2011	7.5	96	1014	1.8	102	166	0.53	531	1.0	12	10
02/15/2012	7.7	69	682	2.0	99	132	0.49	450	<1.0	12	20
03/28/2012	7.4	79	1032	2.0	102	193	0.53	613	<1.0	12	21
06/20/2012	7.2	84	1052	2.0	97	185	0.50	600	<1.0	12	15
12/18/2012	7.2	98	1052	2.0	168	192	0.76	646	<1.0	11	15
04/08/2013	7.3	19	758	2.0	105	146	0.50	520	<1.0	13	15
06/26/2013	7.1	72	1124	3.0	14	198	0.71	665	1.0	14	22
09/30/2013	7.5	84	904	2.0	112	160	0.53	497	<1.0	13	19

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-5: GROUNDWATER QUALITY DATA FOR WELL QD-25 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/15/1995	7.1	167	1384	8.0	244	275	0.57	706	<1.0	11	23
04/05/1995	7.3	177	1260	6.0	263	300	0.60	728	<1.0	10	23
06/28/1995	7.0	151	1260	7.0	256	308	0.67	717	<1.0	11	27
08/30/1995	7.5	180	514	6.0	286	296	0.29	655	<1.0	12	25
10/04/1995	6.8	158	1572	9.0	268	290	0.58	749	<1.0	12	24
12/05/1995	7.6	152	1360	7.0	258	292	0.65	731	<1.0	11	24
02/01/1996	7.0	127	1234	9.0	259	281	0.64	594	<1.0	9.0	23
04/15/1996	7.1	169	1304	9.0	256	242	0.66	747	<1.0	10	22
06/19/1996	7.0	175	1518	12	248	264	0.41	730	<1.0	12	26
08/01/1996	7.2	141	1588	7.0	280	297	0.75	705	<1.0	12	26
10/23/1996	7.2	182	1452	12	289	152	0.67	735	<1.0	10	24
12/03/1996	7.4	222	1380	6.0	284	290	0.71	704	<1.0	10	24
02/27/1997	7.8	146	1304	13	264	273	0.75	717	<1.0	10	23
04/02/1997	8.0	138	1334	4.0	250	287	0.75	641	<1.0	11	29
06/11/1997	6.7	156	1182	6.0	293	238	0.77	722	<1.0	12	29
08/20/1997	7.3	180	1584	19	339	269	0.63	765	<1.0	11	27
10/29/1997	7.4	158	1578	4.0	320	218	0.60	724	<1.0	11	25
12/17/1997	7.1	186	1464	7.0	341	252	0.65	760	<1.0	11	24
02/19/1998	7.5	176	1410	7.0	297	266	0.67	737	<1.0	10	25
04/08/1998	7.1	192	1494	7.0	317	214	0.74	731	<1.0	12	28
06/03/1998	7.2	186	1562	7.0	355	266	0.82	777	<1.0	12	32
08/05/1998	7.8	222	1798	7.0	378	251	0.68	753	<1.0	11	26
10/07/1998	7.2	181	1502	6.0	369	329	0.65	716	<1.0	12	26
12/02/1998	7.0	206	1660	7.0	373	257	0.67	694	<1.0	12	26
02/18/1999	7.4	189	1402	6.0	326	274	0.61	762	<1.0	11	26
04/14/1999	7.9	184	1420	7.0	320	280	0.67	724	<1.0	14	27
06/03/1999	7.2	155	1660	5.0	334	255	0.62	729	<1.0	11	30
08/18/1999	7.3	198	1644	5.0	391	282	0.65	742	<1.0	12	27
10/20/1999	7.0	190	1468	5.0	346	277	0.65	710	<1.0	12	25
12/01/1999	7.2	219	1382	9.0	315	241	0.59	755	<1.0	10	25
02/24/2000	7.0	140	1404	7.0	114	295	0.47	798	<1.0	11	22
04/17/2000	7.3	140	1406	12	329	234	0.63	691	<1.0	10	22
06/01/2000	7.2	147	1522	15	341	233	0.66	747	<1.0	12	25
08/02/2000	7.0	155	1628	5.0	390	234	0.69	745	<1.0	12	25
10/11/2000	7.0	119	1608	5.0	367	247	0.68	671	<1.0	11	24
12/13/2000	7.3	199	1398	4.0	362	251	0.66	713	<1.0	10	23
02/07/2001	7.8	214	1386	5.0	345	214	0.67	665	<1.0	10	23
04/10/2001	7.7	133	1604	5.0	365	212	0.76	789	<1.0	11	25
06/06/2001	7.3	148	1780	5.0	380	286	0.73	755	<1.0	11	26
08/30/2001	7.2	143	1604	4.0	431	343	0.77	690	<1.0	12	23

TABLE 5-5 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-25 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/03/2001	7.2	177	1630	6.0	374	287	0.74	712	<1.0	12	25
12/05/2001	7.1	121	1484	4.0	347	251	0.78	718	<1.0	11	28
02/06/2002	6.5	175	1314	5.0	341	229	0.70	746	<1.0	10	24
04/03/2002	7.6	193	1318	4.0	302	248	0.72	783	<1.0	11	27
06/11/2002	7.5	148	1486	5.0	348	245	0.75	688	<1.0	11	29
08/14/2002	7.5	187	1648	6.0	337	227	0.80	720	<1.0	11	26
10/09/2002	7.4	138	1442	8.0	374	253	0.82	637	<1.0	11	25
12/04/2002	7.0	146	1338	6.0	312	222	0.66	601	<1.0	10	25
02/19/2003	7.0	188	1244	7.0	342	209	0.64	584	<1.0	10	22
04/09/2003	7.4	179	1214	5.0	295	180	0.59	564	<1.0	10	23
06/11/2003	7.6	160	1506	6.0	352	195	0.68	619	<1.0	12	24
08/20/2003	7.4	165	1564	6.0	334	275	0.05	619	<1.0	14	23
12/15/2003	7.5	116	1208	5.0	360	198	0.63	529	<1.0	10	25
02/26/2004	7.0	217	474	6.0	359	245	0.71	639	<1.0	12	28
04/14/2004	7.4	188	1320	4.0	368	222	0.66	591	<1.0	11	26
06/22/2004	7.1	166	1472	8.0	342	212	0.72	701	<1.0	11	27
08/18/2004	7.6	189	1530	8.0	388	214	0.58	607	<1.0	11	28
10/14/2004	8.2	58	950	4.0	236	127	0.45	393	<1.0	11	24
12/15/2004	6.9	162	1248	4.0	371	175	0.70	521	<1.0	10	26
02/08/2005	6.9	152	1302	4.0	381	175	0.70	568	<1.0	10	26
04/13/2005	7.6	93	1258	4.0	366	201	0.81	614	<1.0	11	27
06/08/2005	7.7	102	1488	4.0	367	178	0.63	576	<1.0	12	25
08/24/2005	6.7	167	1470	2.0	364	218	0.64	624	<1.0	16	25
10/06/2005	7.0	171	1328	2.0	378	189	0.60	502	<1.0	11	24
12/07/2005	7.6	117	1234	2.0	361	180	0.61	534	<1.0	10	23
05/31/2006	7.1	218	1326	1.8	353	177	0.66	568	<1.0	14	24
08/16/2006	7.0	198	1568	1.4	375	1031	0.74	608	<1.0	13	26
11/28/2006	7.6	90	1294	2.0	359	221	0.71	599	<1.0	11	25
02/07/2007	7.1	152	1246	1.9	389	169	0.71	554	<1.0	9.0	25
06/27/2007	7.0	212	1636	2.3	436	218	0.68	585	<1.0	13	28
10/24/2007	7.2	214	1498	1.6	380	212	0.69	564	<1.0	11	27
02/13/2008	7.7	91	1318	1.5	431	249	0.02	645	<1.0	9.0	25
06/11/2008	7.6	123	1614	1.0	435	164	0.78	520	<1.0	12	29
11/25/2008	7.4	127	1382	1.1	436	196	0.71	511	<1.0	10	29
08/31/2009	6.9	175	1698	1.6	507	247	0.73	617	<1.0	12	30
10/14/2009	6.9	175	1728	2.3	472	247	0.72	691	<1.0	13	30
02/17/2010	7.0	169	1604	1.4	464	242	0.71	734	<1.0	10	30
07/08/2010	7.4	115	1870	1.6	506	246	0.75	688	<1.0	13	14
11/09/2010	7.4	115	1480	1.7	483	199	0.63	545	<1.0	12	32
01/20/2011	7.2	121	1546	1.8	483	269	0.74	719	<1.0	10	28

TABLE 5-5 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-25 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
04/27/2011	6.7	147	1550	1.6	469	215	0.71	600	<1.0	11	27
07/07/2011	7.2	216	1822	1.7	527	174	0.72	567	<1.0	13	17
02/16/2012	7.3	156	1492	2.0	496	182	0.72	565	<1.0	11	8.0
03/28/2012	7.2	144	1594	2.0	187	225	0.72	638	<1.0	11	19
09/06/2012	7.7	0	1702	2.0	471	252	0.71	663	<1.0	25	28
12/18/2012	7.1	153	1394	1.0	457	209	0.66	514	<1.0	11	27
04/08/2013	7.1	197	1434	2.0	185	192	0.72	578	<1.0	12	30
06/26/2013	7.1	110	1504	2.0	421	176	0.73	565	<1.0	15	30

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-6: GROUNDWATER QUALITY DATA FOR WELL QD-26 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/02/1995	7.4	101	684	3.0	46	164	0.36	483	<1.0	11	-16
04/13/1995	7.6	100	660	7.0	40	237	0.33	485	<1.0	12	-14
06/08/1995	7.7	136	658	3.0	34	185	0.37	514	<1.0	12	-10
08/10/1995	7.7	90	698	2.0	33	146	0.38	509	<1.0	12	-15
10/05/1995	7.5	141	686	7.0	34	141	0.34	500	<1.0	13	-14
12/06/1995	7.9	99	658	8.0	34	148	0.35	494	<1.0	10	-15
02/29/1996	7.5	101	644	8.0	41	148	0.36	463	<1.0	11	-16
04/10/1996	7.5	130	676	8.0	31	145	0.33	505	<1.0	12	-16
06/06/1996	7.3	84	666	7.0	32	149	0.32	502	<1.0	14	-17
08/29/1996	7.7	89	782	4.0	31	117	0.32	495	<1.0	12	-18
10/17/1996	7.7	126	656	6.0	34	147	0.34	489	<1.0	12	-16
12/19/1996	7.5	135	698	6.0	32	134	0.25	508	<1.0	10	-15
02/27/1997	7.9	119	656	3.0	32	132	0.28	501	<1.0	11	-12
04/23/1997	7.4	133	668	4.0	31	140	0.29	498	<1.0	12	-13
06/26/1997	7.1	79	652	4.0	30	150	0.23	499	<1.0	12	-13
08/21/1997	7.5	131	638	7.0	32	139	0.24	501	<1.0	12	-11
10/07/1997	7.5	87	652	2.0	32	129	0.24	489	<1.0	14	-18
12/17/1997	7.4	84	678	6.0	31	135	0.34	511	<1.0	11	-16
02/26/1998	7.4	93	668	5.0	31	154	0.29	489	<1.0	13	-14
04/23/1998	7.4	91	650	3.0	31	145	0.40	490	<1.0	14	-12
06/25/1998	7.4	85	680	2.0	28	154	0.25	330	<1.0	13	-18
08/27/1998	7.3	85	702	3.0	29	144	0.23	499	<1.0	16	-15
10/22/1998	7.5	88	632	3.0	29	130	0.36	459	<1.0	14	-17
12/10/1998	7.3	90	634	2.0	28	128	0.27	489	<1.0	13	-17
02/04/1999	7.5	71	662	2.0	31	126	0.27	475	<1.0	11	-16
04/15/1999	8.2	75	622	2.0	24	130	0.40	469	<1.0	12	-15
06/24/1999	7.6	74	636	2.0	26	153	0.29	485	<1.0	13	-14
08/05/1999	6.7	81	634	3.0	28	125	0.24	483	<1.0	15	-16
10/14/1999	7.5	70	608	3.0	28	129	0.24	469	<1.0	12	-18
12/16/1999	7.5	86	592	8.0	21	108	0.26	451	<1.0	11	-59
02/24/2000	7.4	90	640	2.0	26	106	0.41	460	<1.0	12	-21
04/06/2000	7.5	75	602	5.0	22	118	0.39	463	<1.0	12	-21
06/22/2000	7.7	86	586	6.0	18	121	0.36	455	<1.0	12	-18
10/05/2000	8.0	76	602	3.0	17	117	0.36	430	<1.0	12	-20
12/23/2000	7.2	94	596	2.0	17	122	0.36	453	<1.0	11	-23
02/07/2001	7.6	67	594	2.0	17	119	0.41	456	<1.0	11	-20
04/05/2001	7.9	77	618	2.0	18	110	0.42	484	<1.0	12	-19
06/07/2001	7.5	82	602	2.0	18	113	0.37	755	<1.0	12	-19
08/09/2001	7.4	86	622	1.0	4.0	119	0.36	442	<1.0	13	-19
10/04/2001	7.4	67	1330	2.0	53	117	2.82	399	<1.0	12	-19

TABLE 5-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-26 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/13/2001	7.2	72	632	3.0	26	120	0.38	441	<1.0	12	-20
02/07/2002	7.3	70	610	6.0	23	114	0.33	453	<1.0	11	-21
04/04/2002	7.2	74	628	4.0	22	98	0.38	432	<1.0	12	-19
06/27/2002	7.7	79	640	4.0	30	121	0.47	422	<1.0	13	-17
08/08/2002	7.6	65	620	3.0	20	120	0.34	502	<1.0	12	-19
10/03/2002	7.9	60	608	4.0	22	113	0.42	424	<1.0	12	-22
12/05/2002	7.3	66	626	3.0	20	116	0.33	420	<1.0	11	-21
02/13/2003	7.1	70	738	4.0	83	110	0.31	408	<1.0	11	-21
04/02/2003	7.5	75	582	5.0	18	113	0.34	429	<1.0	13	-22
06/05/2003	7.5	57	598	4.0	18	111	0.36	427	<1.0	12	-20
08/07/2003	7.0	43	642	4.0	24	150	0.29	435	<1.0	13	-20
10/16/2003	6.7	59	562	2.0	18	139	0.35	393	<1.0	12	-23
12/05/2003	7.7	52	606	2.0	16	135	0.27	423	<1.0	12	-20
02/05/2004	6.8	38	650	4.0	51	111	0.39	398	<1.0	11	-23
04/01/2004	6.8	89	568	3.0	17	<0.40	0.38	404	<1.0	12	-19
06/03/2004	7.2	40	570	2.0	24	123	0.31	413	<1.0	12	-18
08/05/2004	7.1	84	592	2.0	18	110	0.39	412	1.0	13	-19
10/21/2004	7.4	38	582	4.0	16	106	0.33	410	<1.0	12	-22
12/02/2004	7.5	37	573	1.0	25	110	0.37	389	<1.0	11	-21
02/17/2005	7.2	37	642	2.0	30	109	0.33	421	<1.0	11	-18
04/14/2005	7.2	67	620	1.0	24	115	0.30	432	<1.0	12	-19
06/29/2005	7.8	62	572	1.0	21	118	0.31	426	<1.0	13	-19
05/11/2006	7.6	36	566	0.60	19	111	0.25	424	<1.0	12	-18
08/10/2006	7.5	36	534	0.70	17	106	0.26	423	<1.0	13	-21
11/01/2006	7.4	83	560	0.70	16	117	0.28	399	<1.0	12	-20
06/07/2007	7.7	65	562	0.60	16	104	0.29	401	<1.0	12	-16
10/18/2007	7.5	71	562	0.60	16	125	0.31	386	<1.0	13	-18
11/08/2007	7.8	49	648	0.60	55	108	3.53	397	<1.0	12	-19
04/24/2008	7.3	73	548	0.60	15	104	0.34	387	<1.0	12	-27
07/17/2008	7.5	72	532	0.40	13	102	0.34	402	<1.0	13	-31
08/14/2008	7.4	91	560	0.40	13	97	0.36	418	25	13	-16
02/05/2009	7.2	45	436	<1.0	26	70	0.31	326	<1.0	11	-18
04/30/2009	7.2	48	576	<1.0	17	105	0.32	387	<1.0	13	-12
08/27/2009	7.4	81	546	<1.0	13	96	0.35	367	<1.0	13	-14
04/01/2010	7.2	39	518	<1.0	<15	95	0.35	369	<1.0	13	26
09/30/2010	7.8	41	554	<1.0	<15	109	0.34	413	<1.0	14	26
12/16/2010	7.3	60	552	<1.0	<15	114	0.36	426	<1.0	11	34
01/13/2011	7.8	36	544	<1.0	12	97	0.29	417	<1.0	11	36
05/26/2011	7.5	55	680	<1.0	12	93	0.32	430	<1.0	12	-9.8
11/02/2011	7.2	49	554	<1.0	14	99	0.37	404	<1.0	13	30

TABLE 5-6 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-26 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/12/2012	7.6	56	424	<1.0	27	100	0.38	415	<1.0	11	-30
03/14/2012	7.5	69	556	1.0	<10	99	0.34	416	<1.0	13	-12
05/02/2012	7.1	73	566	1.0	11	98	0.35	418	<1.0	13	-12
07/05/2012	6.9	103	552	<1.0	10	93	0.32	409	5.0	13	-14
04/18/2013	7.0	60	546	<1.0	10	94	0.39	449	<1.0	16	-8.0
08/21/2013	7.2	68	552	<1.0	11	99	0.35	420	<1.0	14	-108
10/24/2013	7.5	66	540	1.0	11	97	0.36	411	<1.0	12	-14

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-7: GROUNDWATER QUALITY DATA FOR WELL QD-27 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
02/02/1995	7.9	199	1208	29	309	77	26	539	<1.0	11	-194
04/13/1995	7.8	229	1266	30	326	149	17	532	<1.0	12	-182
06/08/1995	7.9	312	1196	31	272	95	25	533	<1.0	12	-188
08/10/1995	7.1	219	1262	28	291	69	18	538	<1.0	12	-184
10/05/1995	7.8	202	1290	32	303	70	17	558	<1.0	12	-185
12/06/1995	8.9	259	1264	43	307	68	18	540	<1.0	11	-187
02/29/1996	7.8	121	1228	33	307	77	21	515	<1.0	10	-186
04/10/1996	7.5	221	1250	24	299	74	18	532	<1.0	11	-187
06/06/1996	7.2	221	1266	32	320	71	26	538	4.0	14	-182
08/26/1996	7.4	187	1416	28	321	200	18	524	6.0	13	-190
10/17/1996	7.7	224	1332	36	342	82	20	526	<1.0	12	-187
12/19/1996	7.5	142	1308	44	322	59	27	554	<1.0	10	-190
02/27/1997	7.7	143	940	5.0	229	111	0.23	284	91	10	-170
04/23/1997	8.0	124	1276	29	297	65	21	532	3.0	12	-195
06/26/1997	7.1	196	1272	33	295	70	25	553	<1.0	13	-190
08/21/1997	7.4	211	1278	47	308	62	24	544	57	12	-172
10/09/1997	7.3	226	1282	31	305	53	15	529	<1.0	14	-194
12/11/1997	7.9	222	1328	40	321	54	26	566	<1.0	11	-195
02/26/1998	7.2	238	1344	37	327	140	17	521	<1.0	13	-191
04/23/1998	7.4	219	1374	33	346	60	20	537	<1.0	13	-185
06/25/1998	7.3	182	1308	29	326	73	16	283	<1.0	13	-193
08/27/1998	7.2	228	1384	26	359	60	26	578	<1.0	15	-178
10/22/1998	7.2	229	1378	28	371	59	25	538	<1.0	14	-154
12/10/1998	7.1	226	1244	32	319	44	26	557	<1.0	13	-179
02/04/1999	7.3	198	1268	29	323	55	25	519	<1.0	10	-190
04/15/1999	7.6	188	1226	30	289	64	19	523	<1.0	13	-190
06/24/1999	7.8	162	1290	29	325	77	26	558	<1.0	14	-206
08/05/1999	6.5	199	1294	27	326	65	23	551	<1.0	15	-258
10/14/1999	7.5	165	1228	26	301	62	23	533	<1.0	12	-191
12/16/1999	7.3	219	1258	49	276	57	25	540	<1.0	11	-36
02/24/2000	7.3	220	1314	32	303	56	27	543	<1.0	12	-190
04/06/2000	7.5	158	1230	40	319	53	26	550	<1.0	12	-190
06/22/2000	7.4	170	1290	51	308	66	24	531	<1.0	13	-195
08/03/2000	7.3	174	1246	2.0	321	301	0.12	312	<1.0	13	-188
10/05/2000	7.3	171	1296	29	325	68	25	520	<1.0	12	-194
12/28/2000	7.9	209	1200	22	282	53	23	523	<1.0	11	-198
02/07/2001	7.2	152	1246	25	274	67	21	520	<1.0	11	-194
04/05/2001	7.5	154	1306	23	313	67	24	599	<1.0	12	-196
06/07/2001	7.2	139	1258	28	316	55	21	550	<1.0	12	-192
08/09/2001	7.3	180	1258	26	318	59	22	600	<1.0	13	-184

TABLE 5-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-27 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
10/04/2001	7.2	160	870	24	277	68	17	446	<1.0	12	-186
12/13/2001	7.2	164	1288	30	321	62	23	484	1.0	12	-194
02/07/2002	7.3	177	1266	31	324	59	19	505	<1.0	11	-196
04/04/2002	7.9	195	1292	33	298	81	22	520	<1.0	11	-195
06/27/2002	7.5	135	1250	29	328	68	25	497	<1.0	14	-193
08/08/2002	7.7	137	1254	29	298	64	25	583	<1.0	14	-191
10/03/2002	7.9	169	1238	32	319	64	25	505	<1.0	12	-196
12/05/2002	7.2	152	1196	28	283	68	20	478	<1.0	11	-194
02/13/2003	7.4	198	1168	29	291	62	21	493	<1.0	12	-195
04/02/2003	7.8	209	1158	30	268	62	22	512	<1.0	13	-194
06/05/2003	7.7	170	1182	33	275	48	23	522	24	12	-197
08/07/2003	7.9	103	1254	31	327	86	21	513	1.0	13	-191
10/16/2003	6.9	190	1286	28	355	112	26	501	<1.0	12	-197
12/05/2003	7.6	115	1162	27	278	92	20	499	<1.0	12	-199
02/05/2004	6.9	59	1168	32	281	80	22	496	<1.0	11	-201
04/01/2004	6.8	250	1276	28	340	96	23	503	<1.0	12	-188
06/03/2004	7.2	82	1200	22	309	61	20	505	<1.0	12	-156
08/05/2004	7.0	268	1318	27	361	63	25	486	<1.0	13	-195
10/21/2004	8.5	70	1184	36	270	51	22	508	<1.0	12	-199
12/02/2004	7.9	49	1179	-	322	60	23	485	<1.0	12	-193
02/17/2005	7.5	87	1214	26	325	52	24	512	12	11	-193
04/28/2005	7.4	180	1130	26	277	81	23	506	<1.0	12	-199
06/29/2005	7.6	184	1184	18	293	56	25	514	<1.0	13	-199
08/11/2005	7.3	143	1078	17	264	46	20	502	<1.0	13	-197
10/06/2005	7.4	55	1248	17	323	49	23	502	<1.0	12	-197
11/30/2005	7.6	201	1238	14	333	55	22	490	<1.0	12	-196
02/02/2006	7.4	52	1116	15	280	75	19	504	<1.0	11	-195
03/23/2006	7.0	141	1088	16	268	53	18	509	<1.0	12	-196
05/25/2006	7.7	61	980	15	212	32	14	473	<1.0	13	-193
06/22/2006	7.4	193	1236	18	321	54	26	527	<1.0	16	-193
10/18/2006	7.2	243	1064	15	254	43	15	420	<1.0	13	-180
11/16/2006	7.4	218	1196	18	281	54	24	503	<1.0	12	-194
03/01/2007	7.8	105	1144	16	286	43	23	504	<1.0	12	-200
03/29/2007	7.5	227	1206	16	309	58	24	496	1.0	12	-194
05/17/2007	7.4	175	1164	17	304	53	24	512	<1.0	12	-185
08/16/2007	7.8	83	1300	16	341	43	26	528	<1.0	12	-189
10/18/2007	7.2	224	1314	16	354	58	28	477	<1.0	14	-188
11/08/2007	8.1	109	1218	15	315	57	25	506	<1.0	12	-197
04/24/2008	7.1	194	1288	16	355	48	28	512	<1.0	14	-192
05/22/2008	8.1	148	1224	16	329	57	27	517	<1.0	12	-190

TABLE 5-7 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-27 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/17/2008	7.5	203	1280	17	321	53	29	513	<1.0	13	-198
08/14/2008	7.7	118	1274	16	304	43	28	514	<1.0	12	-188
10/02/2008	8.1	130	1238	19	322	31	29	482	260	12	-199
11/20/2008	7.8	211	1316	17	367	47	29	466	3.0	10	-194
01/22/2009	7.5	120	1260	19	331	30	29	491	<1.0	11	-199
03/19/2009	7.4	165	1292	17	337	44	29	455	4.0	12	-199
04/22/2009	7.1	191	1094	17	257	34	27	486	1.0	13	-194
07/09/2009	7.0	128	1214	16	313	49	28	449	<1.0	13	-196
10/08/2009	6.8	119	1042	15	240	12	21	460	<1.0	13	-200
12/17/2009	6.8	211	1230	17	337	34	29	484	<1.0	13	-207
01/28/2010	7.5	101	1236	17	325	36	30	525	<1.0	6.7	-209
03/11/2010	7.4	104	1280	16	341	43	29	545	<1.0	13	-214
04/01/2010	7.3	107	1266	16	328	42	29	485	<1.0	13	-217
06/10/2010	7.2	39	1318	17	327	37	30	497	<1.0	15	-222
09/30/2010	7.8	211	1288	17	341	43	29	515	1.0	14	-194
12/16/2010	7.5	35	1392	16	429	53	34	562	<1.0	11	-229
01/13/2011	7.5	36	1364	14	428	48	33	545	<1.0	10	-226
03/17/2011	7.2	108	1272	15	352	39	27	536	<1.0	12	-185
05/26/2011	6.5	174	1460	15	396	40	34	547	<1.0	13	-159
07/15/2011	7.2	176	1314	16	356	41	29	527	<1.0	13	-195
09/23/2011	7.0	132	1278	16	361	33	28	554	<1.0	12	-201
11/02/2011	7.1	115	1230	14	333	46	28	518	<1.0	13	-217
01/12/2012	7.6	95	1360	13	421	37	31	546	<1.0	11	-212
03/14/2012	7.1	174	1268	14	351	44	29	533	<1.0	14	-198
05/02/2012	7.0	222	1264	13	356	43	27	521	<1.0	14	-191
07/05/2012	7.4	37	1208	13	315	49	25	494	<1.0	12	-196
09/19/2012	7.1	67	1182	14	332	23	25	506	<1.0	16	-213
11/28/2012	7.0	60	1198	18	312	24	29	506	<1.0	11	-217
01/24/2013	7.0	70	1256	15	340	41	27	529	<1.0	9.1	-222
03/28/2013	7.6	211	1198	16	320	39	30	554	-	7.2	-200
06/06/2013	7.0	168	1312	18	363	26	31	516	10	13	-208
08/29/2013	7.6	153	1134	15	258	6.0	20	473	1.0	14	-205
09/25/2013	7.3	155	1234	15	340	44	28	485	<1.0	13	-219
12/12/2013	7.1	169	1050	14	265	7.0	23	456	<1.0	9.3	-227

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-8: GROUNDWATER QUALITY DATA FOR WELL QD-28 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/08/1995	7.2	143	936	3.0	203	282	0.60	616	<1.0	11	-141
04/12/1995	7.4	140	1122	4.0	179	255	0.61	659	<1.0	12	-136
06/07/1995	7.1	130	1148	4.0	143	219	0.61	750	<1.0	13	-134
08/02/1995	8.3	156	1474	6.0	172	318	0.63	761	<1.0	13	-139
10/25/1995	7.5	126	1120	3.0	149	228	0.75	584	<1.0	12	-40
12/12/1995	7.8	195	1134	9.0	155	277	0.95	685	<1.0	12	-139
02/14/1996	7.2	159	1160	7.0	174	317	0.92	804	<1.0	11	-137
04/29/1996	7.4	124	1188	7.0	173	302	0.78	768	<1.0	12	-139
06/05/1996	7.2	151	1164	4.0	159	280	0.82	777	<1.0	14	-137
08/14/1996	7.3	152	1264	3.0	146	285	0.68	705	<1.0	11	-138
10/09/1996	7.4	143	1326	4.0	160	313	0.67	101	<1.0	12	-138
12/05/1996	8.0	130	1012	4.0	158	263	0.66	682	<1.0	11	-138
02/20/1997	7.4	153	1188	2.0	179	231	0.53	625	<1.0	11	-138
04/16/1997	7.4	126	1104	2.0	179	248	0.48	746	<1.0	13	-142
06/04/1997	7.0	144	1160	2.0	184	226	0.52	657	<1.0	10	-139
08/06/1997	7.2	143	1222	9.0	149	218	0.51	635	<1.0	13	-139
12/03/1997	7.2	145	964	5.0	142	220	0.67	613	<1.0	12	-143
02/10/1998	7.8	134	1046	6.0	138	213	0.67	646	<1.0	12	-141
04/08/1998	7.5	140	1090	8.0	168	192	0.75	580	<1.0	12	-137
06/17/1998	7.8	133	1194	7.0	151	216	0.65	653	<1.0	15	-140
08/19/1998	7.0	114	1210	4.0	161	217	0.86	633	<1.0	13	-140
10/14/1998	7.8	133	1206	4.0	200	252	0.87	727	<1.0	13	-42
12/07/1998	7.2	152	1106	4.0	198	268	0.83	753	<1.0	12	-141
02/09/1999	7.2	158	1110	3.0	213	275	0.80	689	<1.0	14	-141
04/14/1999	6.6	144	1052	4.0	151	273	0.72	655	<1.0	14	-141
06/02/1999	6.7	130	1198	2.0	149	224	0.67	616	<1.0	14	-139
08/04/1999	6.8	128	1238	4.0	171	253	0.68	679	<1.0	16	-140
10/05/1999	7.4	163	1210	3.0	164	284	0.69	614	<1.0	12	-141
12/15/1999	7.3	116	1032	6.0	170	276	0.72	730	<1.0	12	-142
02/29/2000	7.2	144	1090	6.0	141	236	0.79	660	<1.0	12	-142
04/26/2000	7.3	152	984	10	160	218	0.89	640	<1.0	12	-140
06/07/2000	7.4	161	634	5.0	139	239	0.73	634	<1.0	13	-141
08/09/2000	7.4	152	1392	9.0	175	255	0.75	728	<1.0	13	-141
10/30/2000	7.2	165	1192	2.0	192	278	0.85	687	<1.0	12	-143
12/11/2000	7.5	164	990	2.0	172	252	0.84	609	<1.0	11	-144
02/21/2001	7.1	143	1060	2.0	172	250	0.82	725	<1.0	11	-142
04/03/2001	7.9	111	1040	3.0	177	94	0.90	777	<1.0	11	-141
06/20/2001	7.3	160	1406	2.0	231	232	0.97	722	<1.0	13	-138
08/29/2001	7.4	165	1556	2.0	267	327	0.93	748	<1.0	13	-139
10/10/2001	7.4	131	1314	3.0	276	198	0.85	599	<1.0	13	-138

TABLE 5-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-28 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2001	7.2	161	1254	2.0	273	196	0.71	634	<1.0	12	-144
02/06/2002	7.2	118	1130	5.0	288	178	0.66	688	<1.0	11	-144
04/17/2002	7.3	129	1440	5.0	264	215	0.74	679	<1.0	13	-138
06/12/2002	7.3	173	1506	4.0	297	223	0.71	722	<1.0	12	-135
08/27/2002	7.5	128	1278	4.0	248	208	0.82	664	<1.0	13	-134
10/16/2002	7.0	140	1422	5.0	316	210	0.83	678	<1.0	12	-139
12/04/2002	7.5	128	1034	5.0	209	185	0.73	532	<1.0	12	-137
02/05/2003	7.2	130	1110	5.0	218	236	0.86	638	<1.0	11	-139
04/16/2003	7.1	140	1192	4.0	190	220	0.97	629	<1.0	13	-138
06/11/2003	7.3	120	1598	4.0	287	200	0.79	667	<1.0	13	-135
08/13/2003	7.5	126	1618	5.0	311	177	0.64	654	<1.0	13	-135
10/22/2003	7.1	173	1318	3.0	310	230	0.70	610	<1.0	12	-135
12/17/2003	7.7	97	1276	3.0	356	242	0.64	678	<1.0	11	-133
02/04/2004	7.5	122	1256	4.0	281	238	0.66	651	<1.0	12	-136
06/09/2004	7.5	147	1484	3.0	328	179	0.69	639	<1.0	14	-129
08/12/2004	7.2	166	1516	2.0	324	204	0.63	664	<1.0	13	-129
10/14/2004	7.2	147	1492	3.0	344	246	0.71	766	<1.0	13	-129
12/21/2004	7.4	113	1256	2.0	376	205	0.69	678	<1.0	12	-127
01/06/2005	6.9	164	1504	3.0	378	223	0.71	751	<1.0	12	-127
03/16/2005	7.9	160	1422	3.0	360	205	0.62	717	<1.0	12	-130
05/11/2005	7.2	170	1444	2.0	343	243	0.55	762	<1.0	13	-129
07/07/2005	7.0	69	1660	1.0	326	237	0.58	782	<1.0	13	-132
09/08/2005	7.2	167	1664	1.0	331	225	0.52	700	<1.0	15	-129
10/31/2005	7.1	51	1256	1.0	260	221	0.52	617	<1.0	13	-132
05/30/2006	7.2	206	1540	0.80	332	239	0.55	735	<1.0	15	-129
08/09/2006	7.4	66	1586	1.0	322	231	0.59	687	<1.0	13	-129
11/29/2006	7.8	84	1308	1.1	316	268	0.47	710	<1.0	13	-129
05/31/2007	6.4	169	1516	0.90	337	278	0.45	690	<1.0	15	-132
07/25/2007	7.2	162	1834	1.1	322	279	0.55	794	<1.0	14	-127
10/29/2007	6.8	199	1462	0.90	326	286	0.54	678	<1.0	13	-129
02/14/2008	7.6	95	1330	0.80	339	281	0.53	724	<1.0	11	-127
05/29/2008	7.8	131	1532	0.80	297	256	0.56	673	<1.0	13	-129
07/16/2008	7.5	189	1526	0.80	277	288	0.55	682	<1.0	14	-123
04/29/2009	7.0	67	1382	1.3	332	-	0.53	655	<1.0	13	-127
09/09/2009	7.2	102	1414	1.1	300	263	0.55	618	<1.0	14	-128
11/24/2009	7.1	153	1182	1.2	308	256	0.55	647	<1.0	13	-137
02/02/2010	7.4	120	1370	1.2	291	267	0.55	721	<1.0	4.1	-143
08/30/2010	7.3	114	1292	1.7	263	228	0.61	627	<1.0	14	-119
12/15/2010	6.8	112	1154	1.1	284	248	0.63	649	<1.0	12	-126
01/20/2011	7.0	84	1188	1.2	294	242	0.63	674	<1.0	12	-146

TABLE 5-8 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-28 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
04/27/2011	6.8	89	1254	1.2	279	227	0.56	633	<1.0	13	-128
07/07/2011	7.1	159	1506	1.1	268	208	0.57	609	<1.0	14	-153
02/16/2012	7.3	108	1208	1.0	270	210	0.59	615	<1.0	-	-114
03/28/2012	7.0	80	1400	1.0	148	234	0.60	664	1.0	14	-119
05/09/2012	6.9	160	1262	1.0	272	238	0.62	670	<1.0	14	-115
07/18/2012	7.1	155	1524	7.0	255	226	0.62	630	<1.0	16	-122
04/08/2013	7.1	161	1136	1.0	253	192	0.59	579	<1.0	13	-119
08/07/2013	7.2	123	1164	2.0	201	271	0.45	726	<1.0	15	-111
09/30/2013	7.8	126	1246	1.0	254	202	0.63	605	<1.0	14	-122

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-9: GROUNDWATER QUALITY DATA FOR WELL QD-29 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/08/1995	7.0	145	1064	3.0	129	382	0.15	606	<1.0	11	-170
04/12/1995	7.6	145	1148	4.0	117	247	0.26	700	<1.0	12	-170
06/07/1995	7.4	144	1138	3.0	96	379	0.30	689	<1.0	13	-172
08/02/1995	8.0	128	1286	5.0	91	404	0.31	751	<1.0	15	-179
10/25/1995	7.8	142	1182	8.0	91	372	0.31	708	<1.0	12	-178
12/12/1995	7.6	81	1098	6.0	94	388	0.29	726	<1.0	12	-178
02/14/1996	7.1	153	1136	4.0	95	376	0.33	839	<1.0	11	-177
04/29/1996	7.6	80	1150	7.0	94	377	0.30	803	<1.0	12	-176
06/05/1996	7.1	140	1140	8.0	92	372	0.29	805	2200	15	-176
08/14/1996	7.2	136	1220	9.0	92	359	0.32	787	960	13	-176
12/05/1996	7.8	105	1040	5.0	86	324	0.17	766	<1.0	11	-176
02/20/1997	7.4	133	1196	5.0	94	341	0.20	764	<1.0	11	-175
04/16/1997	7.5	140	1110	2.0	98	333	0.19	807	3.0	13	-174
06/04/1997	7.0	142	1130	3.0	95	319	0.29	776	<1.0	11	-174
08/06/1997	7.8	133	1316	3.0	98	313	0.24	789	<1.0	14	-175
10/15/1997	7.1	145	1134	2.0	94	285	0.30	827	<1.0	13	-175
12/03/1997	7.0	157	1146	2.0	102	336	0.28	786	<1.0	12	-176
02/10/1998	7.7	140	966	6.0	75	262	0.21	659	<1.0	12	-174
04/08/1998	7.3	140	1200	7.0	107	304	0.32	783	<1.0	12	-173
06/17/1998	7.4	116	1300	6.0	98	322	0.24	763	<1.0	15	-178
08/19/1998	7.2	113	1316	3.0	102	321	0.32	764	<1.0	13	-186
10/14/1998	7.4	114	1242	3.0	117	314	0.38	798	<1.0	14	-192
12/07/1998	7.1	139	1110	4.0	116	351	0.29	842	<1.0	11	-192
02/09/1999	7.2	140	1124	3.0	108	356	0.22	792	48	12	-192
04/14/1999	6.6	135	1118	3.0	111	334	0.38	764	<1.0	14	-190
06/02/1999	6.6	118	1276	3.0	106	259	0.23	742	14	15	-189
08/04/1999	6.5	121	1190	5.0	148	282	0.19	779	<1.0	17	-196
10/05/1999	7.1	155	1248	4.0	106	299	0.22	710	<1.0	12	-197
12/15/1999	7.1	145	1028	8.0	101	323	0.33	780	<1.0	12	-197
02/29/2000	7.2	147	1158	2.0	106	300	0.39	760	<1.0	12	-197
04/26/2000	7.2	146	1118	4.0	114	285	0.39	784	290	12	-196
06/07/2000	7.1	144	1166	9.0	109	291	0.37	771	3.0	13	-197
08/09/2000	7.1	150	1334	8.0	110	305	0.39	726	<1.0	13	-198
10/30/2000	7.4	155	1122	2.0	111	309	0.39	744	<1.0	12	-200
12/11/2000	7.3	135	1092	2.0	110	337	0.36	727	<1.0	11	-205
02/21/2001	7.0	128	1202	3.0	119	265	0.41	826	19	12	-206
04/03/2001	7.8	106	1042	3.0	113	235	0.38	865	<1.0	12	-204
06/20/2001	7.2	127	1344	3.0	123	328	0.44	766	<1.0	13	-205
08/29/2001	7.2	133	1410	2.0	117	416	0.37	772	4.0	13	-199
10/10/2001	7.3	85	1264	3.0	138	288	0.45	596	340	13	-197

TABLE 5-9 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-29 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
12/12/2001	7.2	135	1216	3.0	113	314	0.37	678	3.0	12	-200
02/06/2002	7.0	97	986	5.0	125	250	0.37	728	<1.0	12	-198
04/17/2002	7.2	110	1284	6.0	118	279	0.38	716	<1.0	13	-142
06/12/2002	7.2	102	1314	6.0	132	295	0.42	737	1.0	12	-200
08/27/2002	7.0	105	1172	5.0	139	280	0.49	764	51	14	-200
10/16/2002	7.0	102	1171	6.0	129	284	0.51	736	<1.0	13	-202
12/04/2002	7.2	118	1098	4.0	117	275	0.40	687	<1.0	12	-200
02/05/2003	7.0	113	1084	6.0	133	281	0.45	712	<1.0	12	-196
04/16/2003	7.2	122	1076	5.0	111	276	0.40	721	16	13	-193
06/11/2003	7.5	86	1316	5.0	125	265	0.43	719	<1.0	13	-193
08/13/2003	7.8	86	1336	5.0	132	243	0.38	666	<1.0	13	-192
10/22/2003	7.0	105	1078	4.0	140	323	0.44	649	<1.0	12	-192
12/17/2003	7.8	81	1028	4.0	141	328	0.37	692	<1.0	12	-191
02/04/2004	7.7	83	1041	4.0	132	282	0.41	674	<1.0	11	-191
06/09/2004	7.4	120	1238	5.0	116	237	0.37	665	<1.0	14	-188
08/12/2004	7.1	113	1266	3.0	140	243	0.41	646	<1.0	13	-188
10/14/2004	7.3	122	986	2.0	106	237	0.43	618	<1.0	13	-187
12/21/2004	7.3	81	972	3.0	117	250	0.37	628	<1.0	12	-187
03/16/2005	7.5	113	1085	3.0	142	239	0.39	672	2.0	12	-188
05/11/2005	7.4	116	1004	3.0	139	235	0.36	638	<1.0	13	-188
07/07/2005	8.0	70	1122	2.0	117	239	0.35	657	<1.0	13	-187
09/08/2005	6.8	113	1242	2.0	129	256	0.32	670	<1.0	14	-184
10/31/2005	7.5	55	1060	1.0	115	269	0.33	654	<1.0	13	-187
05/30/2006	7.2	137	1158	1.4	145	250	0.36	695	<1.0	13	-196
08/09/2006	7.6	55	1190	1.8	138	245	0.34	667	<1.0	13	-194
11/29/2006	7.9	65	1030	1.4	142	267	0.32	674	<1.0	13	-193
05/31/2007	6.3	92	1118	1.4	140	300	0.31	657	<1.0	15	-188
07/25/2007	7.1	108	1212	1.6	120	224	0.35	604	<1.0	14	-189
10/29/2007	7.0	147	1084	1.4	128	265	0.37	643	<1.0	12	-189
02/14/2008	7.6	68	960	1.2	110	251	0.32	627	<1.0	10	-197
05/29/2008	7.9	84	1218	1.6	120	255	0.37	665	<1.0	13	-195
07/16/2008	7.4	100	1204	1.1	114	260	0.36	656	<1.0	14	-198
02/19/2009	7.7	85	1044	1.7	138	259	0.37	678	<1.0	12	-191
09/09/2009	7.1	92	1212	2.0	149	280	0.40	671	<1.0	13	-200
11/24/2009	7.5	126	990	1.7	121	241	0.39	615	<1.0	12	-177
02/02/2010	7.6	101	1064	1.9	133	257	0.40	706	<1.0	6.1	-181
08/30/2010	7.0	85	1156	3.4	144	276	0.43	712	<1.0	14	-171
12/15/2010	6.9	89	1068	2.0	142	284	0.48	717	<1.0	10	-154
01/31/2011	7.2	95	1022	2.4	151	277	0.45	724	<1.0	11	-181
04/27/2011	6.6	88	1186	1.9	132	249	0.43	696	<1.0	13	-201

TABLE 5-9 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-29 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/01/2011	6.8	92	1246	2.0	157	271	0.44	742	<1.0	13	-154
02/16/2012	7.0	87	1116	2.0	144	245	0.44	711	<1.0	12	-162
03/28/2012	6.7	91	1268	2.0	149	247	0.44	727	<1.0	14	-160
05/19/2012	6.9	132	1120	3.0	146	254	0.45	708	<1.0	13	-158
07/18/2012	7.1	133	1212	7.0	138	255	0.44	696	<1.0	16	-161
04/08/2013	6.9	130	1106	2.0	134	244	0.45	703	<1.0	15	-156
08/07/2013	6.9	120	1178	1.0	130	197	0.61	591	<1.0	15	-157
09/30/2013	7.2	109	1134	2.0	146	227	0.44	678	<1.0	14	-158

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-10: GROUNDWATER QUALITY DATA FOR WELL QD-30 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/01/1995	8.3	177	1350	2.0	117	437	0.27	914	<1.0	12	-125
04/06/1995	7.5	168	1340	2.0	122	495	0.22	857	<1.0	11	-123
06/08/1995	8.0	81	1318	4.0	111	481	0.28	876	<1.0	11	-120
08/24/1995	7.4	161	1360	3.0	122	397	0.24	845	<1.0	12	-121
10/19/1995	7.6	90	1380	5.0	112	420	0.24	884	<1.0	12	-122
12/07/1995	7.2	110	1222	5.0	117	438	0.25	861	<1.0	10	-121
02/28/1996	7.2	166	1286	10	132	405	0.28	840	<1.0	10	-121
04/24/1996	7.2	165	1488	7.0	116	441	0.28	879	<1.0	11	-128
06/13/1996	7.2	160	1462	6.0	109	446	0.23	858	11	14	-128
08/08/1996	7.4	100	1374	8.0	111	487	0.27	919	5.0	10	-131
12/03/1996	7.3	100	1296	6.0	113	447	0.29	935	<1.0	10	-129
02/13/1997	7.6	173	1400	3.0	117	479	0.18	925	<1.0	9.0	-128
06/12/1997	7.1	164	1396	4.0	108	410	0.17	889	<1.0	12	-126
08/28/1997	7.2	149	1240	15	99	373	0.24	812	29	13	-132
10/23/1997	7.1	128	1108	2.0	87	314	0.13	758	<1.0	11	-175
12/18/1997	7.5	149	1134	6.0	97	363	0.18	780	<1.0	11	-135
02/10/1998	7.0	169	1212	6.0	103	391	0.15	799	<1.0	12	-132
04/30/1998	7.1	167	1534	5.0	118	466	0.19	879	<1.0	12	-130
06/18/1998	7.6	133	1204	7.0	85	349	0.16	768	14	14	-137
08/13/1998	7.2	156	1518	3.0	112	450	0.36	914	<1.0	15	-136
10/29/1998	7.5	156	1594	3.0	114	493	0.36	933	<1.0	12	-132
12/03/1998	7.3	134	1414	4.0	124	469	0.09	871	<1.0	13	-139
02/04/1999	7.0	170	1390	2.0	135	472	0.19	883	<1.0	12	-142
04/22/1999	7.8	147	1382	3.0	123	495	0.15	939	<1.0	13	-137
06/17/1999	6.8	158	1634	1.0	367	189	0.14	28	<1.0	13	-134
08/19/1999	7.5	156	1360	3.0	116	398	0.15	894	<1.0	12	-141
10/14/1999	7.2	145	1282	2.0	113	383	0.13	827	<1.0	13	-140
12/09/1999	7.6	159	1220	6.0	130	374	0.27	852	<1.0	11	-135
02/17/2000	7.1	153	1188	3.0	114	346	0.30	762	<1.0	11	-141
04/27/2000	7.0	181	1280	12	126	387	0.32	813	<1.0	12	-142
06/08/2000	7.4	153	1066	4.0	92	278	0.29	694	<1.0	13	-145
08/10/2000	7.3	141	1084	8.0	91	313	0.29	705	<1.0	12	-194
10/19/2000	7.2	129	1110	2.0	110	320	0.31	696	<1.0	12	-142
12/20/2000	7.5	113	1202	2.0	114	354	0.32	772	<1.0	10	-142
02/28/2001	7.7	113	1232	3.0	130	419	0.32	922	<1.0	10	-141
04/12/2001	7.8	112	1170	2.0	142	281	0.27	726	<1.0	12	-194
06/28/2001	7.0	129	1338	2.0	121	430	0.31	822	<1.0	13	-140
08/02/2001	7.2	129	1342	2.0	156	424	0.41	876	<1.0	13	-140
10/10/2001	7.2	117	1344	2.0	182	410	0.27	779	22	11	-127
12/13/2001	7.2	132	1216	3.0	122	271	0.37	678	<1.0	12	-149

TABLE 5-10 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-30 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/21/2002	7.4	122	1296	5.0	205	334	0.32	848	<1.0	11	-148
04/25/2002	7.5	133	1334	5.0	199	369	0.26	813	<1.0	12	-142
06/13/2002	7.3	127	1514	6.0	139	389	0.31	759	1.0	12	-134
08/22/2002	7.5	153	1432	5.0	148	353	0.41	916	<1.0	13	-141
10/17/2002	7.6	136	1252	4.0	140	376	0.37	842	<1.0	12	-141
12/18/2002	7.0	139	1318	5.0	173	374	0.32	766	<1.0	12	-138
02/13/2003	7.8	129	1378	3.0	180	384	0.30	803	<1.0	9.7	-138
04/17/2003	7.3	161	1324	4.0	156	417	0.29	810	<1.0	11	-139
06/12/2003	7.2	44	1210	5.0	119	355	0.27	698	<1.0	12	-145
04/22/2004	7.4	130	1236	11	161	406	0.28	712	<1.0	12	-134
06/17/2004	6.9	154	1252	11	133	176	0.29	713	<1.0	13	-128
08/05/2004	7.5	115	1332	5.0	157	343	0.36	723	37	12	-131
10/21/2004	7.1	184	1270	7.0	162	362	0.34	767	<1.0	12	-133
12/09/2004	7.3	42	1168	5.0	139	340	0.34	724	<1.0	12	-124
02/17/2005	6.5	133	1198	3.0	158	330	0.32	739	<1.0	11	-134
04/28/2005	7.5	117	1114	3.0	126	347	0.72	675	1.0	12	-129
06/29/2005	7.4	102	1258	1.0	151	361	0.80	727	<1.0	13	-134
08/11/2005	7.5	133	1150	1.0	162	336	2.2	717	<1.0	12	-132
10/06/2005	7.5	64	1240	1.0	184	368	2.5	765	<1.0	12	-133
11/30/2005	7.5	125	1308	1.0	176	373	0.45	734	<1.0	11	-132
05/25/2006	7.4	62	1282	1.2	162	384	1.7	770	<1.0	12	-129
08/10/2006	7.7	52	1140	0.90	128	318	0.24	708	<1.0	12	-128
11/01/2006	7.2	153	1172	0.90	133	343	0.23	726	<1.0	11	-134
06/07/2007	7.9	77	1178	0.90	136	337	0.25	693	<1.0	13	-129
08/16/2007	7.9	72	1212	1.0	134	313	0.30	715	<1.0	13	-129
11/01/2007	7.8	146	1180	0.90	136	351	0.30	724	<1.0	12	-129
05/22/2008	7.6	86	1072	1.0	125	312	0.27	696	<1.0	12	-130
08/14/2008	7.5	115	1310	0.60	120	282	0.44	692	<1.0	13	-141
11/20/2008	7.5	120	1018	1.0	127	293	0.23	574	<1.0	11	-147
02/18/2010	7.1	96	1064	1.2	121	296	0.33	664	<1.0	11	-121
04/01/2010	7.6	87	1132	1.3	120	327	0.21	689	<1.0	12	-130
10/21/2010	6.9	59	1276	1.3	133	0.80	0.26	718	<1.0	12	-133
01/13/2011	7.7	85	996	1.2	138	313	0.29	601	<1.0	11	-139
03/17/2011	7.1	89	1348	1.4	139	352	0.32	766	<1.0	12	-115
05/26/2011	7.0	110	1482	1.7	140	308	1.2	718	<1.0	12	-109
03/01/2012	7.0	87	1070	1.0	125	307	0.31	715	<1.0	12	-145
05/17/2012	6.8	107	1140	1.0	124	304	0.32	700	<1.0	12	-113
03/07/2013	6.8	107	1140	1.0	126	314	0.31	737	<1.0	12	-113
10/10/2013	7.1	122	1190	1.0	122	313	0.30	725	<1.0	12	-117

TABLE 5-10 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-30 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2013	7.2	26	1132	1.0	127	307	0.31	700	<1.0	11	-116

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-11: GROUNDWATER QUALITY DATA FOR WELL QD-31 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/02/1995	7.8	140	1012	3.0	137	248	0.25	334	<1.0	12	-129
04/06/1995	7.4	143	952	2.0	120	247	0.23	343	<1.0	11	-125
06/08/1995	8.0	139	982	5.0	109	199	0.23	360	<1.0	12	-120
08/03/1995	8.0	138	970	5.0	105	246	0.22	358	<1.0	15	-120
10/19/1995	7.8	129	980	4.0	103	213	0.22	352	<1.0	11	-121
12/07/1995	7.9	130	956	6.0	102	222	0.24	373	<1.0	10	-118
02/28/1996	7.3	140	888	7.0	105	221	0.24	373	<1.0	11	-118
04/24/1996	7.5	137	970	7.0	102	221	0.23	384	<1.0	11	-118
06/13/1996	8.0	140	950	12	104	217	0.24	373	55	12	-140
08/08/1996	7.6	136	898	8.0	102	227	0.23	328	2000	12	-146
10/24/1996	7.6	129	984	4.0	112	269	0.31	393	<1.0	11	-188
12/05/1996	8.4	139	992	4.0	111	260	0.16	441	<1.0	10	-189
02/13/1997	7.8	135	1030	2.0	112	279	0.11	433	<1.0	10	-189
04/03/1997	7.8	172	1012	3.0	103	212	0.12	446	2.0	11	-187
06/12/1997	7.8	143	1044	3.0	114	215	0.17	415	<1.0	12	-185
08/28/1997	8.1	136	930	13	107	224	0.15	360	6000	13	-179
10/23/1997	7.8	135	1040	2.0	114	276	0.12	453	1.0	10	-192
12/18/1997	7.7	133	1042	3.0	110	276	0.18	475	<1.0	11	-194
02/10/1998	7.2	161	1038	5.0	112	252	0.14	460	<1.0	11	-192
04/30/1998	7.3	145	1058	3.0	115	271	0.10	450	<1.0	12	-189
06/18/1998	7.6	139	1010	7.0	114	260	0.09	409	53	14	-182
08/13/1998	8.0	137	1040	2.0	114	266	0.31	483	<1.0	14	-190
10/29/1998	7.7	121	1040	3.0	119	238	0.25	386	2.0	11	-188
12/03/1998	8.0	132	1116	4.0	121	216	0.16	435	<1.0	12	-196
02/04/1999	7.3	145	1056	2.0	122	262	0.15	427	3.0	12	-188
04/22/1999	7.9	129	1024	2.0	116	276	0.29	448	<1.0	13	-194
06/17/1999	6.9	131	1358	3.0	122	402	0.19	882	<1.0	14	-191
08/19/1999	7.7	131	1046	3.0	118	231	0.13	441	<1.0	12	-191
10/14/1999	7.5	145	1008	2.0	117	237	0.10	420	<1.0	12	-191
12/09/1999	7.6	154	1024	7.0	507	239	0.19	368	<1.0	11	-190
02/17/2000	7.4	146	1002	5.0	119	225	0.27	390	<1.0	11	-191
04/27/2000	7.5	158	966	9.0	122	213	0.27	359	260	12	-186
06/08/2000	7.6	157	1002	7.0	115	221	0.26	376	<1.0	12	-194
08/10/2000	7.3	143	990	1.0	117	224	0.26	377	<1.0	12	-137
10/19/2000	7.4	138	206	2.0	111	234	0.27	366	2.0	11	-195
02/28/2001	7.5	141	1012	2.0	117	223	0.28	395	2.0	10	-195
04/12/2001	7.8	143	996	2.0	123	212	0.26	339	<1.0	11	-194
06/28/2001	7.5	112	1034	2.0	119	220	0.27	331	<1.0	14	-194
08/02/2001	7.5	149	988	2.0	123	199	0.24	374	<1.0	12	-193
10/10/2001	7.7	120	848	3.0	108	167	0.14	252	7600	11	-175

TABLE 5-11 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-31 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/13/2001	7.3	136	1014	1.0	120	200	0.26	266	8.0	11	-197
02/21/2002	8.0	135	1009	3.0	134	203	0.26	357	<1.0	11	-195
04/25/2002	7.8	142	1068	4.0	143	196	0.23	323	1.0	11	-193
06/13/2002	7.5	131	1014	4.0	120	212	0.25	317	3.0	12	-193
08/22/2002	7.4	139	994	3.0	124	190	0.31	338	<1.0	12	-195
10/17/2002	7.7	115	992	6.0	134	197	0.29	318	1.0	11	-196
12/18/2002	7.4	127	1018	4.0	127	197	0.24	279	<1.0	12	-195
02/13/2003	7.9	118	1006	4.0	140	181	0.22	285	<1.0	10	-195
04/17/2003	7.3	126	968	5.0	119	200	0.17	317	<1.0	11	-193
06/12/2003	7.3	114	978	3.0	121	190	0.25	299	14	12	-198
08/14/2003	7.2	125	960	3.0	113	235	0.21	280	1.0	12	-197
10/30/2003	7.6	114	968	2.0	111	255	0.25	266	<1.0	11	-194
12/04/2003	7.4	147	900	2.0	115	241	0.22	280	4.0	10	-192
02/05/2004	7.4	149	910	5.0	112	213	0.25	274	<1.0	10	-194
04/22/2004	7.8	119	970	2.0	125	236	0.17	266	<1.0	12	-195
08/05/2004	7.6	121	856	2.0	124	179	0.25	258	4.0	12	-195
10/21/2004	7.0	152	982	5.0	127	183	0.21	268	<1.0	12	-196
02/17/2005	6.8	108	964	3.0	120	175	0.25	277	36	10	-184
04/28/2005	7.4	112	934	1.0	118	235	0.22	263	<1.0	12	-192
06/29/2005	7.5	94	908	1.0	115	186	0.17	265	<1.0	12	-191
08/11/2005	7.4	112	866	2.0	118	180	0.15	263	<1.0	12	-183
10/06/2005	7.5	53	918	3.0	122	176	0.12	222	<1.0	12	-189
11/30/2005	7.6	104	942	2.0	118	171	0.15	242	<1.0	11	-181
02/02/2006	7.6	48	906	1.0	120	204	0.18	254	<1.0	11	-179
05/25/2006	7.6	58	948	1.0	122	187	0.21	264	<1.0	12	-174
08/10/2006	7.5	56	948	0.80	118	170	0.16	249	<1.0	12	-173
03/01/2007	7.6	68	940	0.60	140	181	2.58	261	<1.0	11	-200
06/07/2007	7.8	88	936	0.60	124	183	0.15	251	<1.0	12	-191
11/01/2007	7.4	143	922	0.50	122	186	0.19	240	<1.0	11	-190
05/22/2008	7.8	83	882	0.50	117	185	0.22	238	<1.0	12	-194
08/14/2008	7.8	123	940	0.30	109	146	0.23	248	120	12	-195
11/20/2008	7.7	107	890	1.0	107	166	0.16	235	2.0	11	-195
04/22/2009	7.5	116	936	<1.0	127	176	0.26	241	<1.0	12	-192
08/27/2009	7.4	77	946	<1.0	118	181	0.23	243	3.0	13	-190
02/18/2010	7.4	67	946	1.0	116	216	0.25	244	<1.0	10	-196
04/01/2010	7.9	84	950	<1.0	120	183	0.25	244	<1.0	12	-194
10/21/2010	7.4	75	992	<1.0	135	182	0.23	242	1.0	11	-198
01/13/2011	7.7	77	906	<1.0	120	182	<0.10	241	<1.0	11	-196
03/17/2011	7.4	95	956	<1.0	133	187	0.15	250	<1.0	12	-194
05/26/2011	7.5	104	1092	<1.0	126	169	0.10	268	22	11	-195

TABLE 5-11 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-31 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/01/2012	7.5	100	946	<1.0	136	177	0.22	239	<1.0	12	-191
05/17/2012	7.5	132	964	<1.0	127	180	0.17	232	<1.0	12	-194
07/05/2012	7.2	78	958	<1.0	125	169	0.23	233	<1.0	13	-159
10/11/2012	7.4	132	958	<1.0	130	175	0.19	222	<1.0	12	-193
03/07/2013	7.1	130	956	<1.0	124	176	0.18	242	<1.0	12	-194
10/10/2013	7.5	106	824	<1.0	112	171	0.24	261	<1.0	12	-196
12/12/2013	7.7	103	826	<1.0	111	170	0.21	241	<1.0	9.8	-194

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-12: GROUNDWATER QUALITY DATA FOR WELL QD-32 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/02/1995	8.6	266	1602	9.0	441	223	0.16	17	<1.0	11	-118
04/06/1995	8.7	291	1740	7.0	391	247	0.04	22	<1.0	12	-118
06/08/1995	8.6	205	2120	5.0	415	190	0.24	18	<1.0	12	-117
08/03/1995	8.7	202	1786	6.0	460	241	0.18	28	<1.0	14	-118
10/19/1995	8.2	250	1882	5.0	441	202	0.20	26	<1.0	12	-115
12/07/1995	8.6	351	1966	8.0	462	212	0.14	36	<1.0	10	-119
04/24/1996	8.8	287	1956	4.0	480	202	<0.01	33	<1.0	12	-204
06/13/1996	8.2	297	2114	2.0	535	240	0.18	40	<1.0	11	-117
08/08/1996	8.3	202	2084	6.0	538	257	0.25	39	<1.0	12	-125
10/24/1996	8.5	200	1728	4.0	409	209	0.26	26	<1.0	11	-129
12/05/1996	8.6	226	1564	6.0	378	174	0.07	22	<1.0	11	-136
02/13/1997	8.3	244	1612	4.0	344	149	<0.10	18	<1.0	10	-128
04/03/1997	8.4	271	2174	2.0	539	209	0.14	39	<1.0	12	-132
06/12/1997	8.6	203	1866	3.0	411	187	0.06	31	<1.0	12	-133
08/28/1997	8.6	279	1628	36	357	173	0.21	21	360	13	-129
10/23/1997	6.8	215	1926	2.0	524	232	0.15	37	<1.0	10	-136
12/18/1997	8.5	266	2008	5.0	513	229	0.21	38	<1.0	11	-138
02/10/1998	8.4	306	2090	8.0	531	220	0.22	39	<1.0	11	-137
04/30/1998	8.1	282	2110	6.0	527	236	0.12	37	<1.0	12	-132
06/18/1998	8.6	254	2046	5.0	534	220	0.15	42	<1.0	15	-149
08/13/1998	8.1	278	1872	2.0	480	184	0.23	36	<1.0	14	-139
10/29/1998	8.5	273	2042	2.0	533	244	0.32	38	<1.0	12	-133
12/03/1998	8.5	269	1934	5.0	519	212	0.15	34	<1.0	12	-144
02/04/1999	8.5	282	2040	2.0	557	335	0.17	37	<1.0	12	-129
04/22/1999	8.6	235	1486	5.0	352	183	0.16	23	<1.0	13	-154
06/17/1999	7.0	269	1008	3.0	122	245	0.15	427	<1.0	14	-136
08/19/1999	8.3	272	2044	4.0	546	235	0.12	41	<1.0	12	-137
10/14/1999	8.2	209	1882	3.0	472	210	0.03	34	<1.0	12	-207
12/09/1999	8.5	254	1924	8.0	507	207	0.16	35	<1.0	11	-135
02/17/2000	8.1	230	2228	6.0	526	235	0.28	41	<1.0	11	-132
04/27/2000	8.2	303	1974	11	496	198	0.19	29	1.0	12	-143
06/08/2000	8.2	246	1746	15	405	200	0.10	29	<1.0	13	-139
08/10/2000	8.0	209	1840	14	461	208	0.14	30	7.0	12	-137
10/19/2000	8.4	222	1894	3.0	471	218	0.20	33	<1.0	11	-134
02/28/2001	8.3	229	1926	2.0	487	223	0.21	40	<1.0	10	-131
04/12/2001	9.0	209	1892	2.0	468	218	0.28	38	<1.0	11	-212
06/28/2001	9.1	218	1758	2.0	425	209	0.20	22	<1.0	13	-131
08/02/2001	8.4	230	1898	1.0	484	207	0.22	45	<1.0	12	-212
10/25/2001	8.6	215	1744	2.0	453	204	0.14	21	1.0	11	-141
12/13/2001	8.3	131	2166	6.0	533	217	0.24	34	<1.0	11	-144

TABLE 5-12 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-32 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/21/2002	8.5	215	2068	7.0	576	208	0.21	38	<1.0	10	-140
04/25/2002	8.3	227	1862	4.0	432	200	0.06	27	<1.0	11	-213
06/13/2002	8.3	220	1948	6.0	493	235	0.25	37	<1.0	12	-141
08/22/2002	8.0	203	1970	5.0	479	198	0.19	34	<1.0	12	-139
10/17/2002	7.8	216	1942	8.0	492	221	0.58	40	<1.0	11	-138
12/18/2002	9.0	217	1994	6.0	503	226	0.24	39	<1.0	12	-135
02/13/2003	8.6	201	1610	6.0	357	181	0.16	23	<1.0	9.4	-135
04/17/2003	7.5	131	420	5.0	531	220	0.20	49	<1.0	11	-135
06/12/2003	7.6	126	1820	4.0	457	216	0.12	29	<1.0	12	-133
08/14/2003	8.0	123	1844	6.0	465	243	0.08	27	<1.0	12	-138
10/30/2003	9.0	203	2126	2.0	522	331	0.25	43	<1.0	11	-134
12/04/2003	8.5	320	1858	4.0	506	266	0.14	33	<1.0	11	-144
02/05/2004	8.5	308	1908	3.0	501	266	0.22	41	<1.0	10	-132
04/22/2004	8.8	275	1704	2.0	498	325	0.09	21	<1.0	12	-127
06/17/2004	7.2	317	1906	8.0	537	214	0.24	39	<1.0	14	-125
08/05/2004	7.8	281	2020	2.0	541	216	0.27	36	<1.0	12	-130
10/21/2004	7.1	34	2854	4.0	530	224	0.23	40	<1.0	12	-126
12/09/2004	8.1	112	1880	1.0	481	227	0.22	28	<1.0	12	-130
02/17/2005	6.8	229	1906	3.0	506	215	0.23	38	<1.0	9.0	-128
06/29/2005	7.7	205	1986	1.0	527	228	0.19	39	<1.0	12	-129
10/06/2005	7.6	128	2086	<0.30	492	214	0.19	27	<1.0	11	-212
11/30/2005	7.6	227	2086	<0.30	531	214	0.19	37	<1.0	11	-212
05/25/2006	8.8	139	1912	0.40	483	222	0.10	24	1.0	12	-213
08/10/2006	8.2	134	2602	0.50	469	210	0.08	27	<1.0	13	-212
11/01/2006	9.3	326	1946	0.40	502	238	0.18	38	<1.0	10	-212
03/01/2007	8.6	145	1890	0.30	493	228	0.15	38	<1.0	11	-215
06/07/2007	8.5	22	2052	0.30	531	233	0.15	37	<1.0	12	-214
11/01/2007	9.2	325	2054	0.30	550	232	0.24	36	<1.0	11	-212
05/22/2008	8.2	196	2010	0.30	528	215	0.25	37	<1.0	12	-206
11/20/2008	7.4	272	2014	1.0	534	221	0.12	25	<1.0	11	-214
04/22/2009	8.7	284	1952	<1.0	540	222	0.24	28	<1.0	11	-218
08/27/2009	9.4	214	1932	<1.0	515	229	0.25	35	5.0	13	-214
02/18/2010	9.6	197	2014	<1.0	515	222	0.25	39	<1.0	10	-213
04/01/2010	8.0	190	1970	<1.0	519	228	0.23	36	<1.0	12	-207
10/21/2010	9.2	186	2018	<1.0	514	214	0.23	33	<1.0	11	-208
01/13/2011	8.4	193	2020	<1.0	533	229	0.21	32	<1.0	10	-210
03/17/2011	9.2	219	1994	<1.0	545	230	0.20	38	<1.0	12	-212
05/26/2011	8.9	296	2204	<1.0	542	219	0.21	43	<1.0	11	-213
03/01/2012	8.1	181	1648	<1.0	379	196	<0.10	29	<1.0	12	-216
05/17/2012	9.4	306	2016	<1.0	529	222	0.28	51	<1.0	12	-212

TABLE 5-12 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-32 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
07/05/2012	8.8	120	2038	<1.0	537	217	<0.10	27	<1.0	16	-214
10/11/2012	9.3	310	2066	<1.0	551	228	0.24	36	<1.0	12	-208
08/21/2013	8.6	258	2080	<1.0	529	233	0.27	33	<1.0	14	-206
09/11/2013	8.4	259	2004	<1.0	534	222	<0.10	25	<1.0	13	-214
10/24/2013	8.4	239	2004	<1.0	539	219	0.23	35	1.0	11	-211

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-13: GROUNDWATER QUALITY DATA FOR WELL QD-33 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/01/1995	8.5	269	1628	3.0	433	250	0.22	17	<1.0	12	-152
04/06/1995	8.5	262	1616	3.0	389	244	0.14	27	<1.0	12	-152
06/08/1995	8.1	200	1926	4.0	354	217	0.20	30	<1.0	12	-151
08/03/1995	8.4	199	1634	5.0	396	199	0.22	29	<1.0	15	-152
10/19/1995	8.4	258	1702	5.0	369	204	0.20	26	<1.0	13	-149
12/07/1995	8.7	192	1768	8.0	369	201	0.22	27	<1.0	12	-148
02/28/1996	8.1	104	1766	9.0	366	198	0.23	28	<1.0	11	-150
04/24/1996	8.3	251	1776	5.0	367	206	0.23	29	<1.0	14	-150
06/13/1996	8.0	196	1730	9.0	370	200	0.23	27	<1.0	14	-160
08/08/1996	8.5	200	1742	10	368	242	0.23	28	<1.0	10	-166
10/24/1996	8.4	219	1728	6.0	355	201	0.09	26	<1.0	12	-167
12/05/1996	8.5	198	1684	2.0	372	204	0.14	26	<1.0	10	-170
02/13/1997	8.6	201	1778	4.0	358	209	0.12	26	<1.0	11	-168
04/03/1997	7.3	220	1822	3.0	361	199	0.10	28	<1.0	12	-166
06/12/1997	8.7	198	1770	2.0	337	181	0.10	26	<1.0	13	-169
08/28/1997	8.1	245	1666	26	354	188	0.21	25	37	14	-162
10/23/1997	7.3	233	1730	2.0	360	204	0.12	27	<1.0	10	-169
12/18/1997	8.6	198	1686	5.0	361	212	0.18	27	<1.0	12	-169
02/10/1998	8.1	268	1714	9.0	353	209	0.12	25	<1.0	12	-169
04/30/1998	8.2	251	1810	6.0	368	206	0.10	27	<1.0	13	-172
06/18/1998	8.6	196	1716	7.0	351	209	0.09	26	<1.0	14	-173
08/13/1998	8.2	243	1662	2.0	360	209	0.24	29	<1.0	15	-166
10/29/1998	8.6	228	1684	3.0	369	208	0.28	23	<1.0	12	-167
12/03/1998	8.5	224	1654	4.0	386	24	0.06	25	<1.0	13	-163
02/04/1999	8.1	257	1678	1.0	380	203	0.14	24	<1.0	13	-163
04/22/1999	8.5	227	1666	3.0	360	214	0.10	27	<1.0	14	-156
06/17/1999	7.3	199	1626	3.0	418	186	<0.01	28	<1.0	14	-153
08/19/1999	8.4	214	1694	4.0	356	204	0.09	28	<1.0	12	-151
10/14/1999	8.5	205	1780	2.0	361	203	0.10	26	<1.0	14	-156
12/09/1999	8.3	260	1672	7.0	365	200	0.21	27	<1.0	11	-134
02/17/2000	8.3	193	1786	6.0	358	196	0.22	21	<1.0	11	-135
04/27/2000	8.0	271	1954	19	366	177	0.26	24	<1.0	12	-143
06/08/2000	8.1	254	1748	7.0	355	205	0.23	28	<1.0	13	-146
08/10/2000	8.0	199	1674	1.0	358	201	0.25	28	<1.0	12	-135
10/19/2000	8.5	194	1700	2.0	341	206	0.26	27	<1.0	12	-131
12/20/2000	8.3	228	1728	1.0	346	187	0.27	33	<1.0	10	-129
02/28/2001	8.3	189	1664	1.0	343	203	0.26	31	<1.0	11	-132
04/12/2001	9.1	190	1616	2.0	362	189	0.24	25	<1.0	11	-157
06/28/2001	8.4	194	1724	2.0	372	195	0.25	25	<1.0	13	-125
08/02/2001	8.3	128	1626	1.0	342	179	0.25	32	<1.0	13	-155

TABLE 5-13 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-33 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
10/25/2001	8.5	182	1518	3.0	337	188	0.18	23	3300	11	-146
12/13/2001	7.5	127	1770	4.0	354	209	0.72	27	<1.0	11	-161
04/25/2002	8.2	192	1694	6.0	362	189	0.22	27	<1.0	12	-164
06/13/2002	8.5	196	1764	4.0	380	219	0.22	26	<1.0	12	-129
08/22/2002	7.7	186	1870	3.0	387	188	0.25	31	<1.0	12	-125
10/17/2002	8.0	175	1748	7.0	406	193	0.27	27	<1.0	12	-126
12/18/2002	8.5	185	1748	6.0	336	193	0.23	26	<1.0	12	-115
02/13/2003	8.3	174	2046	3.0	566	204	0.21	37	<1.0	10	-110
04/17/2003	7.6	127	1698	5.0	357	191	0.19	27	<1.0	12	-112
06/12/2003	7.7	96	1694	4.0	384	200	0.22	29	<1.0	12	-140
08/14/2003	7.5	107	1644	6.0	370	248	0.21	27	<1.0	13	-125
10/30/2003	8.8	177	1782	4.0	373	252	0.26	34	<1.0	12	-115
12/04/2003	8.3	266	1660	3.0	393	245	0.11	24	<1.0	11	-111
02/05/2004	8.7	267	1736	4.0	380	244	0.26	27	<1.0	10	-110
04/22/2004	8.7	233	1752	3.0	386	248	0.19	25	<1.0	12	-146
06/17/2004	7.2	267	1658	4.0	369	187	0.23	28	3.0	13	-98
08/05/2004	7.9	221	1650	2.0	371	185	0.27	25	1.0	12	-102
10/21/2004	7.1	273	1802	9.0	388	195	0.22	27	<1.0	12	-103
12/09/2004	7.3	66	1676	2.0	371	185	0.23	25	<1.0	12	-100
02/17/2005	6.8	192	1700	1.0	385	182	0.23	27	<1.0	10	-132
04/28/2005	7.5	202	1638	1.0	340	246	0.23	27	<1.0	12	-118
06/29/2005	7.5	178	1650	1.0	361	207	0.21	26	<1.0	12	-106
08/11/2005	7.5	210	1552	<0.30	333	191	0.14	27	<1.0	12	-168
10/06/2005	7.7	124	1658	1.0	376	184	0.14	25	<1.0	12	-103
11/30/2005	7.5	186	1688	<0.30	355	188	0.16	24	<1.0	11	-171
02/02/2006	7.6	107	1678	0.40	360	227	0.16	26	<1.0	12	-101
03/23/2006	7.0	206	1574	0.40	348	193	2.1	27	<1.0	12	-167
05/11/2006	7.7	94	1722	0.40	355	194	0.14	28	<1.0	12	-168
06/22/2006	8.4	255	1688	0.50	355	218	0.58	26	<1.0	13	-169
10/18/2006	8.3	243	1566	0.70	342	192	1.8	24	<1.0	12	-172
11/16/2006	8.2	250	1762	0.40	334	200	0.21	28	<1.0	11	-173
03/01/2007	8.2	105	1684	0.40	370	198	0.15	27	<1.0	10	-170
03/29/2007	7.7	241	1582	0.30	346	179	3.0	28	<1.0	11	-178
05/17/2007	8.4	201	1602	0.50	371	215	3.0	27	<1.0	12	-174
06/28/2007	8.3	118	1648	0.40	353	188	0.14	28	<1.0	13	-171
08/16/2007	8.0	145	1698	0.40	359	188	0.22	29	<1.0	13	-173
10/18/2007	8.1	210	1716	0.40	362	236	0.15	24	<1.0	14	-168
04/24/2008	8.4	235	1658	0.30	356	204	0.21	21	<1.0	13	-175
05/22/2008	8.4	178	1620	0.30	350	209	0.21	28	<1.0	12	-171
07/17/2008	7.4	238	1640	0.20	327	202	0.23	29	1.0	14	-180

TABLE 5-13 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-33 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
08/14/2008	7.4	230	1660	0.20	327	171	0.22	42	<1.0	13	-168
10/02/2008	9.0	167	1610	1.0	364	186	0.17	28	4.0	12	-160
11/20/2008	8.6	70	1656	1.0	348	195	0.16	26	<1.0	10	-178
01/22/2009	7.9	147	1670	<1.0	357	196	0.19	27	<1.0	11	-159
03/19/2009	8.3	163	1864	<1.0	367	190	0.25	27	1.0	12	-160
04/22/2009	8.2	235	1658	<1.0	374	197	0.32	26	<1.0	12	-179
07/09/2009	8.2	184	1646	<1.0	380	203	0.27	28	<1.0	13	-183
08/27/2009	8.6	193	1624	<1.0	363	190	0.24	26	<1.0	13	-179
09/17/2009	8.1	158	1632	<1.0	371	189	0.19	27	1.0	13	-177
01/28/2010	7.2	121	1620	<1.0	340	192	0.24	29	<1.0	5.9	-177
03/11/2010	7.5	67	1626	<1.0	345	190	0.24	29	<1.0	12	-182
04/01/2010	8.3	172	1646	<1.0	352	199	0.33	28	<1.0	12	-171
06/10/2010	8.1	61	2004	<1.0	345	189	0.25	82	<1.0	14	-185
09/30/2010	7.8	200	1638	1.0	349	205	0.28	29	<1.0	13	-183
01/13/2011	8.2	180	1474	<1.0	347	215	0.18	28	<1.0	11	-158
03/17/2011	8.8	196	1568	<1.0	349	194	0.17	27	<1.0	13	-183
05/26/2011	8.5	248	1864	<1.0	370	182	0.22	30	<1.0	12	-177
07/15/2011	8.4	188	1812	<1.0	353	174	0.29	28	<1.0	13	-186
10/13/2011	8.1	120	1614	<1.0	363	194	0.19	38	<1.0	14	-191
12/22/2011	8.4	174	1614	<1.0	353	199	<0.10	19	<1.0	11	-179
01/12/2012	8.1	145	1648	<1.0	366	200	0.27	28	<1.0	10	-185
03/14/2012	8.7	199	1728	<1.0	353	197	0.27	28	<1.0	20	-173
05/02/2012	8.2	245	1684	1.0	367	197	0.25	28	<1.0	13	-181
07/05/2012	8.6	109	1670	<1.0	347	187	-	27	<1.0	14	-182
09/19/2012	7.8	59	1602	1.0	355	197	0.22	22	<1.0	12	-179
11/28/2012	7.9	58	1654	<1.0	330	218	0.24	28	<1.0	14	-179
01/24/2013	7.8	49	1640	<1.0	351	196	0.26	25	<1.0	11	-182
03/28/2013	7.9	197	1546	<1.0	333	194	0.23	35	<1.0	13	-184
06/06/2013	8.3	196	1744	<1.0	347	199	0.26	26	<1.0	13	-205
08/29/2013	8.2	204	1730	<1.0	345	193	0.26	27	<1.0	13	-192
09/25/2013	8.3	200	1600	1.0	352	192	0.48	18	<1.0	13	-185
12/12/2013	8.3	196	1644	<1.0	358	190	0.25	27	<1.0	11	-182

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-14: GROUNDWATER QUALITY DATA FOR WELL QD-34 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/21/1995	7.9	164	1318	3.0	106	376	0.16	896	<1.0	12	-109
04/18/1995	7.9	164	1354	6.0	109	458	0.22	879	<1.0	12	-106
06/14/1995	7.3	148	1484	5.0	105	432	0.40	918	<1.0	13	-105
08/22/1995	7.3	170	1574	3.0	100	472	0.26	946	<1.0	13	-107
10/11/1995	8.1	116	1642	8.0	102	499	0.28	956	<1.0	12	-108
12/20/1995	8.0	86	1392	9.0	103	493	0.30	1011	<1.0	12	-110
02/01/1996	7.0	174	1354	5.0	113	433	0.31	929	<1.0	9.0	-109
04/24/1996	6.9	170	1492	7.0	110	432	0.30	926	<1.0	12	-108
06/24/1996	7.2	152	1426	3.0	100	466	0.31	949	<1.0	13	-107
08/21/1996	7.1	118	1602	14	96	432	0.30	921	<1.0	14	-109
04/23/1997	7.3	150	1278	5.0	100	388	0.28	869	35	13	-107
04/15/1998	7.1	147	1294	4.0	107	393	0.30	888	<1.0	13	-106
04/07/1999	6.4	136	1282	3.0	95	445	0.33	856	2.0	15	-116
10/07/1999	7.0	168	1470	4.0	101	393	0.14	812	<1.0	13	-120
04/12/2000	7.3	157	1246	6.0	106	322	0.38	843	<1.0	12	-122
10/31/2000	7.4	116	1328	3.0	105	426	0.31	850	<1.0	13	-123
04/11/2001	7.6	159	1310	2.0	103	388	0.33	892	<1.0	13	-122
10/17/2001	7.2	136	1230	3.0	121	364	0.33	804	1000	12	-114
04/24/2002	7.7	160	1332	4.0	109	359	0.32	867	<1.0	13	-120
10/02/2002	7.6	129	1394	6.0	108	356	0.40	850	<1.0	13	-119
04/16/2003	7.4	140	1178	5.0	99	371	0.34	815	<1.0	12	-117
10/08/2003	7.7	120	1372	4.0	100	426	0.34	783	<1.0	12	-118
04/14/2004	7.0	156	1218	3.0	149	403	0.34	767	<1.0	12	-115
10/13/2004	7.2	41	1348	2.0	118	365	0.34	787	<1.0	12	-115
02/17/2005	6.6	120	1210	2.0	142	326	0.33	757	2.0	11	-114
03/16/2005	7.5	123	1190	3.0	117	327	0.33	766	<1.0	12	-115
05/11/2005	7.2	127	1130	2.0	111	346	0.31	767	<1.0	13	-114
07/07/2005	7.8	66	1290	2.0	110	339	0.31	748	<1.0	12	-115
09/08/2005	7.0	125	1336	1.0	106	354	0.29	789	<1.0	13	-113
10/31/2005	7.4	57	1190	1.0	107	375	0.29	729	<1.0	13	-116
01/05/2006	7.4	47	1116	0.90	108	349	0.29	748	<1.0	12	-119
02/23/2006	7.3	50	1176	1.0	110	408	0.27	784	<1.0	12	-114
05/30/2006	7.1	170	1286	0.90	122	364	0.31	806	<1.0	14	-115
06/27/2006	7.0	140	1318	1.1	113	394	0.25	784	<1.0	15	-114
08/09/2006	7.7	57	1404	1.2	117	362	0.29	794	<1.0	13	-115
10/05/2006	7.6	55	1096	1.2	112	322	0.44	707	71	12	-109
01/23/2007	6.9	142	1046	1.3	117	768	0.46	724	2.0	11	-115
05/31/2007	6.8	130	1266	1.1	132	395	0.29	742	<1.0	14	-118
06/06/2007	7.6	130	1184	1.0	122	361	0.30	750	<1.0	12	-116
08/23/2007	7.5	80	1284	1.0	105	313	0.55	734	3.0	13	-108

TABLE 5-14 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-34 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/29/2007	7.1	157	1210	1.1	119	383	0.34	738	<1.0	12	-113
04/30/2008	7.4	120	1370	0.90	118	344	0.34	748	<1.0	12	-108
05/29/2008	7.4	86	1368	1.0	113	342	0.33	770	<1.0	12	-113
06/17/2008	7.4	86	1298	0.70	111	354	0.38	746	<1.0	13	-117
07/16/2008	7.6	125	1332	0.60	103	349	0.33	737	<1.0	13	-119
09/04/2008	7.2	125	1440	1.0	101	311	0.34	793	<1.0	13	-108
04/29/2009	7.1	64	1274	1.8	139	-	0.38	662	<1.0	12	-104
06/03/2009	7.6	115	1208	2.0	142	259	0.38	651	1.0	12	-109
08/26/2009	7.1	83	1316	1.8	128	288	0.39	673	<1.0	14	-103
09/09/2009	7.0	95	1304	1.7	141	303	0.39	695	<1.0	14	-106
10/14/2009	6.9	104	1084	1.6	150	271	0.39	695	<1.0	12	-107
11/24/2009	7.3	129	1072	1.6	128	292	0.39	704	<1.0	13	-119
02/02/2010	7.7	111	1098	1.6	125	293	0.24	730	<1.0	4.2	-129
03/29/2010	7.0	84	1178	1.7	125	303	0.38	741	<1.0	12	-106
05/12/2010	7.0	71	1076	1.9	102	311	0.39	740	<1.0	12	-101
12/15/2010	6.9	83	1040	1.8	131	288	0.44	708	<1.0	11	-103
10/12/2011	7.8	37	1178	1.7	126	270	0.43	729	<1.0	13	-98
11/02/2011	7.0	94	1286	1.6	135	284	0.41	710	<1.0	13	-103
02/16/2012	7.1	78	1102	2.0	130	270	0.41	721	<1.0	12	-99
03/28/2012	7.0	128	1334	2.0	123	302	0.39	758	<1.0	13	-97
05/09/2012	6.9	124	1130	1.0	116	323	0.40	754	<1.0	13	-94
07/18/2012	7.1	115	1318	5.0	120	314	0.40	740	<1.0	14	-101
09/06/2012	7.6	76	1318	1.0	117	323	0.37	752	<1.0	14	-98
11/08/2012	7.8	79	1284	1.0	119	216	0.37	728	<1.0	13	-98
02/14/2013	6.7	87	1096	2.0	119	293	0.38	793	<1.0	12	-92
05/20/2013	7.0	115	1362	2.0	127	274	0.40	717	3.0	13	-95
08/01/2013	7.0	114	1340	2.0	127	271	0.41	724	<1.0	13	-94
09/04/2013	7.0	121	1276	2.0	130	261	0.43	711	<1.0	14	-102
10/23/2013	7.2	111	1074	2.0	135	262	0.40	679	1.0	12	-98
11/13/2013	7.2	115	1112	2.0	135	259	0.42	689	<1.0	7.1	-96

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-15: GROUNDWATER QUALITY DATA FOR WELL QD-35 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/21/1995	7.4	141	1278	2.0	104	339	0.10	743	<1.0	12	-103
04/18/1995	7.3	147	1228	6.0	118	423	0.21	773	<1.0	13	-100
06/14/1995	7.1	147	1360	6.0	89	416	0.40	872	<1.0	13	-102
08/22/1995	7.1	156	1408	3.0	103	420	0.27	827	<1.0	13	-100
10/11/1995	7.9	101	1520	7.0	98	454	0.29	819	<1.0	12	-104
12/20/1995	7.6	120	1358	6.0	99	491	0.29	969	<1.0	12	-100
02/01/1996	7.0	182	1386	2.0	104	481	0.30	902	<1.0	11	-104
04/24/1996	7.0	172	1458	7.0	104	462	0.30	910	<1.0	12	-104
06/24/1996	7.1	156	1302	6.0	102	418	0.27	821	<1.0	14	-102
08/21/1996	7.4	106	1702	12	100	463	0.30	941	<1.0	12	-104
10/30/1996	7.5	92	1404	6.0	119	491	0.14	1011	<1.0	12	-103
12/05/1996	8.5	106	1336	7.0	98	98	0.24	961	<1.0	12	-104
02/13/1997	7.4	142	1262	2.0	98	424	0.13	884	<1.0	10	-104
04/23/1997	7.5	159	1442	3.0	109	378	0.27	950	<1.0	13	-103
06/04/1997	7.0	140	1252	2.0	105	392	0.23	813	<1.0	10	-104
08/06/1997	7.9	108	1446	9.0	98	366	0.16	814	<1.0	13	-104
12/03/1997	7.0	172	1216	2.0	103	401	0.24	825	<1.0	12	-107
02/10/1998	7.2	132	1364	6.0	98	338	0.21	899	<1.0	12	-106
04/15/1998	7.1	151	1220	3.0	105	468	0.25	807	<1.0	13	-102
06/17/1998	7.4	134	1426	5.0	110	402	0.18	808	<1.0	15	-107
08/19/1998	7.3	140	1428	3.0	107	458	0.38	793	<1.0	12	-108
10/14/1998	7.3	130	1326	2.0	107	378	0.33	830	<1.0	14	-107
12/07/1998	7.0	146	1100	3.0	110	424	0.22	851	<1.0	11	-111
02/09/1999	7.1	155	1180	2.0	123	428	0.13	808	<1.0	14	-113
04/07/1999	6.7	151	1230	3.0	104	429	0.32	798	<1.0	14	-112
06/02/1999	6.6	156	1428	3.0	114	341	0.16	785	<1.0	14	-134
08/04/1999	6.4	124	1274	3.0	136	376	0.13	799	<1.0	18	-114
10/07/1999	7.0	163	1362	3.0	106	366	0.10	737	<1.0	12	-116
12/15/1999	7.2	122	1082	6.0	106	359	0.25	770	<1.0	12	-116
02/29/2000	7.2	109	1150	2.0	100	349	0.32	782	<1.0	12	-117
04/12/2000	7.4	120	1114	4.0	101	309	0.37	740	<1.0	12	-126
06/07/2000	7.0	164	1274	9.0	113	331	0.31	803	<1.0	13	-117
08/09/2000	7.0	124	1416	9.0	105	380	0.30	754	<1.0	12	-117
10/31/2000	7.1	123	1202	4.0	110	376	0.29	780	<1.0	13	-117
12/11/2000	7.2	114	1136	2.0	104	408	0.33	753	<1.0	10	-118
02/21/2001	6.5	156	1118	3.0	104	313	0.30	804	<1.0	11	-119
04/11/2001	7.8	115	1296	2.0	114	351	0.33	753	<1.0	12	-116
06/20/2001	7.2	118	1636	2.0	138	436	0.32	967	<1.0	13	-116
08/29/2001	7.2	133	1436	3.0	133	496	0.36	789	<1.0	13	-114
10/17/2001	7.2	111	1156	2.0	119	358	0.30	741	<1.0	12	-109

TABLE 5-15 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-35 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2001	7.2	128	1274	2.0	120	331	0.30	665	<1.0	12	-117
02/06/2002	7.1	102	1016	5.0	111	292	0.30	812	<1.0	12	-117
04/24/2002	7.5	141	1076	5.0	107	312	0.31	731	<1.0	13	-114
06/12/2002	7.5	101	1352	4.0	110	379	0.33	782	<1.0	13	-110
08/27/2002	7.0	110	1230	5.0	117	328	0.39	783	<1.0	14	-112
10/02/2002	7.2	105	1280	5.0	108	361	0.36	718	<1.0	13	-114
12/04/2002	7.1	125	1214	5.0	116	322	0.30	666	<1.0	12	-115
02/05/2003	7.4	113	1122	4.0	114	349	0.33	716	<1.0	11	-113
04/16/2003	7.3	150	1118	5.0	111	357	0.30	680	<1.0	12	-112
06/11/2003	7.1	123	1384	4.0	112	322	0.33	724	<1.0	13	-113
08/13/2003	7.8	91	1284	3.0	108	308	0.28	660	<1.0	13	-113
10/08/2003	7.6	122	1246	4.0	107	350	0.33	667	<1.0	13	-114
10/31/2005	7.5	54	1018	10	113	268	0.34	605	<1.0	12	-111
05/30/2006	7.2	172	1214	3.7	126	284	0.27	711	<1.0	13	-110
08/09/2006	7.8	54	1248	6.6	119	286	0.26	676	<1.0	13	-109
11/29/2006	8.0	65	982	3.4	124	286	0.25	630	<1.0	12	-110
05/31/2007	6.7	126	1122	2.6	120	305	0.25	645	<1.0	14	-110
07/25/2007	7.2	111	1346	1.5	111	291	0.38	717	<1.0	13	-106
10/29/2007	7.0	149	1070	2.7	119	303	0.31	653	<1.0	12	-108
02/14/2008	7.7	65	1024	1.5	124	279	0.21	683	<1.0	11	-109
04/30/2008	7.6	113	1416	1.1	129	322	0.38	771	<1.0	12	-103
05/29/2008	7.5	81	1346	1.6	120	283	0.32	687	<1.0	13	-109
02/10/2009	7.1	74	1030	2.2	125	256	0.32	614	<1.0	13	-103
06/03/2009	7.4	115	1014	2.2	128	233	0.32	561	<1.0	13	-113
08/26/2009	7.2	87	1236	1.8	125	248	0.27	602	<1.0	14	-98
02/17/2010	6.8	86	966	2.2	110	261	0.28	647	<1.0	12	-99
03/29/2010	7.3	81	1062	1.9	114	263	0.32	677	<1.0	11	-99
08/30/2010	7.0	91	1144	2.2	106	271	0.32	654	<1.0	14	-106
01/31/2011	7.5	100	1068	1.7	106	301	0.38	744	<1.0	12	-113
02/23/2011	7.0	89	946	1.9	124	262	0.32	561	<1.0	11	-121
05/04/2011	7.0	128	1212	2.1	109	261	0.36	671	<1.0	13	-94
02/08/2012	7.5	79	958	2.0	107	272	0.35	667	<1.0	12	-115
03/28/2012	6.9	123	1186	2.0	107	252	0.33	650	<1.0	13	-94
05/09/2012	6.9	78	1018	2.0	108	266	0.35	678	<1.0	13	-89
07/18/2012	7.0	58	1142	7.0	99	258	0.34	634	1.0	15	-89
03/18/2013	7.0	82	1000	2.0	113	296	0.35	494	<1.0	9.6	-90
06/27/2013	7.0	65	1232	2.0	111	252	0.39	694	<1.0	14	-86

TABLE 5-15 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-35 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	-----		mg/L	-----			MPN/ 100 mL	°C	ft ²
09/04/2013	7.2	105	1086	2.0	104	228	0.35	604	<1.0	13	-94

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-16: GROUNDWATER QUALITY DATA FOR WELL QD-36 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/21/1995	7.1	175	1518	4.0	144	386	0.08	958	<1.0	10	-100
04/18/1995	7.6	165	1352	6.0	121	479	0.16	853	<1.0	12	-107
06/14/1995	7.8	153	1454	6.0	116	440	0.36	924	<1.0	12	-104
08/22/1995	7.1	164	1502	3.0	118	464	0.23	901	<1.0	14	-104
10/11/1995	7.5	129	1648	8.0	116	458	0.27	924	<1.0	12	-108
12/20/1995	7.5	131	1314	7.0	115	419	0.27	933	<1.0	10	-107
02/01/1996	7.0	183	1280	9.0	127	461	0.27	953	<1.0	10	-108
04/24/1996	6.9	169	1418	9.0	120	390	0.29	863	<1.0	11	-107
06/24/1996	7.1	155	1536	5.0	119	496	0.27	962	8.0	12	-109
08/21/1996	7.2	148	1880	11	119	503	0.26	1021	4.0	12	-109
10/17/1996	7.3	140	1302	6.0	101	527	0.20	959	<1.0	11	-102
12/05/1996	7.4	100	1380	5.0	123	476	0.17	1004	<1.0	11	-111
02/13/1997	7.4	142	1416	2.0	121	528	0.12	985	<1.0	9.0	-110
04/23/1997	7.5	173	1604	4.0	127	476	0.23	1023	2.0	12	-113
06/04/1997	7.0	140	1622	3.0	121	498	0.22	1049	<1.0	10	-112
08/06/1997	7.4	140	1718	4.0	114	452	0.15	993	<1.0	13	-112
12/03/1997	6.9	194	1494	2.0	125	463	0.19	998	<1.0	12	-116
02/10/1998	7.2	147	1494	3.0	122	504	0.13	930	<1.0	12	-115
04/15/1998	7.0	169	1470	4.0	130	354	0.24	950	<1.0	12	-110
06/17/1998	7.7	164	1796	7.0	136	542	0.15	1054	<1.0	14	-119
08/19/1998	7.4	149	1684	3.0	126	529	0.37	965	<1.0	12	-118
10/14/1998	7.2	152	1538	2.0	131	434	0.30	967	<1.0	13	-120
12/07/1998	7.0	160	1344	3.0	129	482	0.19	983	<1.0	11	-117
02/10/1999	6.9	167	1778	3.0	134	517	0.15	995	3.0	13	-124
04/07/1999	6.4	157	1434	4.0	117	482	0.28	908	<1.0	14	-124
06/02/1999	6.5	171	1768	2.0	132	418	0.14	984	<1.0	14	-120
08/04/1999	6.5	145	1634	3.0	143	497	0.11	995	<1.0	15	-124
10/07/1999	7.0	144	1634	3.0	124	469	0.08	835	<1.0	11	-125
12/15/1999	7.0	158	1322	4.0	122	433	0.22	957	<1.0	11	-126
02/29/2000	7.1	164	1452	3.0	125	407	0.27	902	<1.0	12	-126
04/12/2000	7.2	167	1358	5.0	135	346	0.29	879	<1.0	12	-125
06/07/2000	7.1	189	1318	5.0	142	485	0.28	1027	<1.0	12	-129
08/09/2000	7.0	134	1682	2.0	143	461	0.29	922	<1.0	12	-126
10/31/2000	7.2	160	1530	1.0	140	444	0.26	940	<1.0	12	-128
12/11/2000	7.2	161	1358	1.0	135	470	0.28	891	<1.0	10	-128
02/21/2001	6.2	176	1476	2.0	135	414	0.28	1089	4.0	11	-130
04/11/2001	7.7	124	1594	2.0	141	460	0.30	1072	<1.0	11	-128
06/20/2001	7.1	150	1420	2.0	113	371	0.32	793	<1.0	12	-126
08/29/2001	7.1	172	1736	2.0	149	545	0.29	980	<1.0	12	-127
10/17/2001	7.2	126	1316	3.0	140	380	0.24	699	290	11	-115

TABLE 5-16 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-36 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2001	7.3	171	1442	3.0	138	457	0.29	918	<1.0	11	-132
02/06/2002	7.1	131	1394	5.0	158	432	0.27	1044	<1.0	11	-131
04/24/2002	7.6	172	1472	5.0	146	437	0.30	969	<1.0	13	-126
06/12/2002	7.2	133	1556	3.0	138	434	0.29	899	<1.0	12	-120
08/27/2002	6.9	125	1648	4.0	168	438	0.36	1009	<1.0	12	-123
10/02/2002	6.8	131	1678	5.0	151	463	0.34	944	<1.0	13	-129
12/04/2002	7.2	145	1396	5.0	149	436	0.28	864	<1.0	11	-125
02/05/2003	7.5	119	1376	6.0	157	443	0.30	878	<1.0	9.9	-125
04/16/2003	7.4	156	1354	4.0	141	402	0.28	856	<2.0	12	-124
06/11/2003	7.0	127	1596	5.0	142	410	0.30	886	4.0	12	-127
08/13/2003	7.7	105	1640	4.0	145	460	0.31	873	<1.0	13	-126
10/08/2003	7.6	141	1566	3.0	144	464	0.29	842	<1.0	12	-127
12/17/2003	7.8	95	1288	3.0	151	460	0.25	842	<1.0	11	-123
02/04/2004	7.6	92	1266	4.0	142	418	0.27	812	<1.0	10	-124
04/14/2004	7.0	172	1252	3.0	167	430	0.27	771	<1.0	11	-123
06/09/2004	7.5	138	1302	5.0	129	275	0.25	728	<1.0	12	-120
08/12/2004	7.4	123	1350	8.0	131	319	0.28	737	<1.0	12	-120
10/13/2004	7.5	43	1184	2.0	131	313	0.28	757	<1.0	12	-121
12/21/2004	7.3	80	1046	2.0	132	286	0.28	689	<1.0	10	-118
01/06/2005	6.9	118	1160	2.0	135	285	0.27	733	<1.0	11	-111
03/16/2005	7.6	118	1240	3.0	132	320	0.26	799	<1.0	11	-124
05/11/2005	7.2	129	1130	2.0	127	310	0.23	728	<1.0	12	-124
07/07/2005	8.0	70	1246	2.0	117	300	0.27	739	<1.0	12	-121
08/29/2005	6.1	132	1192	1.0	122	309	0.22	792	<1.0	13	-120
10/31/2005	7.6	54	1226	1.0	124	346	0.55	739	<1.0	11	-123
05/30/2006	7.2	163	1296	1.1	117	291	0.24	753	<1.0	13	-120
08/09/2006	7.6	55	1276	1.3	124	276	0.22	712	<1.0	12	-119
11/29/2006	8.0	67	1138	1.3	131	345	0.21	757	<1.0	13	-123
05/16/2007	7.7	143	1070	1.2	120	307	0.23	750	<1.0	12	-133
06/06/2007	7.5	123	1188	1.2	129	336	0.24	742	<1.0	13	-116
10/29/2007	6.9	164	1232	1.3	138	376	0.30	768	<1.0	11	-120
02/14/2008	7.6	70	1186	1.2	140	342	0.26	789	<1.0	10	-110
04/30/2008	7.6	112	1392	1.2	146	313	0.28	765	<1.0	12	-117
06/17/2008	7.5	102	1258	0.80	133	300	0.32	730	<1.0	13	-115
02/10/2009	7.0	79	1278	2.1	130	318	0.29	728	<1.0	12	-117
06/03/2009	7.7	129	1232	1.7	130	303	0.29	707	<1.0	12	-129
08/26/2009	7.2	89	1452	1.4	123	329	0.31	719	<1.0	13	-112
03/29/2010	7.2	91	1240	1.5	125	299	0.30	784	<1.0	11	-113
06/12/2010	6.7	71	1270	1.8	117	302	0.30	764	<1.0	11	-106
08/30/2010	7.0	84	1386	1.6	116	339	0.32	786	68	13	-129

TABLE 5-16 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-36 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/31/2011	6.6	70	1138	1.4	126	341	0.34	751	<1.0	11	-112
02/23/2011	7.0	90	1144	1.5	148	336	0.33	766	<1.0	11	-135
05/04/2011	7.4	130	1376	1.6	119	290	0.31	742	<1.0	12	-111
02/08/2012	7.7	81	1156	2.0	122	342	0.34	805	<1.0	12	-108
03/28/2012	7.0	133	1360	2.0	119	316	0.34	811	<1.0	12	-109
05/09/2012	7.0	87	1132	1.0	114	301	0.32	773	<1.0	12	-96
07/18/2012	7.3	70	1528	6.0	114	320	0.34	772	<1.0	14	-102
03/18/2013	6.9	93	1044	2.0	123	331	0.33	588	<1.0	12	-102
05/20/2013	7.0	108	1374	2.0	129	284	0.33	737	80	12	-103
06/27/2013	7.0	78	1384	2.0	127	292	0.39	750	<1.0	14	-91
09/04/2013	7.0	123	1390	2.0	119	303	0.36	770	<1.0	12	-105

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-17: GROUNDWATER QUALITY DATA FOR WELL QD-37 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/02/1995	7.6	231	1452	3.0	371	205	0.09	162	<1.0	12	-201
04/13/1995	8.1	218	1284	3.0	369	197	0.03	197	<1.0	12	-189
06/08/1995	7.9	159	1444	4.0	319	257	0.14	214	<1.0	13	-190
08/10/1995	7.3	225	1438	3.0	317	271	0.13	204	<1.0	13	-188
10/05/1995	8.0	148	1526	6.0	347	277	0.17	181	<1.0	13	-185
12/06/1995	8.3	166	1484	9.0	355	269	0.14	210	<1.0	11	-184
02/29/1996	7.7	167	1518	8.0	331	252	0.09	220	<1.0	12	-187
04/08/1996	8.4	228	1422	7.0	306	272	0.11	269	<1.0	12	-187
06/06/1996	7.2	199	1394	3.0	290	282	0.07	276	<1.0	13	-187
08/29/1996	8.0	196	1458	8.0	303	337	0.10	271	<1.0	14	-196
10/17/1996	7.8	176	1390	6.0	238	142	0.07	315	<1.0	13	-244
12/19/1996	8.3	156	892	5.0	213	109	0.20	202	<1.0	11	-199
02/27/1997	7.3	140	1330	30	372	73	16	553	<1.0	10	-135
04/23/1997	7.6	168	1430	4.0	288	285	<0.10	277	<1.0	12	-200
06/26/1997	8.3	195	1406	3.0	296	310	<0.10	270	<1.0	13	-207
08/21/1997	7.6	157	1362	2.0	257	301	0.05	339	<1.0	12	-145
10/09/1997	7.8	217	1474	2.0	305	262	<0.10	268	<1.0	14	-201
12/11/1997	8.1	165	1530	6.0	312	297	0.15	297	<1.0	12	-204
02/26/1998	7.5	233	1492	5.0	315	316	0.04	322	<1.0	13	-203
04/23/1998	7.4	206	1382	2.0	298	223	0.16	338	<1.0	13	-203
06/25/1998	7.5	193	1426	4.0	298	319	0.04	124	<1.0	13	-202
08/27/1998	7.5	198	1472	2.0	290	331	0.04	371	<1.0	15	-203
10/22/1998	7.7	196	1374	2.0	267	318	0.24	383	<1.0	13	-168
12/10/1998	7.3	205	1428	3.0	261	364	0.19	535	<1.0	14	-234
02/04/1999	7.5	179	1416	2.0	280	328	0.02	395	<1.0	12	-202
04/15/1999	8.3	186	1458	2.0	301	304	0.16	306	<1.0	13	-201
06/24/1999	8.1	173	1408	3.0	276	320	0.13	386	<1.0	14	-207
10/14/1999	7.6	170	1442	2.0	306	294	<0.01	368	<1.0	12	-206
12/16/1999	7.4	213	1452	5.0	271	380	0.24	569	<1.0	12	-7.0
02/24/2000	7.4	219	1490	6.0	265	366	0.28	544	<1.0	13	-206
04/06/2000	7.7	170	1436	7.0	256	307	0.32	567	<1.0	12	-206
06/22/2000	7.1	165	1426	7.0	272	306	0.18	405	<1.0	13	-208
08/03/2000	7.3	164	1452	28	321	66	25	563	<1.0	13	-206
10/05/2000	7.8	182	1448	3.0	244	404	0.30	545	<1.0	13	-205
12/28/2000	7.3	225	1508	1.0	294	310	0.11	1.0	<1.0	12	-209
02/07/2001	7.7	159	1472	2.0	285	368	0.26	409	<1.0	11	-207
04/05/2001	7.5	159	1458	2.0	275	348	0.17	453	<1.0	12	-209
06/07/2001	7.6	145	1498	3.0	312	343	1.3	385	<1.0	13	-207
08/09/2001	7.5	163	1426	2.0	274	359	3.4	500	<1.0	13	-185
10/04/2001	7.8	190	820	2.0	239	341	0.18	373	<1.0	13	-181

TABLE 5-17 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-37 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/13/2001	7.2	161	1360	2.0	367	337	0.17	367	<1.0	12	-204
02/07/2002	7.3	157	1362	4.0	283	312	0.15	363	<1.0	11	-207
04/04/2002	7.2	90	1382	3.0	294	343	0.47	969	<1.0	12	-204
06/27/2002	7.5	200	1418	5.0	268	365	3.4	516	<1.0	14	-200
08/08/2002	7.5	146	1470	4.0	298	346	3.4	300	<1.0	14	-200
10/03/2002	7.7	173	1460	3.0	284	365	3.4	486	<1.0	13	-207
12/05/2002	7.2	156	1508	5.0	272	366	2.6	557	<1.0	12	-202
02/13/2003	7.0	187	1482	4.0	338	336	2.6	379	<1.0	13	-202
04/02/2003	7.4	185	1458	6.0	307	335	2.6	426	<1.0	13	-203
06/05/2003	7.6	176	1418	3.0	273	350	2.8	466	<1.0	13	-205
08/07/2003	7.0	65	1466	4.0	263	396	2.4	504	<1.0	14	-198
10/16/2003	7.3	177	1482	3.0	332	464	0.55	348	<1.0	13	-203
12/05/2003	7.7	132	1496	1.0	291	390	1.9	435	<1.0	12	-202
02/05/2004	7.1	53	1486	4.0	284	404	2.6	544	<1.0	12	-202
04/01/2004	6.6	224	1444	3.0	294	400	2.3	421	<1.0	12	-196
06/03/2004	7.0	72	1392	2.0	230	375	2.0	541	<1.0	13	-179
08/05/2004	7.0	228	1518	3.0	276	377	0.94	582	<1.0	13	-198
10/21/2004	7.5	67	2282	5.0	307	340	2.1	484	<1.0	13	-199
12/02/2004	7.5	53	1439	1.0	299	359	2.5	526	<1.0	12	-208
02/17/2005	7.0	54	1436	2.0	286	358	2.9	477	<1.0	11	-202
04/14/2005	6.6	175	1412	3.0	251	351	0.21	495	<1.0	12	-206
06/23/2005	7.4	104	1478	<0.30	310	299	0.10	298	<1.0	13	-209
09/01/2005	7.4	184	1398	1.0	262	352	0.19	421	7.0	13	-206
10/13/2005	7.3	53	1390	1.0	272	349	0.10	352	<1.0	13	-197
12/01/2005	7.4	170	1492	1.0	258	356	0.27	523	<1.0	13	-196
03/02/2006	7.3	228	1362	0.80	270	567	0.10	337	<1.0	12	-200
03/23/2006	7.0	38	1456	0.70	258	385	0.19	575	<1.0	12	-205
05/11/2006	7.5	83	1424	0.60	241	377	0.27	584	<1.0	12	-204
06/22/2006	7.3	210	1472	0.70	259	409	0.24	590	<1.0	14	-203
10/26/2006	7.8	105	1362	0.60	243	376	0.26	443	<1.0	13	-208
11/16/2006	7.3	201	1472	0.90	293	338	0.05	391	<1.0	12	-208
02/01/2007	7.4	168	1434	1.0	296	358	0.10	395	<1.0	11	-212
03/29/2007	7.3	197	1444	0.50	303	317	0.12	385	<1.0	12	-209
05/17/2007	7.7	170	1464	0.50	286	398	0.24	553	<1.0	12	-207
06/28/2007	8.0	117	1490	0.50	267	374	0.24	560	<1.0	14	-208
08/16/2007	7.6	124	1492	0.60	261	370	0.30	587	<1.0	13	-207
10/18/2007	7.6	106	1488	0.50	280	416	0.24	515	<1.0	13	-209
04/24/2008	7.3	183	1506	0.50	276	394	0.29	555	<1.0	14	-212
05/22/2008	8.0	117	1470	0.50	259	292	0.30	607	<1.0	12	-207
07/17/2008	7.6	125	1488	0.30	239	384	0.31	565	<1.0	14	-216

TABLE 5-17 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-37 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/14/2008	7.6	184	1482	0.30	235	363	0.31	565	<1.0	14	-206
10/02/2008	7.8	126	1396	1.0	328	319	0.07	318	<1.0	13	-206
11/20/2008	7.5	109	1478	1.0	269	386	0.25	525	<1.0	12	-207
01/22/2009	7.2	118	1426	<1.0	285	372	0.12	439	<1.0	11	-207
03/19/2009	7.4	117	1474	<1.0	258	368	0.32	519	<1.0	12	-206
07/09/2009	7.2	147	1462	<1.0	264	393	0.33	541	<1.0	13	-209
08/27/2009	6.8	180	1444	<1.0	255	405	0.31	518	<1.0	13	-201
09/17/2009	7.2	163	1454	<1.0	265	349	0.29	557	<1.0	13	-207
12/17/2009	7.3	167	1484	1.0	271	384	0.29	558	<1.0	12	-210
01/28/2010	7.7	99	1458	<1.0	250	381	0.31	601	<1.0	4.7	-213
03/11/2010	7.5	104	1466	<1.0	249	359	0.31	633	<1.0	12	-221
04/01/2010	7.3	112	1468	<1.0	250	387	0.36	575	<1.0	13	-219
06/10/2010	7.5	106	1510	<1.0	265	350	0.26	392	<1.0	15	-221
09/30/2010	7.3	84	1382	<1.0	304	339	0.17	235	<1.0	13	-208
03/17/2011	7.3	133	1400	<1.0	263	392	0.30	600	<1.0	13	-194
05/26/2011	6.9	180	1654	<1.0	269	363	0.34	539	<1.0	13	-197
07/15/2011	7.8	155	1748	<1.0	248	364	0.31	620	<1.0	15	-202
10/13/2011	8.0	160	1476	<1.0	265	390	0.27	604	<1.0	13	-197
11/02/2011	7.4	119	1480	<1.0	263	379	0.35	609	<1.0	14	-221
01/12/2012	7.4	140	1464	<1.0	269	371	0.35	574	<1.0	12	-212
03/14/2012	7.4	178	1488	<1.0	272	364	0.26	481	<1.0	14	-203
05/02/2012	7.5	198	1598	<1.0	259	396	0.37	617	<1.0	14	-207
07/05/2012	7.5	84	1504	<1.0	259	375	0.34	594	<1.0	16	-205
09/19/2012	7.5	71	1442	<1.0	267	379	0.31	534	<1.0	12	-213
11/28/2012	7.3	-	1530	<1.0	269	469	0.35	567	<1.0	12	-212
01/24/2013	7.8	60	1458	<1.0	253	380	0.34	562	<1.0	11	-212
03/28/2013	7.9	85	1412	<1.0	242	369	0.34	595	<1.0	13	-198
06/06/2013	7.7	135	1460	<1.0	248	381	0.35	541	<1.0	12	-206
08/29/2013	7.4	172	1454	<1.0	234	351	0.14	307	<1.0	14	-203
09/25/2013	7.7	83	1452	1.0	245	376	0.34	578	<1.0	13	-212
12/11/2013	8.1	170	1460	<1.0	263	380	0.31	518	<1.0	13	-213

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-18: GROUNDWATER QUALITY DATA FOR WELL QD-38 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/02/1995	8.0	158	946	2.0	272	136	0.36	214	<1.0	12	-126
04/13/1995	8.1	170	1008	4.0	265	253	0.31	226	<1.0	12	-124
06/08/1995	8.4	170	958	2.0	238	220	0.45	239	<1.0	13	-125
08/10/1995	7.9	162	984	2.0	236	140	0.37	264	<1.0	16	-124
10/05/1995	7.5	152	978	3.0	243	119	0.34	240	<1.0	12	-126
12/06/1995	8.2	164	962	4.0	246	123	0.38	273	<1.0	10	-125
02/29/1996	7.5	159	916	4.0	216	118	0.33	220	<1.0	10	-125
04/10/1996	7.8	155	898	4.0	213	9.0	0.31	218	<1.0	12	-125
06/06/1996	7.3	146	970	7.0	229	125	0.33	276	<1.0	14	-130
08/29/1996	7.7	146	974	4.0	231	140	0.35	437	<1.0	14	-148
10/17/1996	7.7	152	988	6.0	277	142	0.34	270	<1.0	12	-158
12/19/1996	7.9	164	1534	3.0	319	233	<0.01	259	<1.0	10	-140
02/27/1997	7.4	160	1378	4.0	278	240	0.02	321	<1.0	10	-99
04/23/1997	8.2	156	878	4.0	206	120	0.27	226	<1.0	12	-149
06/26/1997	8.1	137	858	2.0	208	127	0.18	234	<1.0	12	-176
08/21/1997	7.5	168	812	2.0	187	108	0.24	204	<1.0	12	-115
10/09/1997	7.7	146	870	2.0	209	109	0.39	232	<1.0	13	-155
12/11/1997	7.9	158	922	4.0	226	102	0.38	287	<1.0	11	-153
02/26/1998	7.4	159	936	4.0	215	127	0.29	273	<1.0	12	-151
04/23/1998	7.6	141	904	2.0	224	116	0.37	277	<1.0	13	-151
06/25/1998	7.5	138	924	3.0	222	134	0.30	59	<1.0	12	-163
08/27/1998	7.6	140	936	2.0	220	123	0.36	286	<1.0	14	-157
10/22/1998	7.4	136	868	2.0	202	113	0.37	239	<1.0	13	-138
12/10/1998	7.7	144	820	3.0	199	119	0.38	222	<1.0	13	-155
02/04/1999	7.5	127	824	2.0	205	110	0.27	221	<1.0	10	-156
04/15/1999	8.2	126	820	2.0	196	109	0.36	224	<1.0	12	-154
06/24/1999	8.2	123	900	2.0	223	118	0.31	283	<1.0	14	-164
08/05/1999	7.1	119	826	2.0	193	116	0.37	122	<1.0	14	-163
10/14/1999	7.7	139	902	2.0	227	124	0.26	274	<1.0	12	-161
12/16/1999	7.7	144	868	7.0	197	246	0.35	248	<1.0	11	-53
02/24/2000	7.8	138	876	3.0	202	106	0.36	250	<1.0	12	-163
04/06/2000	7.7	147	918	4.0	224	91	0.42	289	<1.0	12	-162
06/22/2000	7.7	133	826	5.0	201	118	0.36	233	<1.0	13	-171
08/03/2000	7.7	142	896	10	209	118	0.41	256	<1.0	13	-167
10/05/2000	8.1	139	906	1.0	214	121	0.39	274	<1.0	12	-235
12/28/2000	7.3	157	892	1.0	235	115	0.39	275	<1.0	11	-236
02/07/2001	7.5	134	900	2.0	211	109	0.41	278	<1.0	10	-164
04/05/2001	7.7	138	918	2.0	211	122	0.38	268	<1.0	12	-169
06/07/2001	7.8	148	840	2.0	190	112	0.38	263	<1.0	12	-165
08/09/2001	7.8	150	914	2.0	222	120	0.38	281	<1.0	13	-151

TABLE 5-18 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-38 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/04/2001	7.5	133	902	2.0	217	116	0.32	208	<1.0	12	-146
12/13/2001	7.4	142	924	2.0	214	120	0.39	258	<1.0	12	-164
02/07/2002	7.5	135	842	2.0	189	104	0.37	251	<1.0	10	-173
04/04/2002	7.3	139	894	3.0	212	118	0.41	274	<1.0	12	-202
06/27/2002	7.6	139	956	2.0	217	113	0.48	255	<1.0	13	-172
08/08/2002	7.4	127	968	2.0	208	121	0.34	243	<1.0	13	-171
10/03/2002	7.7	115	922	3.0	214	120	0.36	210	<1.0	12	-171
12/05/2002	7.6	127	932	3.0	209	108	0.32	211	<1.0	11	-160
02/13/2003	7.1	126	954	4.0	234	106	0.33	252	<1.0	12	-164
04/02/2003	7.6	128	962	3.0	222	109	0.36	257	<1.0	12	-164
06/05/2003	7.3	125	962	4.0	217	115	0.37	265	<1.0	13	-175
08/07/2003	7.1	58	962	3.0	224	140	0.33	264	<1.0	13	-165
10/16/2003	6.7	119	880	3.0	222	226	0.38	249	<1.0	12	-170
12/05/2003	7.4	86	932	2.0	213	143	0.21	199	<1.0	12	-170
02/05/2004	6.8	50	950	3.0	220	135	0.37	265	<1.0	11	-171
04/01/2004	7.0	148	880	2.0	205	143	0.42	247	<1.0	12	-164
06/03/2004	7.4	69	562	2.0	212	131	0.35	251	<1.0	13	-153
08/05/2004	7.1	149	837	1.0	201	109	0.35	199	<1.0	12	-168
10/21/2004	7.9	60	924	3.0	235	103	0.36	254	<1.0	13	-165
12/02/2004	7.7	53	905	1.0	194	108	0.40	243	<1.0	12	-202
02/17/2005	7.0	57	930	1.0	215	111	0.36	257	<1.0	10	-172
04/14/2005	7.2	109	970	1.0	208	111	0.33	254	<1.0	12	-171
06/23/2005	7.8	78	938	<0.30	206	102	0.34	248	<1.0	13	-204
09/01/2005	7.5	115	892	1.0	197	103	0.24	254	<1.0	13	-204
10/13/2005	7.5	60	868	1.0	200	110	0.22	214	<1.0	12	-166
12/01/2005	7.8	100	838	1.0	194	101	0.34	245	<1.0	11	-164
05/11/2006	7.6	56	906	0.50	200	102	0.32	267	<1.0	12	-203
08/10/2006	7.6	45	974	0.50	220	100	0.31	258	<1.0	13	-203
11/01/2006	7.9	138	966	0.50	221	111	0.32	251	<1.0	11	-178
05/17/2007	7.9	106	876	0.50	204	102	0.29	233	<1.0	12	-203
08/16/2007	7.8	86	840	0.50	185	97	0.35	256	<1.0	13	-206
10/18/2007	7.7	73	830	0.40	184	115	0.30	223	<1.0	12	-205
04/24/2008	7.8	122	840	0.40	185	104	0.36	241	<1.0	13	-201
08/14/2008	8.0	109	832	0.30	165	94	0.35	259	<1.0	13	-204
10/02/2008	8.2	79	858	1.0	184	100	0.29	225	<1.0	12	-204
01/22/2009	7.1	80	838	<1.0	187	98	0.30	247	<1.0	11	-202
03/19/2009	7.3	62	844	<1.0	179	102	0.35	249	<1.0	12	-203
07/09/2009	7.6	93	860	<1.0	199	97	0.37	238	<1.0	13	-208
01/28/2010	7.4	75	832	<1.0	172	89	0.39	246	<1.0	4.3	-203
03/11/2010	7.4	77	806	<1.0	167	103	0.36	268	<1.0	13	-206

TABLE 5-18 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-38 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
04/01/2010	7.5	81	830	<1.0	171	108	0.30	247	<1.0	12	-208
01/13/2011	7.7	83	806	<1.0	173	102	0.37	338	<1.0	11	-205
04/07/2011	7.7	112	802	<1.0	163	102	0.27	253	<1.0	13	-208
07/15/2011	7.9	87	826	<1.0	166	95	0.34	248	<1.0	13	-209
03/01/2012	8.3	104	788	<1.0	181	94	0.38	257	<1.0	11	-208
06/27/2012	8.2	70	712	1.0	157	94	0.10	149	<1.0	14	-209
08/30/2012	8.0	101	820	<1.0	167	103	0.34	257	<1.0	14	-208
03/07/2013	7.8	89	620	1.0	21	204	0.37	303	<1.0	12	-201
10/10/2013	7.9	100	786	2.0	166	94	0.37	249	<1.0	13	-210
11/21/2013	8.1	92	714	<1.0	145	104	0.60	241	<1.0	12	-209

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-19: GROUNDWATER QUALITY DATA FOR WELL QD-39 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/16/1995	8.3	129	810	4.0	37	163	<0.01	15	<1.0	11	-2.0
04/27/1995	8.5	131	834	4.0	32	24	0.06	18	<1.0	12	-1.0
06/22/1995	8.2	136	974	4.0	27	163	0.04	20	<1.0	14	-2.0
08/31/1995	8.6	123	770	4.0	29	125	0.09	19	<1.0	13	-139
10/26/1995	9.1	136	838	5.0	27	144	0.05	24	<1.0	12	-1.0
12/13/1995	8.4	160	996	5.0	33	124	0.04	532	<1.0	9.0	-1.0
02/15/1996	8.6	121	830	6.0	27	118	0.08	19	<1.0	11	-4.0
04/11/1996	8.6	129	898	7.0	26	127	0.06	20	<1.0	11	-4.0
06/20/1996	8.6	122	976	8.0	26	115	0.02	21	<1.0	12	-4.0
08/15/1996	8.6	134	912	4.0	25	117	0.09	20	<1.0	13	-15
04/19/1997	9.2	122	818	6.0	26	100	<0.10	18	<1.0	12	3.0
10/30/1997	8.4	121	836	2.0	26	121	<0.10	18	<1.0	12	-3.0
04/23/1998	8.9	112	850	4.0	28	112	0.10	19	<1.0	13	-2.0
04/29/1999	8.4	113	1000	3.0	31	104	<0.01	20	<1.0	14	0
10/28/1999	8.3	133	900	4.0	27	94	<0.01	27	<1.0	13	-1.0
04/20/2000	8.5	133	814	10	29	111	0.13	30	<1.0	12	0
10/26/2000	7.1	125	880	3.0	26	109	0.09	21	<1.0	12	1.0
04/11/2001	8.9	90	822	2.0	28	111	0.11	17	<1.0	11	-141
10/31/2001	8.4	118	788	2.0	29	108	0.15	17	<1.0	12	3.0
04/04/2002	8.5	135	794	7.0	25	106	0.17	18	<1.0	12	0
10/03/2002	7.5	115	854	4.0	47	107	0.15	18	<1.0	12	1.0
04/03/2003	8.0	119	808	5.0	26	96	0.11	19	<1.0	11	-39
10/09/2003	8.0	132	876	5.0	30	131	0.08	19	<1.0	12	0
04/08/2004	7.1	53	808	4.0	53	129	0.04	18	<1.0	12	-2.0
10/07/2004	7.7	106	816	2.0	30	98	0.09	19	<1.0	12	1.0
04/07/2005	7.4	77	760	2.0	33	101	0.07	20	3.0	11	-140
06/23/2005	7.6	76	870	<1.0	42	95	0.09	19	<1.0	13	-143
09/01/2005	7.5	99	834	1.0	42	95	0.05	18	<1.0	12	-138
03/02/2006	7.3	125	836	0.60	42	123	<0.02	19	<1.0	11	-144
05/25/2006	7.5	69	984	0.60	77	100	0.21	18	<1.0	12	-139
06/22/2006	8.5	119	878	0.50	51	110	<0.02	20	<1.0	12	-144
04/19/2007	8.6	96	820	0.50	27	91	0.07	18	<1.0	12	-142
06/28/2007	8.1	89	812	0.40	28	94	<0.02	18	<1.0	12	-142
12/20/2007	8.4	86	870	0.40	47	96	0.08	18	<1.0	10	-139
04/24/2008	8.4	114	820	0.40	30	97	0.09	19	<1.0	12	-146
08/14/2008	8.3	99	1066	0.30	25	83	0.06	19	<1.0	12	-138
10/02/2008	9.1	98	794	1.0	35	88	0.06	20	<1.0	12	-141
08/13/2009	8.4	76	926	1.4	20	349	0.32	391	<1.0	12	-58
09/17/2009	8.4	108	860	<1.0	35	81	<0.10	18	<1.0	12	-141
12/17/2009	8.0	82	902	<1.0	41	90	<0.10	18	<1.0	11	-140

TABLE 5-19 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-39 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/11/2010	8.4	87	790	<1.0	27	89	<0.02	19	<1.0	12	-138
06/10/2010	8.2	81	1242	<1.0	27	87	0.13	47	<1.0	13	-107
10/21/2010	8.4	96	788	<1.0	26	94	0.06	18	<1.0	11	-109
04/07/2011	8.4	102	822	<1.0	25	90	<0.10	19	<1.0	11	-144
05/26/2011	8.1	119	1116	<1.0	45	83	<0.10	66	<1.0	11	-158
07/15/2011	8.2	89	972	<1.0	21	89	<0.10	18	<1.0	12	-159
03/01/2012	8.5	103	824	<1.0	28	89	<0.10	18	<1.0	11	-140
06/27/2012	8.4	74	884	<1.0	26	91	<0.10	20	<1.0	14	-32
08/30/2012	8.2	99	874	<1.0	26	92	<0.10	22	<1.0	14	-149
02/28/2013	7.9	82	806	<1.0	26	91	<0.10	20	<1.0	11	-140
10/10/2013	8.4	94	796	<1.0	27	83	<0.10	17	1.0	12	-147
11/21/2013	8.4	94	792	1.0	26	96	0.13	38	<1.0	12	-32

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-20: GROUNDWATER QUALITY DATA FOR WELL QD-40 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/09/1995	8.2	114	808	2.0	17	323	0.13	12	<1.0	11	-50
04/19/1995	8.2	120	754	2.0	14	400	0.03	16	<1.0	12	-92
06/22/1995	9.0	117	742	2.0	11	445	0.11	17	<1.0	13	-51
08/31/1995	9.4	116	774	2.0	19	390	0.08	22	<1.0	13	-52
10/26/1995	8.6	113	758	3.0	13	337	0.09	25	<1.0	13	-50
12/07/1995	9.0	129	794	3.0	11	422	0.11	19	<1.0	10	-52
02/28/1996	9.4	123	794	3.0	19	304	0.10	23	<1.0	11	-50
04/25/1996	9.6	114	768	2.0	9.0	400	0.11	27	<1.0	12	-51
06/27/1996	9.7	113	878	4.0	10	418	0.10	24	<1.0	15	-57
08/20/1996	9.4	113	842	2.0	10	432	0.08	25	<1.0	14	-58
10/31/1996	9.8	115	790	2.0	11	440	<0.01	22	<1.0	11	-58
04/17/1997	8.1	115	800	2.0	11	422	<0.10	24	<1.0	12	-58
10/16/1997	9.4	116	776	2.0	10	340	0.03	18	<1.0	13	-65
04/22/1998	8.9	110	784	2.0	11	389	0.15	21	<1.0	13	-61
04/01/1999	8.1	115	788	2.0	11	398	0.15	22	<1.0	13	-54
10/08/1999	9.0	124	794	2.0	11	376	<0.01	19	<1.0	12	-56
04/05/2000	9.6	115	780	2.0	9.0	326	0.20	24	<1.0	12	-56
10/05/2000	8.4	118	780	2.0	11	397	0.18	25	<1.0	12	-86
04/11/2001	9.8	118	794	2.0	11	428	0.16	26	<1.0	12	-59
10/18/2001	9.4	121	776	2.0	12	374	0.06	22	<10	12	-90
04/04/2002	8.8	116	810	2.0	13	375	0.13	26	<1.0	12	-63
10/17/2002	7.5	102	760	3.0	12	380	0.15	27	<1.0	12	-67
04/10/2003	8.1	110	800	2.0	22	402	0.08	18	<1.0	12	-61
10/16/2003	8.4	104	784	2.0	18	393	0.11	22	<1.0	12	-63
04/08/2004	7.2	118	754	2.0	12	398	0.11	18	<1.0	12	-62
06/23/2005	7.8	88	790	1.0	15	338	0.16	23	<1.0	14	-85
10/13/2005	7.7	53	770	1.0	30	392	0.06	21	<1.0	13	-66
03/23/2006	7.0	95	810	0.80	33	397	<0.02	23	<1.0	12	-88
06/08/2006	7.9	114	736	0.80	140	345	0.25	22	<1.0	14	-79
10/19/2006	8.7	119	794	0.80	17	398	0.05	26	<1.0	12	-80
02/01/2007	8.3	55	794	0.80	15	390	0.03	22	<1.0	11	-84
06/28/2007	8.4	88	764	0.70	14	383	0.05	24	<1.0	12	-87
12/20/2007	9.5	88	762	0.70	16	382	0.13	24	<1.0	12	-84
04/24/2008	9.4	103	740	0.80	14	371	0.08	16	<1.0	13	-83
08/14/2008	9.6	97	738	0.50	13	342	0.07	16	<1.0	13	-89
11/20/2008	9.4	62	630	1.0	26	301	0.02	26	<1.0	12	-112
08/29/2013	9.3	64	502	1.0	63	167	0.65	24	<1.0	13	-83
09/25/2013	9.3	91	660	1.0	34	298	0.32	26	<1.0	13	-83

TABLE 5-20 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-40 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
11/21/2013	9.1	88	736	1.0	29	362	0.19	23	<1.0	12	-86

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-21: GROUNDWATER QUALITY DATA FOR WELL QD-41 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/16/1995	7.6	114	844	4.0	19	358	0.37	494	<1.0	11	-129
04/27/1995	8.0	115	902	4.0	19	435	0.25	474	<1.0	12	-125
06/19/1995	7.9	105	902	4.0	15	405	0.27	475	<1.0	12	-123
08/17/1995	7.8	113	892	3.0	16	357	0.30	509	<1.0	14	-123
10/12/1995	7.9	120	904	5.0	14	460	0.27	500	<1.0	12	-120
12/07/1995	7.4	123	970	5.0	14	426	0.32	19	<1.0	9.0	-118
02/15/1996	7.6	117	884	4.0	14	393	0.29	504	<1.0	11	-119
04/25/1996	7.6	113	944	5.0	12	421	0.28	511	<1.0	12	-117
06/20/1996	7.1	115	962	9.0	11	368	0.25	518	<1.0	11	-124
08/15/1996	7.7	113	984	5.0	13	425	0.33	533	<1.0	12	-132
10/30/1996	7.8	111	914	7.0	13	346	0.22	555	<1.0	12	-126
04/09/1997	9.2	114	848	4.0	12	493	0.19	516	<1.0	11	-126
10/30/1997	7.5	116	820	3.0	14	379	0.15	451	<1.0	13	-127
04/23/1998	8.0	106	848	5.0	15	362	0.29	483	<1.0	13	-216
04/29/1999	7.6	98	760	5.0	22	361	0.14	419	<1.0	13	-117
10/28/1999	7.5	114	874	3.0	22	380	0.22	537	<1.0	14	-121
04/20/2000	7.6	109	820	7.0	19	349	0.30	449	<1.0	12	-118
10/26/2000	7.0	115	896	3.0	24	397	0.25	481	<1.0	12	-119
04/11/2001	8.1	108	822	3.0	22	320	0.28	471	<1.0	12	-129
10/31/2001	7.4	104	898	3.0	24	351	0.31	440	<1.0	12	-116
04/04/2002	7.6	135	864	3.0	22	337	0.31	450	<1.0	12	-123
10/03/2002	7.2	95	874	4.0	25	350	0.33	433	<1.0	13	-163
04/03/2003	7.5	101	856	4.0	20	392	0.30	444	<1.0	12	-117
10/09/2003	7.6	107	862	4.0	24	388	0.28	450	<1.0	13	-120
04/08/2004	7.6	37	814	3.0	24	377	0.27	422	<1.0	12	-120
10/07/2004	7.5	88	818	5.0	24	331	0.32	435	<1.0	12	-117
04/07/2005	7.5	68	844	2.0	22	344	0.30	463	<1.0	12	-132
07/28/2005	7.3	89	842	1.0	23	376	0.29	447	<1.0	13	-129
09/01/2005	7.2	90	824	1.0	22	352	0.17	448	<1.0	13	-129
03/16/2006	7.8	105	794	1.1	19	378	0.23	446	<1.0	12	-131
06/08/2006	7.6	94	828	1.3	132	316	0.24	448	<1.0	14	-125
10/19/2006	7.6	112	830	1.3	18	360	0.21	429	<1.0	12	-137
02/01/2007	7.9	49	830	1.4	22	361	0.23	435	<1.0	11	-135
04/19/2007	7.5	82	808	1.1	19	346	0.26	433	<1.0	12	-133
07/26/2007	7.5	87	802	1.3	18	311	0.31	422	<1.0	20	-129
04/24/2008	7.8	100	788	1.3	18	343	0.27	399	<1.0	14	-130
08/14/2008	7.6	91	812	0.90	16	298	0.30	400	<1.0	13	-137
11/20/2008	7.8	68	790	1.0	17	352	0.26	393	<1.0	12	-137
02/05/2009	7.6	66	840	1.9	19	346	0.31	419	<1.0	12	-133
08/13/2009	7.6	74	984	<1.0	27	97	<0.10	18	<1.0	13	-136

TABLE 5-21 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-41 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/11/2010	7.5	76	770	1.7	15	314	0.29	438	<1.0	13	-133
06/10/2010	6.8	69	1024	1.5	15	335	0.30	406	<1.0	13	-132
10/21/2010	7.4	82	776	1.7	<15	336	0.27	401	<1.0	13	-141
02/17/2011	7.4	65	752	1.5	16	346	0.30	437	<1.0	12	-146
04/07/2011	7.5	85	804	1.6	11	350	0.21	426	<1.0	12	-139
08/05/2011	7.4	83	1090	1.3	<10	343	0.27	427	<1.0	14	-141
03/01/2012	7.6	78	776	1.0	14	333	0.30	429	<1.0	12	-134
07/31/2013	7.2	86	788	2.0	13	347	0.34	447	<1.0	13	-138
09/25/2013	8.2	164	770	2.0	15	325	0.32	426	<1.0	12	-142
11/21/2013	7.7	82	780	2.0	16	345	0.31	404	<1.0	12	-133

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-22: GROUNDWATER QUALITY DATA FOR WELL QD-42 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/09/1995	8.0	104	814	3.0	22	291	0.25	449	<1.0	11	-136
04/19/1995	7.8	100	888	5.0	21	294	0.24	806	<1.0	12	-136
06/22/1995	7.9	99	816	5.0	16	276	0.25	429	<1.0	12	-132
08/31/1995	7.9	98	822	3.0	20	293	0.22	410	<1.0	12	-132
10/26/1995	7.2	105	836	10	18	302	0.25	457	<1.0	11	-126
12/13/1995	7.5	85	810	9.0	16	288	0.27	439	<1.0	10	-129
02/28/1996	7.6	94	794	3.0	19	304	0.27	453	<1.0	11	-128
04/25/1996	9.6	106	798	4.0	14	305	0.27	491	<1.0	12	-126
06/27/1996	8.0	99	850	8.0	15	308	0.24	458	<1.0	13	-135
08/20/1996	7.6	104	948	4.0	14	239	0.28	477	1.0	12	-138
10/30/1996	7.9	102	878	4.0	17	323	0.17	459	<1.0	12	-126
04/17/1997	8.2	98	792	3.0	17	300	0.19	452	<1.0	11	-138
10/16/1997	7.5	104	796	6.0	15	235	0.25	477	<1.0	12	-132
04/22/1998	8.1	92	784	5.0	18	313	0.33	430	<1.0	12	-133
04/01/1999	7.7	94	768	3.0	17	276	0.34	418	<1.0	12	-136
10/08/1999	7.5	97	802	3.0	16	296	0.13	407	<1.0	12	-128
04/05/2000	7.4	102	768	2.0	16	266	0.38	439	<1.0	11	-128
10/05/2000	7.8	100	776	3.0	16	312	0.37	423	<1.0	12	-127
04/18/2001	8.3	101	784	2.0	18	285	0.36	430	<1.0	12	-133
10/18/2001	8.8	99	790	2.0	18	267	0.32	405	1.0	11	-123
04/04/2002	7.3	101	782	4.0	16	266	0.35	414	<1.0	11	-131
10/17/2002	7.0	82	777	4.0	18	314	0.43	416	<1.0	11	-129
04/10/2003	7.3	94	806	4.0	15	300	0.32	402	<1.0	11	-127
10/16/2003	7.5	88	792	3.0	19	316	0.35	379	<1.0	12	-127
04/08/2004	6.8	95	782	3.0	47	313	0.34	387	<1.0	12	-127
10/20/2004	7.3	42	772	4.0	19	264	0.35	384	<1.0	12	-127
04/07/2005	7.6	68	778	2.0	19	275	0.36	415	<1.0	12	-130
07/28/2005	7.6	88	770	1.0	18	276	0.33	403	<1.0	12	-127
09/29/2005	7.5	30	768	1.0	21	275	0.33	384	<1.0	12	-126
03/16/2006	7.7	94	742	0.90	19	252	0.26	402	<1.0	11	-123
06/08/2006	7.7	100	796	0.90	20	258	0.30	420	<1.0	12	-123
10/19/2006	7.5	112	800	0.90	19	286	0.25	381	<1.0	11	-126
02/01/2007	7.8	48	796	0.90	20	324	0.29	409	<1.0	10	-127
04/19/2007	7.5	81	786	1.0	19	279	0.31	403	<1.0	11	-125
07/26/2007	7.6	80	780	1.0	19	284	0.32	371	<1.0	13	-122
04/24/2008	7.5	89	778	0.80	20	285	0.31	375	<1.0	13	-126
08/14/2008	7.7	88	784	0.60	17	261	0.33	383	<1.0	12	-128
11/20/2008	7.5	67	764	1.0	19	290	0.24	352	<1.0	11	-97
02/05/2009	7.3	82	784	1.3	20	283	0.29	380	<1.0	11	-130
07/09/2009	7.3	97	760	1.3	19	286	0.30	372	<1.0	13	-130

TABLE 5-22 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-42 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/17/2009	7.4	55	772	1.2	20	269	0.29	392	<1.0	13	-123
03/11/2010	7.5	75	744	1.2	18	266	0.33	398	<1.0	12	-119
06/10/2010	7.4	65	1018	1.1	27	274	0.33	396	<1.0	13	-118
10/21/2010	7.4	71	778	1.2	19	278	0.29	375	<1.0	12	-121
02/17/2011	6.8	65	764	1.2	21	289	0.31	408	<1.0	12	-124
04/07/2011	7.4	90	780	1.2	16	283	0.21	405	<1.0	12	-117
08/05/2011	7.4	80	1108	1.0	13	282	0.28	400	<1.0	13	-120
03/01/2012	7.6	78	758	1.0	19	280	0.32	401	<1.0	12	-110
06/27/2012	7.8	69	818	1.0	19	279	0.30	404	<1.0	13	-119
08/30/2012	7.0	90	824	1.0	19	292	0.26	406	<1.0	11	-135
02/13/2013	7.4	56	800	1.0	19	282	0.32	411	<1.0	112	-138
06/06/2013	7.2	38	804	1.0	19	292	0.30	418	<1.0	13	-126
09/11/2013	7.8	85	786	1.0	19	306	0.30	408	<1.0	14	-124

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-23: GROUNDWATER QUALITY DATA FOR WELL QD-43 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/09/1995	7.2	96	700	3.0	26	248	0.23	469	<1.0	10	-160
04/19/1995	7.4	106	780	4.0	33	290	0.23	486	<1.0	11	-159
06/22/1995	7.5	105	732	5.0	16	423	0.20	454	<1.0	12	-162
08/31/1995	7.8	96	748	1.0	24	249	0.21	434	<1.0	14	-61
10/26/1995	7.6	99	798	13	28	248	0.27	498	<1.0	12	-159
12/13/1995	8.0	101	732	10	22	257	0.23	475	<1.0	10	-160
02/28/1996	7.6	106	718	4.0	18	219	0.18	452	<1.0	10	-158
04/25/1996	7.7	97	786	5.0	32	257	0.24	577	<1.0	12	-158
06/27/1996	7.5	91	960	7.0	29	251	0.20	526	<1.0	14	-158
08/20/1996	7.5	99	920	5.0	24	253	0.19	526	<1.0	12	-159
10/31/1996	7.5	1.0	782	6.0	29	267	0.09	512	<1.0	12	-160
04/17/1997	7.8	102	758	2.0	28	239	0.16	527	<1.0	13	-152
10/16/1997	7.5	97	740	6.0	23	220	0.13	527	<1.0	12	-159
04/22/1998	7.7	86	720	3.0	18	241	0.18	462	<1.0	12	-158
04/01/1999	7.7	85	742	3.0	23	227	0.21	464	<1.0	12	-156
10/08/1999	7.3	109	598	3.0	27	241	0.01	442	<1.0	12	-154
04/05/2000	7.6	99	748	2.0	26	235	0.28	499	<1.0	11	-154
10/05/2000	7.5	102	742	3.0	30	246	0.27	481	<1.0	12	-155
04/18/2001	7.9	104	794	2.0	43	274	0.28	523	<1.0	12	-154
10/18/2001	7.6	95	786	2.0	42	224	0.24	461	<1.0	11	-150
04/04/2002	7.3	92	772	4.0	36	214	0.32	469	<1.0	11	-150
10/17/2002	7.3	86	758	5.0	42	231	0.35	469	<1.0	11	-110
04/10/2003	7.2	84	738	2.0	32	217	0.29	449	<1.0	12	-148
10/16/2003	7.1	83	714	2.0	40	254	0.31	420	<1.0	11	-146
04/08/2004	6.9	99	718	2.0	79	257	0.31	426	<1.0	12	-147
10/20/2004	7.5	47	760	4.0	43	218	0.32	446	<1.0	12	-146
04/07/2005	7.5	53	668	2.0	35	202	0.30	411	<1.0	11	-140
07/28/2005	7.5	81	680	1.0	37	206	0.27	426	<1.0	12	-140
09/29/2005	7.3	37	728	1.0	38	200	0.26	419	<1.0	12	-144
03/16/2006	7.9	100	682	0.80	35	228	0.19	442	<1.0	11	-142
06/08/2006	7.6	95	714	0.70	39	189	0.27	448	<1.0	13	-145
10/19/2006	7.6	105	742	0.80	38	214	0.22	421	<1.0	11	-141
02/01/2007	7.9	46	728	0.80	44	206	0.25	445	<1.0	10	-136
08/28/2008	7.4	54	658	1.0	45	185	0.31	413	<1.0	13	-135
11/20/2008	7.4	63	680	1.0	43	200	0.28	394	<1.0	11	-126
02/05/2009	7.5	100	702	1.1	47	206	0.30	416	<1.0	11	-
07/09/2009	7.2	90	706	1.1	52	196	0.34	400	<1.0	11	-147
09/17/2009	7.6	62	754	1.1	51	157	0.30	426	<1.0	12	-137
03/11/2010	7.5	67	696	1.1	41	196	0.33	456	<1.0	11	-137
06/24/2010	7.3	55	872	1.1	39	225	0.32	701	<1.0	13	-119

TABLE 5-23 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-43 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/21/2010	7.3	67	778	1.2	19	277	0.29	436	<1.0	12	-118
02/17/2011	7.5	62	684	<1.0	40	211	0.32	450	<1.0	12	-118
04/07/2011	7.4	54	734	1.0	35	215	0.23	446	<1.0	11	2.4
08/05/2011	7.2	70	910	<1.0	31	201	0.30	432	<1.0	14	-130
03/01/2012	7.6	64	704	1.0	45	209	0.34	461	<1.0	12	-110
06/21/2012	6.9	61	746	1.0	45	209	0.31	467	<1.0	12	-118
08/30/2012	7.4	87	848	1.0	46	221	0.31	470	<1.0	12	-157
02/13/2013	7.3	61	770	1.0	45	220	0.33	483	<1.0	11	-157
06/06/2013	7.2	42	754	1.0	46	213	0.33	487	<1.0	14	-142
09/11/2013	7.5	84	750	1.0	47	219	0.37	480	<1.0	13	-161

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-24: GROUNDWATER QUALITY DATA FOR WELL QD-44 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/08/1995	7.7	90	644	2.0	19	243	0.23	715	<1.0	11	-27
04/12/1995	8.0	87	646	5.0	14	251	0.30	312	<1.0	11	-25
06/07/1995	8.0	76	656	3.0	12	124	0.21	116	<1.0	12	-24
08/02/1995	8.1	89	658	3.0	8.0	268	0.32	328	<1.0	15	-26
10/25/1995	7.2	83	614	7.0	10	231	0.35	322	<1.0	11	-24
12/12/1995	7.9	89	628	5.0	10	238	0.33	309	<1.0	11	-24
02/14/1996	8.0	36	602	4.0	13	210	0.32	295	<1.0	10	-172
04/29/1996	7.8	80	612	5.0	7.0	228	0.31	326	<1.0	11	-24
06/05/1996	7.3	88	642	4.0	9.0	233	0.31	324	<1.0	14	-24
08/14/1996	7.8	82	664	4.0	9.0	219	0.24	102	230	11	-24
10/23/1996	8.3	76	604	2.0	9.0	239	0.35	310	<1.0	14	-24
02/20/1997	8.0	78	644	3.0	10	123	0.23	309	<1.0	11	-23
04/16/1997	8.1	69	576	2.0	8.0	204	0.19	317	<1.0	11	-22
10/15/1997	7.6	89	614	2.0	9.0	199	0.39	347	<1.0	12	-23
04/08/1998	8.1	75	570	5.0	9.0	197	0.25	284	<1.0	12	-21
04/14/1999	6.5	80	392	2.0	9.0	136	0.33	141	<1.0	14	-20
10/05/1999	8.4	51	590	2.0	9.0	243	0.21	291	<1.0	11	-19
04/26/2000	8.0	85	574	5.0	10	169	0.35	256	<1.0	11	-18
10/30/2000	7.3	89	720	2.0	16	219	0.34	304	<1.0	11	-8.0
04/03/2001	8.5	58	562	2.0	10	273	0.19	340	<1.0	10	-16
10/10/2001	8.2	56	466	2.0	16	142	0.53	156	1.0	12	-17
04/17/2002	8.1	56	410	3.0	43	165	0.37	204	<1.0	12	-15
10/16/2002	8.0	50	538	4.0	24	165	0.39	207	<1.0	11	-15
04/16/2003	7.3	74	460	3.0	16	165	0.31	202	<1.0	11	-3.0
10/22/2003	8.9	43	604	3.0	25	242	0.36	248	<1.0	11	-14
06/23/2004	7.9	42	516	3.0	17	161	0.33	228	<1.0	13	-15
10/14/2004	7.6	67	618	2.0	17	220	0.34	306	<1.0	11	-13
03/16/2005	7.5	68	582	2.0	24	182	0.28	234	<1.0	12	-13
06/15/2005	7.4	44	582	2.0	14	203	0.33	284	<1.0	12	-12
08/29/2005	6.8	71	576	1.0	14	200	0.28	281	<1.0	12	-13
01/30/2006	6.4	96	518	1.1	14	177	0.31	251	<1.0	10	-11
06/27/2006	8.1	73	570	1.0	25	183	0.25	236	<1.0	13	-12
07/06/2006	7.6	33	634	1.0	17	208	0.29	313	<1.0	12	-12
05/16/2007	7.7	65	534	1.0	30	163	0.26	197	2.0	11	-15
07/26/2007	7.6	64	604	1.0	15	191	0.33	292	<1.0	12	-10
12/06/2007	7.7	58	638	0.80	14	215	0.32	311	<1.0	9.0	-10
06/19/2008	8.0	65	616	0.70	16	213	0.34	301	<1.0	11	-10
08/28/2008	7.7	48	598	1.0	13	213	0.34	317	<1.0	11	-10
10/30/2008	7.5	86	632	1.0	15	207	0.37	285	<1.0	11	-10
07/09/2009	7.5	72	648	1.0	18	214	0.36	296	<1.0	12	-16

TABLE 5-24 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-44 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
08/27/2009	7.6	78	632	1.1	18	212	0.35	292	<1.0	12	-19
09/17/2009	7.8	57	618	1.1	20	191	0.31	312	<1.0	12	-10
04/08/2010	7.5	40	598	1.0	17	204	0.35	288	<1.0	11	-16
06/24/2010	7.6	37	862	1.2	17	226	0.35	79	<1.0	12	-9.6
10/21/2010	7.8	51	602	1.1	17	216	0.33	307	<1.0	11	-5.6
02/17/2011	7.6	58	622	<1.0	19	212	0.33	340	<1.0	11	-9.6
04/07/2011	7.7	51	630	<1.0	16	210	0.25	323	<1.0	11	-6.6
08/05/2011	7.6	61	898	1.0	<10	215	0.34	326	<1.0	13	-6.6
03/01/2012	8.0	52	590	1.0	18	200	0.36	309	<1.0	11	-29
06/21/2012	7.8	49	482	1.0	18	159	0.32	208	<1.0	12	-13
08/30/2012	7.5	27	688	1.0	18	215	0.34	325	<1.0	13	-7.0
10/11/2012	7.1	25	626	<1.0	18	210	0.36	314	<1.0	12	-13
03/07/2013	7.5	60	778	<1.0	158	92	0.39	228	<1.0	10	-19
06/06/2013	7.5	37	646	1.0	17	205	0.36	351	<1.0	15	-6.0
09/11/2013	7.8	61	586	1.0	19	215	0.36	304	<1.0	12	-23

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-25: GROUNDWATER QUALITY DATA FOR WELL QD-45 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/09/1995	8.2	81	538	2.0	18	235	0.28	64	<1.0	11	-25
04/19/1995	8.2	84	548	3.0	17	269	0.25	81	<1.0	11	-25
06/22/1995	8.3	70	590	4.0	12	235	0.28	80	<1.0	14	-27
08/31/1995	8.6	86	556	2.0	16	190	0.26	76	<1.0	12	-25
10/26/1995	8.6	70	590	7.0	15	218	0.26	86	<1.0	11	-24
12/13/1995	8.1	70	554	6.0	13	237	0.22	80	<1.0	10	-25
02/28/1996	8.6	78	564	4.0	16	220	0.21	83	<1.0	11	-22
04/25/1996	8.8	91	576	3.0	12	236	0.21	103	<1.0	12	-24
06/26/1996	9.1	78	650	4.0	13	235	0.20	91	<1.0	15	-24
08/20/1996	8.5	81	730	2.0	13	248	0.25	89	<1.0	13	-24
04/17/1997	9.2	91	730	2.0	24	250	0.17	96	<1.0	12	-22
10/16/1997	8.3	106	714	4.0	24	258	0.23	101	<1.0	12	-22
04/22/1998	8.4	77	590	2.0	14	230	0.28	94	<1.0	12	-21
04/01/1999	8.1	83	604	2.0	15	214	0.33	92	<1.0	13	-18
10/08/1999	8.2	104	592	2.0	14	215	0.11	78	<1.0	12	-18
04/05/2000	8.5	90	572	2.0	13	185	0.35	90	<1.0	11	-15
10/05/2000	8.5	87	568	2.0	14	222	0.34	88	2.0	11	-15
04/18/2001	8.8	71	590	2.0	16	215	0.31	91	<1.0	11	-4.0
10/18/2001	8.5	91	594	2.0	16	194	0.25	101	<1.0	11	-3.0
04/04/2002	8.1	86	586	2.0	12	192	0.31	90	<1.0	10	-12
10/17/2002	6.8	78	604	3.0	20	221	0.31	93	<1.0	11	-13
04/10/2003	7.5	88	608	3.0	16	201	0.28	85	<1.0	12	-13
10/16/2003	8.5	81	562	2.0	23	237	0.32	77	<1.0	11	-11
04/08/2004	7.2	100	582	2.0	42	233	0.30	80	<1.0	11	-12
10/20/2004	7.1	42	624	2.0	18	208	0.29	86	<1.0	12	-12
03/31/2005	7.7	54	502	2.0	17	193	0.27	88	<1.0	11	-9.0
04/21/2005	7.8	47	574	2.0	18	216	0.26	86	<1.0	11	-11
09/29/2005	7.5	39	596	1.0	20	210	0.33	85	<1.0	11	-10
03/16/2006	7.8	86	552	0.80	18	219	0.18	85	<1.0	11	-10
06/08/2006	8.2	99	592	0.80	20	192	0.27	93	<1.0	13	-10
07/19/2006	7.5	40	562	0.90	18	199	0.20	89	<1.0	12	-10
02/01/2007	8.6	64	578	1.2	19	201	0.26	99	<1.0	11	-8.0
04/19/2007	8.3	67	594	0.80	17	185	0.26	86	<1.0	12	-10
06/21/2007	8.8	69	578	0.80	17	195	0.20	88	<1.0	13	-9.0
06/19/2008	8.0	70	566	0.70	16	203	0.28	85	<1.0	13	-6.0
02/25/2010	8.5	66	590	1.7	17	200	0.34	87	<1.0	10	4.5
04/08/2010	7.6	45	554	1.1	17	206	0.32	91	<1.0	11	-16
06/24/2010	7.3	52	640	1.2	19	219	0.33	417	<1.0	12	-2.5
02/17/2011	8.0	59	554	1.1	17	197	0.33	120	<1.0	12	-12
04/07/2011	9.2	51	578	1.2	13	202	0.24	94	<1.0	11	-5.5

TABLE 5-25 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-45 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/13/2011	8.2	79	546	1.1	17	196	0.26	93	<1.0	11	-7.5
03/01/2012	8.2	55	564	1.0	18	203	0.35	90	<1.0	13	-11
06/21/2012	7.9	64	632	1.0	23	208	0.37	86	<1.0	13	-13
08/30/2012	8.4	30	606	2.0	17	213	0.33	98	<1.0	12	-4.0
10/11/2012	7.9	29	564	1.0	17	217	0.35	97	<1.0	13	-6.0
03/07/2013	7.7	64	586	1.0	20	213	0.23	317	<1.0	12	-17
06/06/2013	8.1	44	580	1.0	16	210	0.36	106	<1.0	15	-4.0
09/11/2013	8.6	66	586	1.0	17	232	0.35	104	<1.0	12	-19

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-26: GROUNDWATER QUALITY DATA FOR WELL QD-46 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/08/1995	8.3	93	592	2.0	16	214	0.05	104	<1.0	11	-194
04/12/1995	8.2	90	688	4.0	17	203	0.20	101	<1.0	12	-193
06/07/1995	8.0	88	582	2.0	9.0	226	0.30	292	<1.0	13	-191
08/24/1995	8.0	93	652	3.0	10	169	0.23	102	<1.0	13	-188
10/12/1995	8.8	86	610	9.0	11	132	0.22	104	<1.0	13	-187
12/07/1995	8.1	131	682	7.0	13	141	0.24	96	<1.0	11	-191
02/14/1996	7.9	113	662	5.0	14	147	0.23	107	<1.0	10	-180
04/29/1996	8.4	117	656	6.0	9.0	152	0.21	113	<1.0	12	-190
06/05/1996	8.5	100	598	8.0	14	136	0.21	105	460	13	-179
08/14/1996	8.0	122	636	2.0	8.0	203	0.30	257	<1.0	13	-183
10/09/1996	8.1	84	692	9.0	12	163	0.22	700	<1.0	12	-188
12/05/1996	8.8	92	638	4.0	17	148	0.14	104	<1.0	11	-186
02/20/1997	8.3	93	676	3.0	13	214	0.12	97	<1.0	11	-189
04/16/1997	8.2	87	640	3.0	17	129	0.11	99	4.0	12	-185
06/04/1997	8.2	86	634	3.0	12	132	0.20	98	<1.0	10	-185
08/06/1997	8.5	87	642	10	11	116	0.13	96	<1.0	12	-182
10/15/1997	8.0	89	592	2.0	10	132	0.25	102	<1.0	13	-183
12/03/1997	7.9	96	674	1.0	12	128	0.17	95	1.0	12	-184
04/08/1998	8.4	83	606	4.0	12	125	0.22	95	<1.0	12	-181
06/17/1998	8.4	83	634	4.0	12	133	0.11	101	2.0	14	-183
08/19/1998	8.3	89	620	2.0	12	145	0.35	104	<1.0	12	-180
10/14/1998	8.1	86	638	2.0	15	140	0.51	102	<1.0	14	-177
12/07/1998	8.0	87	638	3.0	15	144	0.17	102	<1.0	11	-180
02/10/1999	7.9	90	672	2.0	20	134	0.13	97	5.0	14	-179
04/14/1999	6.8	84	580	1.0	12	120	0.27	96	<1.0	15	-179
06/02/1999	6.9	84	666	2.0	11	140	0.11	99	<1.0	14	-178
08/04/1999	7.3	82	666	2.0	12	143	0.18	117	<1.0	16	-175
10/05/1999	8.1	97	598	2.0	11	159	0.10	86	<1.0	12	-170
12/15/1999	7.9	70	590	4.0	14	136	0.21	91	<1.0	11	-
02/29/2000	8.1	106	610	3.0	11	141	0.25	93	<1.0	12	-172
04/26/2000	8.1	97	664	5.0	12	140	0.29	97	25	13	-164
06/07/2000	8.0	97	652	4.0	15	141	0.27	105	<1.0	13	-174
08/09/2000	7.9	97	674	1.0	12	144	0.26	90	<1.0	14	-168
10/30/2000	7.3	100	610	2.0	10	148	0.25	94	<1.0	12	-168
12/11/2000	7.4	99	680	1.0	23	141	0.25	91	<1.0	11	-174
02/21/2001	7.3	176	726	2.0	29	153	0.25	95	<1.0	11	-178
04/03/2001	8.3	66	610	2.0	12	201	0.27	104	<1.0	11	-178
06/20/2001	8.1	86	692	2.0	22	146	0.28	93	<1.0	12	-171
08/29/2001	7.1	172	736	2.0	28	164	0.26	93	<1.0	12	-168
10/10/2001	8.1	67	588	2.0	12	111	0.23	77	25	12	-173

TABLE 5-26 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-46 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2001	7.2	88	664	2.0	45	139	0.30	72	2.0	12	-182
02/06/2002	7.8	87	650	4.0	19	140	0.24	92	<1.0	12	-184
04/17/2002	8.1	69	594	3.0	10	143	0.26	89	<1.0	13	-177
06/12/2002	8.0	94	694	3.0	25	150	0.26	88	<1.0	12	-176
08/27/2002	8.3	88	766	3.0	42	221	0.41	86	<1.0	13	-170
10/16/2002	8.0	81	616	5.0	12	139	0.31	92	<1.0	12	-175
12/04/2002	7.2	80	732	4.0	26	128	0.24	83	<1.0	12	-178
02/05/2003	7.5	76	702	3.0	30	123	0.24	69	<1.0	11	-180
04/16/2003	7.3	96	602	3.0	11	136	0.24	89	<1.0	12	-173
06/11/2003	7.9	84	704	3.0	25	122	0.24	75	<1.0	13	-182
08/13/2003	7.9	62	730	3.0	25	166	0.23	87	<1.0	13	-181
10/22/2003	7.8	86	670	3.0	10	178	0.28	78	<1.0	11	-173
12/17/2003	7.9	58	666	2.0	25	168	0.19	85	<1.0	10	-173
02/04/2004	7.7	55	714	4.0	22	162	0.25	86	<1.0	10	-176
04/14/2004	7.9	83	618	2.0	14	127	0.22	83	<1.0	14	-168
06/23/2004	8.1	75	810	5.0	27	95	0.01	21	<1.0	13	-70
08/12/2004	7.6	81	692	2.0	24	141	0.24	81	<1.0	12	-170
10/14/2004	7.8	78	640	1.0	12	131	0.22	69	<1.0	12	-168
12/21/2004	7.8	85	568	2.0	17	132	0.22	78	<1.0	11	-169
01/06/2005	7.1	71	662	2.0	15	125	0.23	78	<1.0	12	-172
06/15/2005	7.4	51	610	2.0	12	136	0.25	78	<1.0	13	-178
08/29/2005	6.4	75	678	1.0	21	124	0.19	77	<1.0	13	-171
05/30/2006	8.2	96	688	0.70	24	131	0.21	81	<1.0	12	-168
08/09/2006	7.6	46	674	0.90	22	123	0.16	66	<1.0	12	-168
11/29/2006	8.1	52	660	0.70	22	152	0.18	86	<1.0	12	-182
02/15/2007	7.9	44	594	0.90	14	142	0.19	85	<1.0	10	-189
05/16/2007	7.6	85	620	0.60	13	129	0.19	80	<1.0	12	-165
10/03/2007	7.9	52	674	0.60	22	129	0.24	75	<1.0	12	-172
02/05/2008	8.1	67	552	0.70	13	102	0.20	63	1.0	12	-177
05/29/2008	7.9	57	610	0.60	12	122	0.22	75	<1.0	12	-181
07/16/2008	7.5	101	608	0.40	10	134	0.22	77	<1.0	13	-171
02/10/2009	7.8	50	650	1.5	24	106	0.21	63	3.0	12	-189
08/26/2009	8.0	65	648	1.3	14	107	0.20	59	<1.0	15	-181
10/14/2009	7.9	70	602	<1.0	13	121	0.26	73	<1.0	9.9	-179
02/23/2010	7.6	52	602	<1.0	<15	120	0.21	74	<1.0	12	-172
07/08/2010	7.5	52	1296	<1.0	151	255	0.74	663	<1.0	13	-165
07/15/2010	7.6	65	540	<1.0	22	153	0.26	234	<1.0	13	-184
01/31/2011	7.9	53	586	1.3	13	124	0.23	77	<1.0	11	-185
02/23/2011	7.9	61	572	<1.0	<10	123	0.22	162	<1.0	9.9	-170
05/04/2011	7.4	85	584	1.0	<10	107	0.20	66	<1.0	12	-176

TABLE 5-26 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-46 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/08/2012	7.7	60	610	<1.0	13	129	0.24	99	<1.0	12	-175
03/28/2012	7.8	84	582	<1.0	12	104	0.23	65	<1.0	12	-172
05/09/2012	7.9	68	586	<1.0	10	115	0.23	73	<1.0	13	-165
07/18/2012	7.8	50	662	4.0	11	111	0.22	67	<1.0	13	-167
11/08/2012	7.6	89	1278	1.0	129	277	0.31	-	<1.0	12	-100
02/14/2013	7.9	63	600	1.0	11	115	0.22	76	<1.0	12	-171
08/14/2013	8.0	72	600	<1.0	-	118	0.31	77	4.0	13	-184
12/19/2013	7.7	70	596	1.0	12	130	0.24	62	<1.0	13	-174

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-27: GROUNDWATER QUALITY DATA FOR WELL QD-47 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/16/1995	7.8	78	512	3.0	25	166	0.35	219	<1.0	12	-16
04/27/1995	7.6	80	530	3.0	21	180	0.22	224	<1.0	12	-16
06/21/1995	7.5	76	534	4.0	17	158	0.27	229	<1.0	15	-14
08/17/1995	8.1	81	522	3.0	19	143	0.26	241	<1.0	14	-15
10/12/1995	7.5	77	540	3.0	18	153	0.24	231	<1.0	14	-11
12/07/1995	8.1	81	506	4.0	17	136	0.25	252	<1.0	10	-5.0
02/15/1996	7.6	76	556	4.0	17	136	0.25	247	<1.0	11	-11
04/11/1996	7.7	76	566	4.0	16	140	0.24	255	<1.0	13	-12
06/20/1996	8.2	73	544	9.0	16	148	0.25	250	<1.0	13	-12
08/15/1996	7.9	74	620	6.0	16	156	0.26	246	<1.0	14	-20
04/09/1997	9.3	78	518	3.0	17	128	0.14	248	<1.0	12	-13
10/30/1997	7.8	73	536	2.0	16	127	0.14	242	<1.0	14	-11
04/23/1998	8.1	70	504	3.0	17	177	0.26	233	<1.0	14	-10
04/29/1999	7.6	69	528	3.0	20	131	0.14	230	<1.0	14	-6.0
10/28/1999	7.6	73	536	3.0	16	153	0.18	269	<1.0	15	-4.0
04/20/2000	7.8	85	534	6.0	17	145	0.28	238	<1.0	13	-2.0
10/26/2000	7.2	84	550	2.0	17	150	0.26	241	<1.0	13	-1.0
04/11/2001	7.9	30	584	2.0	18	147	0.27	130	<1.0	13	-1.0
10/31/2001	7.3	75	578	2.0	19	145	0.24	227	<1.0	13	0.0
04/04/2002	7.6	78	566	3.0	15	143	0.27	246	<1.0	12	1.0
10/03/2002	7.6	76	608	3.0	17	153	0.31	235	<1.0	14	1.0
04/03/2003	7.5	73	574	3.0	16	166	0.28	241	<1.0	12	4.0
10/09/2003	7.8	80	600	4.0	18	202	0.27	235	<1.0	13	3.0
04/08/2004	7.3	34	558	3.0	58	177	0.26	226	<1.0	13	2.0
10/07/2004	7.5	67	566	2.0	17	163	0.28	243	<1.0	13	4.0
03/31/2005	7.6	50	484	2.0	18	149	0.26	252	<1.0	13	1.0
05/26/2005	7.5	65	534	2.0	19	164	0.46	244	<1.0	13	4.0
08/11/2005	7.2	64	502	1.0	16	157	0.23	237	<1.0	13	4.0
03/16/2006	7.7	36	524	0.90	16	174	0.17	241	<1.0	13	2.0
06/08/2006	7.9	81	538	0.80	17	132	0.23	237	<1.0	17	3.0
07/19/2006	7.6	34	522	0.80	17	138	0.21	239	<1.0	13	2.0
06/21/2007	7.9	60	512	0.80	16	138	0.21	237	<1.0	15	4.0
11/28/2007	7.6	70	522	0.80	15	175	0.25	233	<1.0	10	-1.0
06/19/2008	7.7	468	526	0.90	16	142	0.24	222	<1.0	14	4.0
08/28/2008	7.7	45	518	1.0	14	148	0.25	241	<1.0	14	3.0
09/25/2008	7.6	57	516	1.0	14	137	0.19	234	<1.0	13	-1.0
02/19/2009	7.6	50	528	1.0	16	147	0.25	231	<1.0	12	5.0
04/30/2009	7.7	51	560	1.1	18	153	0.25	228	<1.0	13	3.0
08/13/2009	7.7	78	584	1.0	15	140	0.28	223	<1.0	15	5.0
02/25/2010	7.8	54	528	<1.0	15	153	0.24	248	<1.0	12	3.8

TABLE 5-27 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-47 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	⁰ C	ft ²
04/08/2010	7.4	50	528	<1.0	15	156	0.25	242	<1.0	12	-8.2
07/15/2010	7.7	49	540	<1.0	22	153	0.26	234	<1.0	15	5.8
02/17/2011	7.5	55	528	1.3	16	156	0.26	252	<1.0	13	4.8
04/07/2011	7.6	44	532	1.1	11	153	0.19	246	<1.0	12	3.8
08/19/2011	7.7	66	514	1.0	15	137	0.22	209	<1.0	14	1.2
02/23/2012	8.0	46	534	1.0	16	143	0.29	252	<1.0	12	7.0
04/12/2012	7.0	44	518	1.0	16	155	0.29	245	<1.0	14	7.0
06/21/2012	7.7	55	532	1.0	15	141	0.27	233	<1.0	14	4.0
09/20/2012	8.2	44	514	1.0	15	149	0.26	239	<1.0	15	5.0
02/28/2013	7.5	52	526	<1.0	14	148	0.27	281	<1.0	13	2.0
08/21/2013	7.9	62	508	1.0	15	154	0.29	245	<1.0	15	6.0
12/11/2013	7.5	61	520	1.0	15	149	0.27	247	<1.0	13	0.20

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-28: GROUNDWATER QUALITY DATA FOR WELL QD-48 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
04/27/1995	7.5	86	692	3.0	17	304	0.33	298	<1.0	13	-38
06/21/1995	7.8	99	624	2.0	12	306	0.46	281	<1.0	14	-44
08/17/1995	7.4	87	638	2.0	17	272	0.39	343	13	14	-44
10/12/1995	7.1	103	780	3.0	17	262	0.37	446	<1.0	14	-46
12/07/1995	8.1	101	658	4.0	14	293	0.35	344	<1.0	10	-46
02/15/1996	7.6	94	664	2.0	14	224	0.34	364	<1.0	11	-36
04/11/1996	7.6	101	826	4.0	16	292	0.38	444	<1.0	14	-50
06/20/1996	8.1	100	760	8.0	15	316	0.39	455	<1.0	12	-38
08/15/1996	7.8	95	686	3.0	10	249	0.29	278	<1.0	14	-54
10/30/1996	7.8	103	806	5.0	25	194	0.13	467	<1.0	12	-121
04/09/1997	8.8	75	536	3.0	13	356	0.22	273	<1.0	13	-5.0
10/30/1997	8.0	88	514	3.0	14	233	0.44	283	<1.0	14	-9.0
04/23/1998	7.9	76	574	3.0	11	272	0.37	286	<1.0	14	-15
04/29/1999	8.0	67	558	5.0	14	277	0.28	265	<1.0	14	-10
10/28/1999	8.1	71	558	3.0	15	257	0.45	307	<1.0	15	-2.0
04/20/2000	8.2	82	570	4.0	10	316	0.35	307	<1.0	13	-3.0
10/09/2003	7.8	93	614	3.0	47	265	0.20	233	<1.0	14	1.0
04/08/2004	6.8	39	578	3.0	34	243	0.29	248	<1.0	13	-5.0
05/26/2005	7.8	80	534	4.0	27	221	0.61	214	<1.0	13	-27
08/11/2005	7.2	66	566	2.0	15	285	0.24	280	<1.0	14	-68
03/16/2006	7.8	35	562	2.2	14	300	0.23	261	<1.0	11	-171
06/08/2006	7.8	102	664	1.4	14	283	0.26	337	<1.0	15	-169
07/19/2006	7.6	40	728	1.5	17	274	0.28	389	<1.0	15	-173
02/01/2007	8.1	75	702	1.4	20	312	0.28	359	<1.0	11	-176
06/21/2007	8.0	79	640	1.1	13	275	0.22	320	<1.0	14	-176
11/28/2007	7.5	80	570	1.2	12	299	0.32	266	<1.0	10	-178
06/19/2008	8.5	55	578	1.1	12	257	0.32	251	<1.0	18	-172
08/28/2008	8.0	39	584	1.0	10	269	0.21	291	<1.0	14	-174
09/25/2008	7.4	77	688	1.0	11	274	0.18	372	6.0	13	-183
02/19/2009	7.8	52	550	1.2	11	278	0.30	230	<1.0	12	-172
04/30/2009	8.3	52	644	1.2	13	283	0.18	271	<1.0	13	-187
08/13/2009	8.4	76	736	1.2	10	242	0.22	249	<1.0	15	-173
02/25/2010	8.4	54	526	<1.0	<15	248	0.27	231	<1.0	12	-173
04/08/2010	7.6	47	612	<1.0	<15	284	0.11	316	<1.0	13	-178
07/15/2010	8.0	50	586	<1.0	<15	279	0.17	273	<1.0	16	-176
02/17/2011	8.3	49	552	1.4	<10	270	0.21	261	<1.0	13	-177
04/21/2011	7.2	48	612	1.2	11	275	0.15	323	<1.0	13	-179
08/19/2011	7.9	85	764	1.6	<10	283	0.37	398	<1.0	14	-179
02/23/2012	8.1	48	502	1.0	<10	227	0.30	208	<1.0	13	-176
04/12/2012	8.0	50	608	1.0	<10	297	0.14	329	<1.0	13	-177

TABLE 5-28 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-48 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
06/21/2012	8.0	30	642	1.0	<10	276	0.14	328	<1.0	15	-176
08/30/2012	8.0	26	658	1.0	<10	295	0.10	328	<1.0	14	-177
03/07/2013	7.3	40	632	1.0	14	288	0.35	101	<1.0	13	-176
08/21/2013	8.5	49	428	<1.0	<10	219	0.34	200	<1.0	15	-177
12/11/2013	8.6	52	562	1.0	<10	248	0.16	261	<1.0	11	-177

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-29: GROUNDWATER QUALITY DATA FOR WELL QD-49 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
02/16/1995	7.6	94	654	3.0	28	248	0.52	398	<1.0	12	-18
04/27/1995	7.5	93	732	3.0	21	265	0.42	399	<1.0	12	-18
06/21/1995	7.5	97	562	4.0	15	279	0.45	274	<1.0	13	-24
08/17/1995	8.0	83	562	2.0	17	244	0.46	326	<1.0	13	-25
10/12/1995	8.1	121	730	3.0	17	242	0.45	458	<1.0	13	-17
12/07/1995	7.3	104	544	4.0	17	257	0.47	386	<1.0	10	-25
02/15/1996	7.4	103	658	4.0	14	230	0.11	8.0	<1.0	11	-22
04/11/1996	8.0	110	650	3.0	14	247	0.45	362	<1.0	13	-22
06/20/1996	7.2	100	788	8.0	15	287	0.46	517	<1.0	12	-14
08/15/1996	7.8	91	836	8.0	16	309	0.49	497	<1.0	13	-24
04/09/1997	8.9	79	576	4.0	15	333	0.41	343	<1.0	12	12
10/30/1997	7.5	98	674	4.0	14	282	0.30	364	<1.0	14	11
04/23/1998	7.9	90	736	6.0	15	259	0.49	475	<1.0	14	7.0
04/29/1999	7.5	91	734	4.0	21	221	0.40	459	<1.0	14	16
10/28/1999	7.2	78	558	3.0	9.0	252	0.27	270	<1.0	16	-6.0
04/20/2000	8.1	101	746	11	15	257	0.53	458	<1.0	12	-5.0
10/26/2000	7.7	72	734	4.0	15	240	0.50	443	<1.0	13	-8.0
04/11/2001	7.9	91	648	3.0	16	200	0.48	404	<1.0	13	-173
10/31/2001	8.9	68	546	2.0	16	215	0.50	229	<1.0	13	-14
04/04/2002	8.7	91	688	5.0	16	202	0.54	407	<1.0	12	-41
10/03/2002	7.5	74	624	3.0	14	212	0.56	324	<1.0	13	-45
04/03/2003	7.7	85	628	4.0	13	223	0.48	328	<1.0	12	-53
10/09/2003	7.7	91	616	4.0	19	281	0.48	311	<1.0	14	-62
04/08/2004	7.1	36	530	3.0	16	236	0.40	230	<1.0	13	-77
10/07/2004	7.4	68	518	7.0	17	223	0.42	244	<1.0	13	-85
03/31/2005	7.7	50	460	2.0	14	211	0.33	258	2.0	12	-94
07/28/2005	7.6	67	544	1.0	16	252	0.34	259	<1.0	14	-175
03/16/2006	7.8	29	514	1.0	14	233	0.26	206	<1.0	12	-181
07/19/2006	7.7	29	638	1.1	15	225	0.16	326	<1.0	16	-182
02/01/2007	8.2	67	620	1.6	14	266	0.10	326	<1.0	11	-182
06/21/2007	8.7	65	534	1.3	13	211	0.14	262	<1.0	16	-181
11/28/2007	7.5	69	522	1.0	13	250	0.18	239	<1.0	10	-179
11/20/2008	7.7	80	580	1.0	16	207	0.23	293	<1.0	12	-181
08/13/2009	7.9	81	774	1.1	14	172	0.29	317	<1.0	14	-176
02/25/2010	8.2	59	552	<1.0	<15	199	0.35	274	<1.0	11	-181
07/15/2010	7.0	46	610	<1.0	<15	221	0.11	313	<1.0	19	-181
09/30/2010	7.6	45	660	<1.0	<15	242	0.12	345	<1.0	20	-183
08/19/2011	7.9	78	682	1.0	14	209	0.35	384	<1.0	15	-179
10/13/2011	8.0	69	620	1.1	22	212	0.20	324	170	14	-186
06/21/2012	7.3	41	674	1.0	19	205	0.13	386	<1.0	24	-182

TABLE 5-29 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-49 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
08/30/2012	7.7	28	740	2.0	13	212	<0.10	371	<1.0	16	-181
02/28/2013	7.8	60	648	2.0	19	204	0.60	405	35	12	-182
09/26/2013	8.5	63	540	1.0	12	201	0.11	277	<1.0	14	-183
12/11/2013	7.1	78	622	1.0	14	189	0.42	382	<1.0	13	-183

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-30: GROUNDWATER QUALITY DATA FOR WELL QD-50 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/10/1996	10	109	712	9.0	14	247	0.12	3.0	<1.0	10	-60
02/15/1996	9.6	104	750	6.0	17	267	0.48	497	<1.0	11	-58
04/25/1996	8.8	102	710	5.0	12	252	0.09	9.0	<1.0	12	-65
06/10/1996	9.5	87	696	6.0	14	226	0.08	7.0	<1.0	12	-74
08/07/1996	9.5	99	712	5.0	14	230	0.09	7.0	<1.0	13	-79
10/10/1996	9.7	94	714	6.0	13	246	0.09	5.0	<1.0	12	-77
12/12/1996	8.3	101	682	4.0	13	212	<0.01	6.0	<1.0	9.0	-79
02/26/1997	8.8	71	706	4.0	13	241	<0.10	11	<1.0	11	-78
04/17/1997	7.4	103	702	3.0	14	236	<0.10	7.0	<1.0	11	-79
06/05/1997	7.6	97	400	2.0	13	221	<0.10	7.0	<1.0	13	-130
08/07/1997	7.3	63	676	2.0	13	224	0.05	4.0	<1.0	12	-93
10/30/1997	8.3	68	674	3.0	14	237	0.03	6.0	<1.0	13	-87
12/04/1997	9.4	99	724	3.0	13	255	0.04	7.0	<1.0	11	-87
02/26/1998	9.7	60	720	4.0	15	243	0.09	8.0	<1.0	12	-86
04/02/1998	9.3	79	656	4.0	14	265	<0.01	7.0	<1.0	12	-84
06/04/1998	9.4	67	658	3.0	13	257	<0.01	12	<1.0	12	-84
08/06/1998	9.4	54	712	3.0	12	235	0.05	7.0	<1.0	14	-78
10/29/1998	8.5	83	708	3.0	14	272	0.17	<0.0	<1.0	13	-89
12/03/1998	8.9	48	726	2.0	18	263	0.02	6.0	<1.0	12	-75
02/10/1999	9.1	83	714	3.0	18	272	<0.01	5.0	<1.0	14	-78
04/29/1999	7.2	79	712	2.0	17	263	<0.01	6.0	<1.0	14	-74
06/10/1999	9.4	98	712	2.0	14	230	<0.01	7.0	<1.0	15	-78
08/12/1999	8.8	39	692	3.0	14	238	<0.01	6.0	<1.0	12	-80
10/07/1999	8.8	101	698	2.0	12	251	<0.01	7.0	<1.0	11	-79
12/09/1999	9.5	81	690	5.0	19	237	0.08	6.0	<1.0	12	-78
02/10/2000	9.7	61	706	2.0	215	201	0.15	7.0	<1.0	11	-78
04/06/2000	7.9	48	692	4.0	17	225	0.15	7.0	<1.0	12	-77
06/29/2000	9.7	100	696	4.0	11	243	0.13	16	<1.0	12	-81
08/17/2000	9.4	64	704	2.0	14	252	0.10	6.0	<1.0	12	-129
10/05/2000	8.2	101	704	2.0	13	243	0.14	8.0	<1.0	12	-81
12/27/2000	8.8	48	668	2.0	16	251	0.14	8.0	<1.0	10	-102
02/08/2001	7.8	67	374	2.0	13	280	0.16	8.0	<1.0	11	-79
04/26/2001	7.8	97	732	2.0	13	272	0.13	8.0	<1.0	12	-81
06/14/2001	9.3	67	692	2.0	12	224	0.13	6.0	<1.0	13	-129
08/23/2001	9.2	74	658	2.0	16	255	0.11	15	<1.0	12	-129
10/31/2001	8.8	77	686	2.0	14	235	0.07	6.0	<1.0	12	-132
12/05/2001	8.9	78	554	2.0	19	119	0.10	5.0	<1.0	13	-83
02/07/2002	7.3	67	714	6.0	14	248	0.12	7.0	<1.0	10	-83
04/18/2002	9.0	65	678	2.0	13	268	0.12	7.0	<1.0	13	-83
06/20/2002	9.2	73	760	3.0	13	274	0.11	8.0	<1.0	13	-83

TABLE 5-30 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-50 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/08/2002	9.1	65	740	3.0	16	279	0.11	8.0	<1.0	12	-127
10/31/2002	8.5	40	664	3.0	26	251	0.13	6.0	<1.0	12	-90
12/05/2002	8.2	50	636	3.0	12	253	0.09	7.0	<1.0	11	-76
02/13/2003	7.8	40	740	3.0	36	260	0.13	7.0	<1.0	11	-79
04/17/2003	8.8	77	748	3.0	25	261	0.08	7.0	<1.0	11	-130
06/19/2003	7.5	81	682	2.0	13	253	0.14	7.0	<1.0	12	-84
08/21/2003	7.8	103	712	3.0	15	318	0.10	9.0	<1.0	14	-130
10/23/2003	9.7	97	688	3.0	13	321	0.14	7.0	<1.0	12	-84
12/11/2003	9.2	63	644	3.0	13	291	0.08	7.0	<1.0	11	-84
04/15/2004	7.7	68	666	2.0	61	309	0.11	12	<1.0	12	-85
06/03/2004	8.2	99	686	2.0	13	238	0.12	7.0	<1.0	12	-83
08/05/2004	8.3	60	714	2.0	21	264	0.10	7.0	<1.0	12	-87
12/09/2004	6.6	79	762	2.0	54	261	0.09	5.0	<1.0	11	-84
03/31/2005	7.8	67	618	2.0	20	217	0.13	7.0	<1.0	11	-86
04/14/2005	7.4	54	538	2.0	14	116	0.06	5.0	<1.0	11	-88
06/09/2005	7.4	83	692	2.0	13	254	0.11	8.0	<1.0	12	-86
08/04/2005	8.7	48	640	1.0	12	275	0.10	8.0	<1.0	13	-87
10/13/2005	7.3	83	588	2.0	22	158	<0.10	12	<1.0	12	-133
12/01/2005	7.4	79	740	1.0	14	265	0.07	7.0	<1.0	11	-133
05/18/2006	7.8	98	678	1.0	1.0	282	0.11	8.0	<1.0	12	-133
08/02/2006	7.7	39	706	1.0	14	272	0.06	7.0	<1.0	12	-132
11/02/2006	9.4	101	714	0.70	16	289	0.10	8.0	<1.0	12	-133
05/10/2007	8.4	81	684	0.80	14	261	0.11	7.0	<1.0	13	-139
08/02/2007	9.2	61	714	1.2	14	245	0.09	7.0	<1.0	14	-136
10/17/2007	8.0	48	696	0.90	13	257	0.10	6.0	<1.0	12	-133
02/28/2008	7.4	100	684	0.90	12	277	0.09	8.0	<1.0	10	-140
08/28/2008	9.3	64	670	1.0	12	264	0.09	7.0	<1.0	12	-134
09/25/2008	7.5	101	680	1.0	11	256	0.07	5.0	1.0	12	-132
02/26/2009	9.0	48	690	1.3	13	275	<0.10	7.0	<1.0	12	-134
07/09/2009	9.9	67	664	1.3	14	275	0.13	6.0	<1.0	13	-132
10/15/2009	9.2	97	724	1.1	12	293	0.10	7.0	<1.0	12	-132
04/08/2010	8.2	67	680	<1.0	<15	277	0.13	10	<1.0	13	-132
07/15/2010	9.5	74	698	<1.0	<15	279	0.12	7.0	<1.0	15	-135
12/16/2010	7.8	77	708	<1.0	<15	284	0.16	9.0	<1.0	11	-138
02/17/2011	9.2	78	712	1.2	<10	281	0.11	24	<1.0	11	-137
04/21/2011	9.2	67	670	1.1	12	272	0.12	32	<1.0	11	-139
10/13/2011	8.8	65	682	1.1	13	268	<0.10	11	<1.0	13	-140
02/23/2012	9.6	73	686	1.0	13	266	0.13	9.0	<1.0	11	-125
04/12/2012	8.1	65	690	1.0	13	299	0.13	12	<1.0	12	-140
06/21/2012	9.4	40	702	1.0	12	260	0.12	20	<1.0	14	-136

TABLE 5-30 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-50 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/20/2012	8.1	50	672	1.0	11	285	0.13	8.0	<1.0	13	-132
03/28/2013	8.9	40	720	1.0	22	274	0.14	12	<1.0	13	-136
07/17/2013	9.3	77	722	2.0	11	294	0.16	12	<1.0	14	-138
09/26/2013	9.7	81	694	1.0	12	277	0.13	8.0	<1.0	13	-138

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-31: GROUNDWATER QUALITY DATA FOR WELL QD-51 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/10/1996	9.6	97	694	4.0	10	188	0.12	19	<1.0	11	4.0
02/08/1996	8.7	47	632	6.0	13	160	0.09	12	<1.0	11	1.0
04/25/1996	8.0	92	672	6.0	9.0	180	0.08	8.0	<1.0	13	-2.0
06/10/1996	9.4	89	696	8.0	10	160	0.06	7.0	<1.0	13	-55
08/07/1996	9.4	74	618	6.0	10	136	0.08	6.0	<1.0	15	-61
10/10/1996	9.8	70	642	4.0	10	142	0.07	4.0	<1.0	12	-63
12/12/1996	8.0	64	584	4.0	10	114	<0.01	4.0	<1.0	10	-66
02/26/1997	8.9	103	614	4.0	10	116	<0.10	9	<1.0	10	-67
04/17/1997	7.4	86	510	2.0	15	129	<0.10	5.0	<1.0	11	-68
06/05/1997	7.6	82	518	3.0	10	107	<0.10	5.0	<1.0	14	-78
08/07/1997	7.4	77	566	7.0	10	97	<0.10	4.0	<1.0	13	-74
10/30/1997	8.9	79	558	2.0	10	113	<0.10	6.0	<1.0	12	-76
12/04/1997	9.3	93	604	3.0	11	117	0.01	4.0	<1.0	11	-77
02/26/1998	9.5	74	608	4.0	12	120	<0.01	6.0	<1.0	12	-76
04/02/1998	9.4	84	536	4.0	10	117	<0.01	5.0	<1.0	12	-76
06/04/1998	9.4	76	544	5.0	10	116	<0.01	8.0	<1.0	11	-76
08/06/1998	9.5	80	616	4.0	10	112	0.04	5.0	<1.0	15	-76
10/29/1998	8.3	79	558	3.0	8.0	128	0.15	0.0	<1.0	13	-85
12/03/1998	8.7	84	582	4.0	12	24	<0.01	4.0	<1.0	12	-76
02/18/1999	7.0	47	540	2.0	15	116	<0.01	20	<1.0	11	-77
04/29/1999	7.1	76	632	2.0	14	115	<0.01	5.0	<1.0	14	-75
06/10/1999	9.5	84	630	2.0	11	116	<0.01	5.0	<1.0	12	-79
08/12/1999	8.8	85	764	3.0	52	112	<0.01	5.0	<1.0	12	-81
10/07/1999	8.9	89	552	3.0	10	116	<0.01	4.0	<1.0	12	-81
12/09/1999	9.1	82	538	3.0	12	113	0.08	5.0	<1.0	13	-80
02/10/2000	9.5	91	550	2.0	27	97	0.10	5.0	<1.0	11	-79
04/06/2000	7.9	88	550	3.0	11	117	0.13	6.0	<1.0	12	-78
06/29/2000	9.3	87	562	7.0	10	116	0.11	11	<1.0	12	-84
08/17/2000	9.2	86	596	2.0	11	124	0.07	5.0	<1.0	12	-91
10/05/2000	8.4	63	572	2.0	11	119	0.12	5.0	<1.0	12	-84
02/08/2001	8.2	96	546	2.0	11	117	0.13	6.0	<1.0	11	-83
04/26/2001	8.4	71	626	2.0	10	118	0.11	5.0	<1.0	12	-82
06/14/2001	9.3	86	574	2.0	11	112	0.15	4.0	<1.0	13	-91
08/23/2001	9.4	81	578	2.0	13	121	0.09	39	<1.0	12	-93
10/31/2001	7.3	81	538	2.0	12	104	0.07	5.0	<1.0	12	-96
12/05/2001	9.1	64	670	2.0	15	272	0.08	7.0	<1.0	12	-87
02/07/2002	7.9	59	612	4.0	13	106	0.05	5.0	<1.0	11	-87
04/18/2002	8.8	65	568	3.0	9.0	119	0.07	5.0	<1.0	13	-86
06/20/2002	9.2	65	644	4.0	11	121	0.07	5.0	<1.0	12	-87
08/08/2002	9.8	62	576	3.0	11	123	0.04	5.0	<1.0	12	-97

TABLE 5-31 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-51 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
10/31/2002	8.8	72	530	2.0	12	119	0.07	5.0	<1.0	12	-88
12/05/2002	8.1	72	586	4.0	11	110	0.04	5.0	<1.0	11	-84
02/13/2003	7.8	59	598	4.0	13	111	0.04	5.0	<1.0	10	-83
04/17/2003	8.7	81	568	3.0	11	112	0.01	5.0	<1.0	12	-93
06/19/2003	7.3	61	544	3.0	12	113	0.08	5.0	<1.0	12	-90
08/21/2003	8.2	82	608	4.0	11	162	0.06	6.0	<1.0	13	-99
10/23/2003	9.7	57	592	3.0	10	159	0.07	4.0	<1.0	11	-90
12/11/2003	9.0	54	530	2.0	11	142	0.01	5.0	<1.0	10	-89
02/19/2004	7.4	85	600	3.0	11	135	0.11	5.0	<1.0	10	-89
04/15/2004	8.1	40	550	2.0	50	152	0.05	5.0	<1.0	12	-90
06/03/2004	7.9	80	586	2.0	12	133	0.05	5.0	<1.0	12	-87
08/05/2004	8.6	56	532	2.0	11	113	0.02	5.0	<1.0	12	-91
10/07/2004	7.3	87	528	3.0	13	116	0.14	5.0	<1.0	12	-90
12/09/2004	6.9	65	598	2.0	22	161	<0.02	13	<1.0	11	-89
04/14/2005	8.2	51	696	2.0	12	248	0.09	7.0	<1.0	12	-91
06/09/2005	7.5	67	546	1.0	11	123	0.04	5.0	<1.0	12	-92
08/04/2005	8.8	48	536	1.0	12	113	0.05	5.0	<1.0	12	-93
10/13/2005	7.4	67	578	1.0	12	118	<0.02	4.0	<1.0	12	-101
12/01/2005	7.6	63	554	1.0	12	112	0.02	4.0	<1.0	11	-101
05/18/2006	7.8	83	550	0.90	1.0	119	0.14	5.0	<1.0	12	-101
08/02/2006	7.9	42	616	0.90	12	122	<0.02	5.0	<1.0	12	-102
11/02/2006	9.4	82	548	0.70	12	119	<0.02	5.0	<1.0	12	-101
05/10/2007	8.7	66	546	0.80	12	150	0.06	5.0	<1.0	12	-103
08/02/2007	9.1	62	614	1.0	13	109	0.02	5.0	<1.0	14	-105
10/17/2007	8.1	50	472	0.80	12	149	0.05	4.0	<1.0	12	-103
02/28/2008	7.6	76	466	0.80	11	116	0.03	5.0	<1.0	10	-107
08/28/2008	9.6	63	514	1.0	11	115	0.03	5.0	<1.0	12	-104
09/25/2008	7.7	69	530	1.0	11	107	0.02	5.0	<1.0	12	-101
02/26/2009	9.3	52	538	1.1	10	121	<0.10	5.0	<1.0	11	-105
07/09/2009	9.5	68	510	1.1	12	117	<0.10	4.0	<1.0	13	-109
10/15/2009	9.4	79	532	1.0	14	119	<0.10	4.0	<1.0	12	-104
04/08/2010	8.1	68	528	1.0	<15	116	0.07	4.0	<1.0	13	-109
07/15/2010	9.3	67	560	1.2	<15	117	0.06	5.0	6.0	14	-108
09/02/2010	9.2	52	514	1.1	<15	128	0.03	6.0	<1.0	13	-110
04/21/2011	9.4	63	542	1.1	12	116	<0.10	5.0	<1.0	12	-110
11/17/2011	8.7	54	526	1.4	12	116	<0.10	5.0	<1.0	13	-112
12/22/2011	8.6	77	564	<1.0	22	120	<0.10	5.0	<1.0	11	-111
02/29/2012	8.3	67	548	2.0	11	117	<0.10	7.0	<1.0	13	-102
04/12/2012	8.1	62	490	1.0	12	122	<0.10	5.0	<1.0	12	-89
06/21/2012	9.3	30	546	2.0	12	110	<0.10	5.0	<1.0	13	-120

TABLE 5-31 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-51 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
09/20/2012	8.4	32	522	1.0	12	117	<0.10	5.0	<1.0	13	-115
03/28/2013	9.0	31	522	2.0	11	115	<0.10	7.0	<1.0	13	-120
07/17/2013	8.5	60	588	2.0	11	121	0.12	5.0	<1.0	14	-112
09/26/2013	9.4	66	528	1.0	12	109	<0.10	8.0	<1.0	12	-112

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-32: GROUNDWATER QUALITY DATA FOR WELL QD-52 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
02/15/1996	9.7	92	518	4.0	21	62	0.04	10	<1.0	13	25
04/25/1996	8.2	74	556	5.0	19	58	0.07	8.0	<1.0	15	21
06/20/1996	9.2	70	588	6.0	21	65	0.05	8.0	<1.0	14	7.0
08/07/1996	9.2	67	518	4.0	16	116	0.08	8.0	<1.0	14	-44
10/10/1996	9.3	69	-	6.0	15	139	0.09	9.0	<1.0	13	-46
12/12/1996	8.3	80	488	4.0	14	118	<0.01	10	<1.0	9.0	-45
02/26/1997	8.3	86	524	3.0	15	136	0.02	17	<1.0	11	-42
04/17/1997	7.4	72	510	2.0	15	129	<0.10	14	<1.0	13	-48
06/05/1997	7.8	68	686	2.0	14	124	<0.10	15	<1.0	14	-53
08/07/1997	7.2	65	484	2.0	14	118	0.01	14	<1.0	14	-52
10/30/1997	8.6	67	490	2.0	15	138	<0.10	17	<1.0	13	-53
12/04/1997	8.7	77	532	5.0	16	128	0.04	14	<1.0	12	-55
02/26/1998	8.8	65	532	3.0	15	142	0.02	17	<1.0	13	-52
04/02/1998	8.9	71	484	4.0	14	120	<0.01	20	<1.0	13	-52
06/04/1998	8.9	66	494	4.0	14	143	<0.01	18	<1.0	13	-53
08/06/1998	9.2	71	574	3.0	14	134	0.09	17	<1.0	15	-52
10/29/1998	8.1	71	518	3.0	13	155	0.20	12	<1.0	14	-42
12/03/1998	8.0	67	526	2.0	16	126	0.04	16	<1.0	14	-44
02/10/1999	8.8	73	562	2.0	20	134	<0.01	14	<1.0	15	-46
04/29/1999	6.8	71	562	2.0	18	138	0.02	13	<1.0	16	-46
06/10/1999	9.1	77	562	2.0	16	143	<0.01	15	<1.0	14	-49
08/12/1999	8.9	79	538	3.0	15	138	<0.01	14	<1.0	13	-49
10/07/1999	8.4	60	530	2.0	14	147	<0.01	13	<1.0	13	-48
12/09/1999	8.8	74	510	5.0	16	147	0.11	14	<1.0	14	-49
02/10/2000	9.0	79	518	<1.0	32	125	0.15	14	<1.0	13	-48
04/06/2000	8.8	82	538	4.0	14	143	0.16	15	<1.0	13	-47
06/29/2000	9.0	77	506	4.0	14	145	0.15	18	<1.0	13	-50
08/17/2000	8.8	78	540	2.0	16	157	0.13	17	<1.0	13	-67
10/05/2000	7.8	79	532	2.0	24	153	0.16	16	<1.0	14	-50
12/21/2000	9.1	81	462	2.0	15	148	0.15	16	<1.0	10	-66
02/08/2001	7.7	77	482	2.0	14	148	0.18	19	<1.0	13	-46
04/26/2001	7.6	79	508	2.0	14	145	0.14	18	<1.0	13	-49
06/14/2001	9.0	78	522	2.0	15	138	0.16	19	<1.0	14	-63
08/23/2001	8.9	72	488	2.0	17	150	0.12	20	<1.0	13	-62
10/31/2001	7.9	76	198	2.0	15	149	0.11	19	<1.0	13	-67
12/05/2001	8.6	76	514	2.0	15	140	0.11	22	<1.0	13	-35
02/07/2002	7.1	70	542	3.0	15	126	0.13	22	<1.0	12	-49
04/18/2002	8.5	73	508	3.0	15	140	0.13	21	<1.0	15	-46
06/20/2002	8.6	58	540	3.0	13	141	0.12	21	<1.0	14	-45
08/08/2002	9.0	70	514	3.0	14	142	0.11	23	<1.0	13	-66

TABLE 5-32 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-52 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m	----- mg/L -----						MPN/ 100 mL	°C	ft ²
10/31/2002	8.4	33	478	3.0	16	138	0.11	18	<1.0	13	-44
12/05/2002	7.8	66	534	3.0	13	132	0.10	20	<1.0	12	-32
02/13/2003	7.9	70	528	3.0	14	132	0.09	22	<1.0	11	-36
04/17/2003	7.7	72	504	4.0	14	137	0.08	20	<1.0	13	-59
06/19/2003	7.2	66	486	3.0	15	136	0.14	23	<1.0	14	-40
08/21/2003	7.2	66	536	4.0	14	170	0.11	26	<1.0	14	-63
10/23/2003	9.0	64	528	3.0	14	168	0.15	22	<1.0	13	-43
12/11/2003	9.0	48	458	3.0	14	183	0.07	23	<1.0	12	-37
02/19/2004	7.2	90	556	3.0	14	149	0.16	24	<1.0	10	-42
04/15/2004	7.9	33	498	3.0	15	168	0.10	22	<1.0	13	-38
06/03/2004	8.2	69	496	2.0	17	150	0.12	24	<1.0	14	-36
08/05/2004	8.4	49	484	3.0	15	135	0.12	23	<1.0	13	-43
10/07/2004	7.4	74	474	2.0	16	140	0.15	24	<1.0	13	-33
12/09/2004	7.2	58	480	2.0	12	160	0.12	23	<1.0	13	-36
03/31/2005	7.5	57	394	2.0	16	121	0.10	24	<1.0	12	-42
04/14/2005	7.8	46	536	2.0	14	141	0.08	24	<1.0	13	-31
06/09/2005	7.5	61	482	2.0	14	143	0.09	23	<1.0	15	-37
05/18/2006	7.7	73	484	0.90	1.0	141	0.14	24	<1.0	13	-58
08/02/2006	7.6	39	534	0.90	15	265	0.02	25	<1.0	14	-58
11/02/2006	8.9	71	480	0.70	15	140	0.07	20	<1.0	12	-59
05/10/2007	8.4	59	480	0.80	15	163	0.10	23	<1.0	14	-56
08/02/2007	8.9	57	514	0.90	17	127	0.10	22	<1.0	14	-59
10/17/2007	7.8	45	472	0.90	15	182	0.11	21	<1.0	14	-60
02/28/2008	7.7	69	388	0.70	16	136	0.10	21	<1.0	11	-68
08/28/2008	9.5	57	488	1.0	14	133	0.13	18	<1.0	14	-51
09/25/2008	7.3	69	474	1.0	14	133	0.09	20	<1.0	14	-61
02/26/2009	9.3	47	486	1.1	15	135	0.11	19	<1.0	13	-52
07/09/2009	9.3	58	450	1.1	16	133	0.14	20	<1.0	14	-67
10/15/2009	8.2	70	466	1.1	16	125	0.10	21	<1.0	13	-52
04/08/2010	8.0	57	480	1.0	15	128	0.13	15	<1.0	14	-67
07/15/2010	9.0	61	492	1.1	15	138	0.13	19	<1.0	16	-71
09/02/2010	8.9	52	472	1.2	15	148	0.11	21	1.0	14	-68
02/17/2011	8.6	59	494	1.3	15	141	0.13	19	<1.0	12	-88
04/21/2011	8.3	51	486	1.0	15	137	0.13	20	<1.0	16	-87
08/25/2011	9.0	38	494	1.0	16	145	<0.10	19	<1.0	14	-91
02/29/2012	8.9	62	496	1.0	14	139	0.16	17	<1.0	13	-54
04/12/2012	8.1	71	470	1.0	16	143	0.13	20	<1.0	13	-87
06/28/2012	8.5	49	548	1.0	15	142	0.13	24	840	15	-93
09/20/2012	8.7	70	486	<1.0	15	145	0.13	18	<1.0	14	-99
03/28/2013	8.2	49	454	<1.0	18	136	0.14	20	<1.0	12	-84

TABLE 5-32 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-52 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
07/17/2013	9.0	59	544	1.0	14	146	0.14	21	<1.0	15	-100
09/26/2013	8.9	61	486	1.0	16	136	0.13	18	<1.0	14	-106

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-33: GROUNDWATER QUALITY DATA FOR WELL QD-53 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/1995	8.5	90	604	5.0	14	21	<0.01	4.0	<1.0	10	-99
01/10/1996	9.5	95	642	7.0	17	15	0.08	5.0	<1.0	11	-51
02/08/1996	9.3	92	594	9.0	19	39	0.08	5.0	<1.0	11	-24
04/25/1996	8.3	89	678	9.0	13	12	0.07	4.0	<1.0	13	-18
06/10/1996	9.2	84	672	5.0	16	12	0.05	5.0	<1.0	13	-20
08/07/1996	9.2	87	628	7.0	15	30	0.07	4.0	<1.0	14	-91
10/10/1996	9.3	87	664	3.0	15	37	0.06	4.0	<1.0	12	-124
02/26/1997	8.8	98	656	6.0	15	28	<0.10	7.0	<1.0	10	-81
04/17/1997	7.3	85	598	5.0	16	39	<0.10	5.0	<1.0	13	-87
06/05/1997	7.5	84	602	3.0	15	34	<0.10	6.0	<1.0	14	-154
08/07/1997	7.2	79	586	2.0	15	45	<0.10	4.0	<1.0	14	-80
10/30/1997	8.7	81	590	2.0	16	58	<0.10	5.0	<1.0	13	-76
12/04/1997	8.9	90	638	4.0	16	70	<0.10	5.0	<1.0	11	-96
02/26/1998	9.0	79	680	4.0	17	91	<0.01	5.0	<1.0	13	-76
04/02/1998	9.1	87	574	4.0	17	85	<0.01	6.0	<1.0	13	-97
06/04/1998	9.1	79	596	7.0	17	118	<0.01	6.0	<1.0	13	-81
08/06/1998	9.2	83	666	3.0	17	102	<0.01	6.0	<1.0	16	-83
10/29/1998	7.9	83	610	3.0	16	122	0.13	2.0	<1.0	14	-82
12/03/1998	7.9	84	616	3.0	20	111	<0.01	5.0	<1.0	14	-101
02/18/1999	7.6	51	576	2.0	19	132	<0.01	15	<1.0	12	-87
04/29/1999	6.7	77	674	3.0	23	126	<0.01	6.0	<1.0	15	-88
06/10/1999	9.1	89	654	2.0	20	135	<0.01	6.0	<1.0	13	-102
08/12/1999	9.1	89	596	3.0	20	151	<0.01	10	<1.0	13	-93
10/07/1999	8.6	94	628	3.0	18	135	<0.01	6.0	<1.0	12	-96
12/09/1999	7.8	87	572	6.0	21	142	0.05	9.0	<1.0	14	-97
02/10/2000	9.7	85	588	4.0	37	149	0.10	8.0	<1.0	12	-98
04/06/2000	8.7	94	620	7.0	21	148	0.14	11	<1.0	12	-142
06/29/2000	9.1	88	580	7.0	19	142	0.12	10	<1.0	13	-100
08/17/2000	8.8	87	626	3.0	19	157	0.08	8.0	<1.0	13	-163
10/05/2000	7.9	91	600	3.0	24	152	0.11	8.0	<1.0	13	-108
12/21/2000	9.3	94	606	2.0	21	146	0.10	9.0	<1.0	10	-158
02/08/2001	8.2	98	560	4.0	21	153	0.11	11	<1.0	12	-89
04/26/2001	7.7	90	598	4.0	19	154	0.07	10	<1.0	13	-105
06/14/2001	8.7	98	602	3.0	15	149	0.09	9.0	<1.0	14	-159
08/23/2001	9.0	82	590	4.0	24	165	0.04	10	<1.0	13	-166
10/31/2001	7.9	84	538	3.0	20	165	0.03	9.0	<1.0	13	-164
12/05/2001	8.5	94	570	3.0	19	156	0.03	10	<1.0	13	-122
02/07/2002	7.6	78	636	5.0	21	138	0.03	10	<1.0	12	-112
04/18/2002	8.3	94	606	6.0	21	155	0.08	10	<1.0	14	-108
06/20/2002	8.4	103	644	4.0	18	160	0.04	10	<1.0	14	-107

TABLE 5-33 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-53 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/08/2002	8.9	86	600	3.0	18	159	<0.02	11	<1.0	13	-164
10/31/2002	8.0	35	572	3.0	19	156	0.04	10	<1.0	13	-102
12/05/2002	8.1	79	612	3.0	18	147	0.01	10	<1.0	11	-118
02/13/2003	7.6	90	620	5.0	20	152	0.01	10	<1.0	11	-104
04/17/2003	8.0	86	604	4.0	19	155	<0.02	11	<1.0	12	-161
06/19/2003	7.4	64	590	3.0	16	156	0.02	10	<1.0	13	-114
08/21/2003	7.4	87	642	3.0	19	199	0.03	10	<1.0	14	-159
10/23/2003	9.3	78	604	3.0	18	192	0.02	10	<1.0	12	-106
12/11/2003	8.9	55	570	3.0	19	190	<0.02	10	<1.0	9.0	-120
02/19/2004	7.8	77	672	3.0	19	168	0.12	11	<1.0	11	-113
04/15/2004	7.8	53	576	3.0	38	193	<0.02	10	<1.0	13	-117
06/03/2004	8.4	84	588	2.0	23	170	0.03	10	<1.0	13	-119
08/05/2004	8.1	53	586	3.0	20	158	0.02	11	<1.0	14	-116
10/07/2004	7.8	93	556	3.0	20	172	0.06	11	580	13	-117
12/09/2004	7.2	70	524	2.0	15	116	0.07	5.0	<1.0	12	-116
03/31/2005	7.5	70	520	2.0	18	135	<0.02	11	<1.0	12	-117
04/14/2005	7.3	57	598	2.0	19	158	<0.02	14	<1.0	13	-150
06/09/2005	7.6	77	588	3.0	19	161	0.01	13	<1.0	14	-123
05/18/2006	7.8	89	570	0.90	20	166	0.02	10	<1.0	13	-160
08/02/2006	7.7	49	622	1.3	20	251	<0.02	12	<1.0	15	-167
11/02/2006	9.0	88	600	0.90	20	161	<0.02	11	<1.0	12	-166
05/10/2007	8.6	72	578	1.0	19	181	0.03	9.0	<1.0	13	-146
08/02/2007	8.8	63	616	1.5	20	146	<0.02	9.0	<1.0	15	-167
10/17/2007	7.8	57	576	0.90	20	210	<0.02	8.0	<1.0	13	-160
02/28/2008	7.6	80	578	1.0	20	152	0.02	11	<1.0	9.0	-166
08/28/2008	9.4	65	592	1.0	17	160	0.04	9.0	<1.0	14	-164
09/25/2008	9.3	58	576	1.0	18	158	0.02	10	1.0	14	-167
02/26/2009	9.4	54	592	1.3	19	155	<0.10	9.0	<1.0	12	-164
07/09/2009	9.3	72	614	1.4	20	161	<0.10	10	<1.0	14	-167
10/29/2009	8.6	62	604	1.3	19	167	<0.10	12	<1.0	13	-169
05/15/2010	7.8	63	592	1.2	19	160	0.02	9.0	<1.0	14	-165
07/15/2010	9.0	73	606	1.4	18	164	0.02	11	<1.0	17	-166
09/02/2010	8.4	65	580	1.3	18	173	<0.02	10	<1.0	14	-168
04/21/2011	8.9	84	572	1.2	18	159	<0.10	13	<1.0	12	-165
06/30/2011	8.8	84	588	1.2	19	151	<0.10	10	<1.0	15	-168
08/25/2011	9.2	59	592	1.1	19	160	<0.10	10	<1.0	14	-168
02/29/2012	8.4	62	600	1.0	19	163	<0.10	9.0	<1.0	13	-164
04/12/2012	9.0	71	584	1.0	20	169	<0.10	11	<1.0	11	-167
06/28/2012	8.7	49	668	1.0	18	162	<0.10	11	920	14	-167
09/20/2012	8.9	70	584	1.0	18	168	<0.10	10	<1.0	17	-168

TABLE 5-33 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-53 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/28/2013	8.7	64	628	<1.0	31	161	0.20	5.0	<1.0	12	-168
07/17/2013	8.9	78	656	1.0	17	168	<0.10	10	<1.0	15	-166
09/26/2013	9.1	74	586	1.0	18	170	<0.10	7.0	<1.0	14	-166

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-34: GROUNDWATER QUALITY DATA FOR WELL QD-54 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/10/1996	8.4	68	440	3.0	11	71	0.17	28	<1.0	11	34
02/08/1996	9.4	70	424	5.0	16	74	0.18	23	<1.0	12	32
04/04/1996	8.4	66	464	4.0	28	78	0.14	29	<1.0	11	32
06/06/1996	9.4	63	458	4.0	12	70	0.15	20	<1.0	13	27
08/15/1996	9.4	101	446	4.0	12	75	0.16	24	<1.0	11	-18
10/16/1996	9.2	61	492	6.0	13	98	0.18	22	<1.0	12	-25
12/04/1996	9.5	72	424	3.0	13	113	0.11	23	<1.0	9.0	-26
02/05/1997	8.0	76	442	4.0	14	122	0.06	28	<1.0	11	-26
04/24/1997	7.6	65	438	2.0	15	120	0.16	36	<1.0	12	-30
06/26/1997	7.5	61	418	1.0	14	106	0.08	35	<1.0	13	-27
08/07/1997	8.8	59	440	4.0	14	115	0.13	37	<1.0	13	-29
10/02/1997	9.1	64	426	3.0	14	90	0.16	38	<1.0	12	-26
12/18/1997	8.8	60	456	3.0	16	136	0.16	43	<1.0	10	-24
02/05/1998	9.0	70	470	3.0	15	146	0.15	47	<1.0	12	-23
04/09/1998	8.8	68	486	2.0	16	145	0.29	51	<1.0	12	-21
06/11/1998	8.8	60	460	3.0	15	150	0.13	49	<1.0	12	-24
08/13/1998	9.0	60	488	2.0	20	164	0.32	55	<1.0	14	-22
10/08/1998	9.2	65	460	1.0	18	240	0.20	54	<1.0	13	-21
12/10/1998	7.6	66	478	2.0	18	168	0.15	55	<1.0	11	-19
02/18/1999	7.9	38	456	1.0	15	159	0.11	61	<1.0	11	-20
04/08/1999	8.4	59	466	2.0	16	141	0.13	53	<1.0	14	-20
06/10/1999	7.6	60	484	2.0	16	155	0.12	53	<1.0	16	-22
08/19/1999	8.5	66	456	2.0	16	150	0.08	57	<1.0	14	-24
10/21/1999	8.4	54	464	2.0	15	148	<0.01	53	<1.0	12	-23
12/02/1999	9.0	70	450	2.0	18	131	0.24	56	<1.0	12	-23
02/03/2000	8.7	50	460	2.0	21	142	0.26	54	<1.0	11	-23
04/13/2000	8.1	72	404	4.0	15	155	0.31	45	<1.0	12	-21
06/15/2000	8.7	52	466	2.0	14	148	0.25	60	<1.0	13	-25
08/31/2000	8.7	50	448	2.0	13	156	0.26	45	<1.0	13	-23
10/12/2000	7.1	56	468	1.0	15	160	0.27	39	<1.0	12	-23
12/06/2000	8.7	72	476	1.0	16	163	0.27	44	<1.0	8.0	-22
02/15/2001	9.2	68	438	2.0	13	143	0.26	44	<1.0	11	-22
04/12/2001	8.9	69	456	1.0	16	152	0.28	43	<1.0	12	-22
06/28/2001	8.5	50	582	2.0	54	144	0.26	39	<1.0	12	-21
08/09/2001	7.2	68	492	2.0	16	143	0.24	42	<1.0	13	-11
10/11/2001	8.9	68	448	1.0	15	129	0.23	38	<1.0	12	-26
12/19/2001	8.1	67	570	2.0	27	145	0.21	43	<1.0	12	-26
02/27/2002	7.1	82	448	2.0	15	136	0.26	44	<1.0	12	-25
04/11/2002	8.9	69	460	2.0	19	147	0.23	44	<1.0	12	-25
06/20/2002	7.3	104	498	3.0	16	147	0.22	39	<1.0	13	-23

TABLE 5-34 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-54 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/29/2002	7.2	65	484	2.0	17	150	0.27	41	<1.0	13	-24
10/10/2002	7.3	65	462	2.0	27	152	0.31	40	<1.0	12	-22
12/12/2002	8.1	64	464	3.0	15	148	0.22	37	<1.0	12	-20
02/27/2003	7.8	60	504	2.0	16	145	0.23	37	<1.0	11	-22
04/10/2003	7.4	66	496	3.0	15	143	0.24	38	<1.0	12	-20
06/19/2003	6.9	61	452	2.0	15	143	0.23	40	<1.0	12	-25
08/28/2003	6.7	53	462	2.0	16	168	0.21	41	<1.0	12	-24
10/23/2003	7.8	74	436	2.0	15	176	0.23	38	<1.0	12	-22
12/11/2003	8.0	34	449	2.0	17	181	0.16	43	<1.0	12	-21
02/26/2004	8.6	43	514	2.0	18	170	0.32	46	<1.0	12	-21
04/15/2004	7.0	73	450	3.0	51	164	0.20	40	<1.0	12	-18
06/17/2004	8.0	63	444	2.0	18	145	0.22	42	<1.0	12	-20
08/12/2004	7.2	71	482	2.0	19	149	0.28	40	<1.0	12	-22
10/28/2004	7.6	57	510	2.0	10	154	0.37	43	<1.0	12	-20
12/15/2004	7.8	64	512	1.0	60	153	0.29	43	<1.0	11	-9.0
03/31/2005	7.1	55	430	1.0	19	136	0.19	41	<1.0	12	-23
04/21/2005	7.7	43	491	1.0	16	150	0.23	41	<1.0	12	-18
06/16/2005	7.8	38	438	1.0	16	151	0.24	42	<1.0	12	-20
05/11/2006	7.6	36	550	0.60	46	149	0.20	43	<1.0	12	-18
08/02/2006	8.6	74	480	0.60	18	443	0.14	40	<1.0	15	-19
11/02/2006	9.0	66	458	0.40	18	151	0.16	40	1.0	11	-18
03/22/2007	8.2	40	424	0.50	17	146	0.18	39	<1.0	13	-20
05/10/2007	8.7	52	474	0.50	18	172	0.19	41	<1.0	14	-19
08/02/2007	8.6	58	436	0.60	18	120	0.16	35	<1.0	19	-21
03/13/2008	7.6	61	510	0.60	35	142	0.21	39	<1.0	5.0	-25
07/31/2008	7.7	54	480	0.60	14	137	0.21	36	<1.0	14	-24
09/25/2008	9.2	45	426	1.0	21	125	0.26	33	3700	13	-22
02/26/2009	9.2	41	432	<1.0	17	144	0.20	37	<1.0	12	-23
04/23/2009	9.1	67	442	1.1	20	143	0.27	35	<1.0	12	-26
07/30/2009	8.9	45	414	<1.0	17	132	0.21	31	<1.0	12	-27
05/15/2010	7.5	44	444	<1.0	17	137	0.23	36	<1.0	13	-26
07/15/2010	8.8	122	454	1.0	16	145	0.23	36	<1.0	14	-24
09/02/2010	8.2	51	406	<1.0	17	156	0.21	38	<1.0	13	-29
04/21/2011	8.5	64	426	<1.0	16	130	0.21	45	<1.0	12	-22
06/30/2011	8.9	63	456	<1.0	17	131	0.35	37	<1.0	14	-27
08/25/2011	9.6	50	422	<1.0	17	136	0.12	36	<1.0	13	-29
02/29/2012	8.6	54	452	<1.0	16	148	0.25	30	<1.0	12	-26
04/12/2012	8.9	62	440	<1.0	18	150	0.23	38	<1.0	12	-28
06/28/2012	8.7	44	480	<1.0	17	148	0.23	33	<1.0	13	-31
09/27/2012	8.7	66	418	<1.0	17	148	0.23	37	<1.0	14	-33

TABLE 5-34 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-54 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/28/2013	8.8	53	458	<1.0	15	140	0.23	35	<1.0	12	-30
07/31/2013	8.4	57	442	1.0	21	140	0.32	44	<1.0	13	-28
11/14/2013	8.9	51	430	1.0	20	138	0.25	40	<1.0	12	-28

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-35: GROUNDWATER QUALITY DATA FOR WELL QD-55 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/10/1996	8.7	72	486	6.0	10	148	0.28	83	<1.0	9.0	30
02/08/1996	8.5	70	474	5.0	12	139	0.29	92	<1.0	11	33
04/04/1996	8.8	68	462	3.0	10	158	0.25	92	<1.0	10	24
06/06/1996	8.7	67	600	4.0	10	150	0.25	89	<1.0	14	21
08/15/1996	8.9	95	418	4.0	10	153	0.27	85	<1.0	11	-134
10/16/1996	9.0	62	364	3.0	12	34	0.34	111	<1.0	12	-135
12/04/1996	10	58	518	3.0	11	38	0.28	119	<1.0	9.0	31
02/05/1997	7.3	75	410	7.0	14	55	0.23	130	<1.0	10	-146
04/24/1997	7.5	63	386	2.0	11	76	0.29	144	<1.0	11	-137
06/26/1997	7.2	59	396	1.0	11	56	0.26	145	<1.0	14	-137
08/07/1997	7.8	55	422	2.0	13	77	0.27	142	<1.0	12	-136
10/02/1997	8.1	67	390	3.0	12	78	0.29	142	<1.0	12	-133
12/18/1997	8.0	62	410	3.0	13	102	0.30	148	<1.0	10	-130
02/05/1998	7.9	68	436	2.0	13	102	0.28	150	<1.0	11	-130
04/09/1998	8.0	65	392	4.0	13	75	0.35	148	<1.0	11	-129
06/11/1998	8.0	59	420	3.0	13	114	0.33	150	<1.0	12	-129
08/13/1998	8.4	65	456	2.0	16	143	0.39	145	<1.0	14	-127
10/08/1998	8.5	66	430	2.0	18	143	0.30	143	<1.0	13	-125
12/10/1998	8.5	84	416	2.0	17	115	0.29	169	<1.0	11	-124
02/18/1999	7.8	36	412	2.0	14	121	0.26	176	<1.0	11	-130
04/08/1999	8.0	63	448	3.0	15	137	0.26	176	<1.0	13	-129
06/10/1999	7.3	63	460	2.0	15	140	0.27	175	<1.0	15	-130
08/19/1999	7.9	67	446	2.0	15	141	0.27	201	<1.0	14	-126
10/21/1999	8.1	56	472	4.0	16	150	0.18	188	<1.0	11	-127
12/02/1999	8.2	77	500	4.0	16	159	0.37	214	<1.0	11	-129
02/03/2000	8.1	53	464	3.0	18	156	0.40	193	<1.0	11	-131
04/13/2000	7.9	56	472	5.0	16	172	0.44	196	<1.0	11	-130
06/15/2000	7.9	53	500	5.0	15	169	0.44	216	<1.0	12	-136
08/31/2000	8.0	54	492	3.0	15	182	0.40	215	<1.0	13	-134
10/12/2000	7.5	59	848	2.0	17	181	0.41	192	<1.0	12	-134
12/06/2000	8.1	52	520	2.0	14	193	0.39	226	<1.0	11	-135
02/15/2001	8.4	73	488	3.0	12	177	0.38	227	<1.0	11	-143
04/12/2001	8.6	74	470	2.0	16	178	0.39	218	<1.0	11	-140
06/28/2001	7.7	55	514	2.0	17	181	0.39	206	<1.0	12	-137
08/09/2001	7.1	66	514	2.0	17	173	0.39	222	<1.0	13	-138
10/11/2001	7.8	73	578	2.0	16	158	0.38	192	<1.0	12	-142
12/19/2001	7.9	76	524	3.0	16	185	0.40	213	<1.0	11	-140
02/27/2002	7.0	80	460	3.0	18	172	0.39	226	<1.0	11	-142
04/11/2002	8.3	56	506	3.0	14	196	0.37	220	<1.0	12	-142
06/20/2002	7.1	86	510	3.0	16	185	0.39	217	<1.0	13	-141

TABLE 5-35 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-55 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/29/2002	7.4	72	526	3.0	16	195	0.43	216	<1.0	12	-137
10/10/2002	7.2	76	532	4.0	18	195	0.47	214	<1.0	12	-135
12/12/2002	7.5	68	560	3.0	16	198	0.38	188	<1.0	11	-135
02/27/2003	7.0	69	508	3.0	18	191	0.36	199	<1.0	11	-139
04/10/2003	7.6	71	530	3.0	16	186	0.36	201	<1.0	11	-139
06/19/2003	7.2	70	532	3.0	15	200	0.35	207	<1.0	12	-144
08/28/2003	6.6	58	564	3.0	16	240	0.36	201	<1.0	13	-137
10/23/2003	7.2	83	502	3.0	17	237	0.39	189	<1.0	12	-137
12/11/2003	7.7	29	516	2.0	17	246	0.28	193	<1.0	12	-140
02/26/2004	8.2	44	348	3.0	17	219	0.47	199	<1.0	11	-139
04/15/2004	7.1	78	514	2.0	21	224	0.36	182	<1.0	12	-138
06/17/2004	7.5	77	522	6.0	18	185	0.38	188	<1.0	12	-136
08/12/2004	7.1	79	572	3.0	18	188	0.38	191	<1.0	12	-135
10/28/2004	7.3	65	538	3.0	18	198	0.36	187	<1.0	12	-133
12/15/2004	7.7	53	502	2.0	19	196	0.38	175	<1.0	11	-134
03/31/2005	7.4	61	462	3.0	17	196	0.33	231	<1.0	11	-145
04/21/2005	7.5	43	522	2.0	17	203	0.35	188	<1.0	12	-141
06/16/2005	7.4	41	508	2.0	17	196	0.38	185	<1.0	12	-136
05/11/2006	7.4	36	526	1.0	20	197	0.33	174	<1.0	12	-131
08/02/2006	8.4	79	510	0.90	18	477	0.28	170	<1.0	14	-129
11/02/2006	7.6	42	524	0.90	18	201	0.34	184	<1.0	11	-137
03/22/2007	7.8	42	502	0.80	19	193	0.30	165	<1.0	12	-139
05/10/2007	7.7	60	522	0.80	18	200	0.31	161	<1.0	13	-134
08/02/2007	8.1	66	548	1.1	20	189	0.35	214	<1.0	13	-133
03/13/2008	7.6	63	522	1.0	28	204	0.39	194	<1.0	5.0	-128
07/31/2008	7.5	68	500	0.40	16	218	0.38	176	<1.0	12	-136
09/25/2008	8.9	45	454	1.0	16	190	0.38	151	<1.0	13	-139
02/26/2009	7.1	54	302	1.4	18	207	0.27	212	<1.0	11	-135
04/23/2009	8.0	63	546	1.1	22	220	0.13	192	<1.0	12	-143
07/30/2009	8.7	48	490	1.1	19	179	0.36	157	<1.0	13	-144
05/15/2010	4.6	43	492	1.3	17	178	0.36	148	<1.0	13	-139
07/15/2010	10	51	502	1.3	17	187	0.38	145	<1.0	15	-145
09/02/2010	7.2	52	486	1.2	17	215	0.37	197	<1.0	13	-147
04/21/2011	8.4	65	498	1.0	16	175	0.37	147	<1.0	12	-138
06/30/2011	8.1	69	430	2.3	15	172	0.34	96	<1.0	14	-136
11/17/2011	9.0	46	448	1.9	17	189	0.34	123	<1.0	10	-143
03/21/2012	8.3	44	462	1.0	16	179	0.42	144	<1.0	15	-134
04/12/2012	8.4	64	452	1.0	16	168	0.34	135	<1.0	11	-135
06/28/2012	8.7	49	476	1.0	16	175	0.36	135	6.0	15	-135
09/27/2012	7.7	59	464	1.0	15	169	0.35	133	<1.0	14	-140

TABLE 5-35 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-55 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/28/2013	9.0	46	462	<1.0	15	170	0.37	158	<1.0	11	-133
07/31/2013	8.5	60	508	1.0	16	208	0.41	210	<1.0	12	-131
11/14/2013	8.8	54	462	<1.0	16	162	0.34	126	<1.0	12	-143

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-36: GROUNDWATER QUALITY DATA FOR WELL QD-56 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/10/1996	8.7	53	444	5.0	9.0	16	0.19	34	<1.0	10	26
02/08/1996	8.6	53	320	5.0	13	40	0.27	72	<1.0	11	10
04/04/1996	8.4	48	378	6.0	10	14	0.24	80	<1.0	10	34
06/06/1996	8.4	50	374	5.0	10	13	0.23	71	<1.0	13	30
08/15/1996	8.6	48	420	4.0	11	72	0.26	69	<1.0	12	15
10/16/1996	8.8	46	458	4.0	11	14	0.22	48	<1.0	13	-45
12/04/1996	9.5	53	366	2.0	11	21	0.14	50	<1.0	9.0	-50
02/05/1997	7.2	48	402	8.0	11	6.0	0.04	32	<1.0	10	-50
04/24/1997	7.5	40	378	3.0	11	11	0.14	49	<1.0	11	-53
06/26/1997	7.3	49	374	2.0	10	154	0.08	51	<1.0	13	-74
08/07/1997	8.4	25	372	6.0	11	12	0.13	52	<1.0	12	-65
10/02/1997	8.5	32	342	3.0	10	37	0.15	52	<1.0	12	-50
12/18/1997	8.1	53	360	4.0	11	15	0.15	51	<1.0	10	-48
02/05/1998	8.3	53	422	3.0	11	13	0.10	36	<1.0	10	-46
04/09/1998	8.4	56	368	5.0	11	22	0.40	51	<1.0	11	-44
06/11/1998	8.6	33	370	4.0	11	23	0.10	44	<1.0	11	-45
08/13/1998	8.7	40	350	2.0	12	14	0.29	53	<1.0	14	-42
10/08/1998	8.6	39	378	2.0	13	138	0.16	38	<1.0	12	-40
12/10/1998	7.7	42	366	2.0	13	19	0.16	45	<1.0	10	-38
02/18/1999	7.7	32	338	2.0	11	14	0.09	55	<1.0	11	-39
04/08/1999	8.3	40	352	3.0	13	14	0.08	55	<1.0	13	-38
06/10/1999	7.5	27	436	2.0	12	16	0.08	46	<1.0	14	-41
08/19/1999	8.2	50	340	2.0	12	14	0.06	51	<1.0	14	-41
10/21/1999	8.3	33	372	2.0	12	12	<0.01	49	<1.0	11	-41
12/02/1999	8.6	41	358	4.0	12	18	0.20	54	<1.0	11	-41
02/03/2000	8.5	50	338	3.0	12	8.0	0.25	46	<1.0	10	-40
04/13/2000	8.5	49	338	5.0	12	19	0.26	45	<1.0	11	-39
06/15/2000	8.4	42	366	7.0	10	11	0.23	53	<1.0	11	-49
08/31/2000	8.5	33	344	1.0	10	19	0.22	61	<1.0	12	-42
10/12/2000	6.9	40	410	1.0	11	16	0.25	45	<1.0	11	-41
12/06/2000	8.4	47	376	1.0	11	11	0.25	53	<1.0	9.0	-41
02/15/2001	8.6	38	334	3.0	9.0	10	0.25	55	<1.0	10	-56
04/12/2001	8.5	33	490	1.0	64	11	0.25	48	<1.0	11	-41
06/28/2001	8.4	35	396	1.0	12	6.0	0.27	47	<1.0	12	-40
08/09/2001	7.7	38	460	1.0	41	16	0.20	53	<1.0	12	-43
10/11/2001	8.5	47	352	1.0	12	6.0	0.22	44	<1.0	11	-45
12/19/2001	7.9	39	372	2.0	12	13	0.22	123	<1.0	10	-45
02/27/2002	7.1	50	338	3.0	12	4.0	0.25	53	<1.0	11	-48
04/11/2002	8.4	38	390	3.0	12	8.0	0.23	50	<1.0	11	-62
06/20/2002	7.3	48	406	2.0	11	12	0.25	48	<1.0	12	-29

TABLE 5-36 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-56 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
08/29/2002	7.1	21	372	3.0	10	12	0.27	49	<1.0	14	-44
10/10/2002	7.3	50	354	3.0	12	11	0.30	51	<1.0	11	-43
12/12/2002	7.2	40	378	3.0	12	8.0	0.24	43	<1.0	11	-44
02/27/2003	7.2	39	420	3.0	13	6.9	0.23	44	<1.0	10	-44
04/10/2003	7.5	34	432	3.0	11	10	0.22	48	<1.0	11	-44
06/19/2003	6.8	48	332	2.0	10	9.0	0.22	46	<1.0	11	-47
08/28/2003	6.4	40	334	2.0	10	2.0	0.20	50	<1.0	12	-46
10/23/2003	7.6	48	356	2.0	10	5.0	0.24	45	<1.0	11	-46
12/11/2003	8.0	25	328	2.0	12	18	0.16	41	<1.0	10	-45
02/26/2004	7.4	31	386	3.0	11	3.0	0.33	45	<1.0	10	-47
04/15/2004	7.1	52	334	2.0	22	2.0	0.22	46	<1.0	12	-44
06/17/2004	7.6	53	350	4.0	12	10	0.22	51	<1.0	12	-43
08/12/2004	7.2	55	368	3.0	12	6.0	0.24	46	<1.0	11	-62
10/28/2004	7.6	33	352	4.0	12	9.0	0.24	49	<1.0	11	-43
12/15/2004	7.9	39	342	1.0	15	9.0	0.26	49	<1.0	10	-44
04/07/2005	7.2	39	336	1.0	18	8.0	0.21	46	<1.0	10	-45
05/26/2005	7.5	42	346	1.0	12	6.0	0.94	47	<1.0	12	-45
06/16/2005	7.6	31	342	1.0	11	8.0	0.26	47	<1.0	11	-45
02/02/2006	7.4	39	262	0.60	11	12	0.21	50	<1.0	11	-60
05/11/2006	7.5	27	342	0.50	12	10	0.21	49	<1.0	11	-61
08/02/2006	8.6	50	344	0.50	12	257	0.16	48	<1.0	13	-61
03/22/2007	8.1	33	324	0.40	12	6.0	0.19	45	<1.0	11	-67
05/10/2007	8.1	40	334	0.50	13	8.0	0.23	46	<1.0	12	-63
08/02/2007	8.4	50	356	0.70	13	7.0	0.22	42	<1.0	12	-66
03/13/2008	7.5	50	308	0.50	12	9.0	0.21	43	<1.0	6.0	-69
07/31/2008	7.8	41	360	0.30	10	10	0.23	48	<1.0	14	-74
09/25/2008	8.7	33	322	1.0	11	12	0.14	33	<1.0	13	-68
02/26/2009	7.9	40	534	<1.0	12	8.6	0.21	48	<1.0	12	-69
04/23/2009	8.6	46	308	<1.0	14	10	0.21	48	<1.0	11	-70
07/30/2009	8.6	38	306	<1.0	12	9.1	0.23	47	<1.0	12	-70
03/18/2010	8.1	33	290	<1.0	<15	8.2	0.24	53	<1.0	11	-68
05/15/2010	7.4	35	314	<1.0	<15	8.5	0.24	41	<1.0	12	-70
09/02/2010	8.1	38	292	<1.0	<15	12	0.22	49	<1.0	12	-67
04/20/2011	8.1	46	302	<1.0	12	<15	0.17	47	<1.0	11	-68
10/13/2011	8.1	39	374	<1.0	14	53	0.20	19	<1.0	13	-65
11/17/2011	8.8	50	296	<1.0	10	<15	0.17	43	<1.0	11	-83
03/21/2012	8.4	38	302	<1.0	10	13	0.26	54	<1.0	13	-70
04/12/2012	8.4	48	284	<1.0	11	13	0.22	61	<1.0	11	-64
06/28/2012	8.4	21	256	<1.0	10	12	0.24	58	<1.0	13	-68
09/27/2012	8.3	50	304	<1.0	10	12	0.24	51	<1.0	12	-66

TABLE 5-36 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-56 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
03/28/2013	8.6	40	326	<1.0	10	15	0.24	45	<1.0	11	-64
07/31/2013	8.4	39	316	<1.0	<10	13	0.23	49	<1.0	12	-66
11/14/2013	8.8	34	300	<1.0	10	10	0.23	43	<1.0	12	-68

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-37: GROUNDWATER QUALITY DATA FOR WELL QD-57 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/10/1996	8.4	98	702	4.0	8.0	276	0.42	174	<1.0	10	32
02/08/1996	8.8	100	586	4.0	13	319	0.42	136	<1.0	10	22
04/04/1996	8.1	101	672	4.0	9.0	283	0.40	216	<1.0	10	31
06/06/1996	8.7	97	720	3.0	9.0	280	0.42	238	<1.0	12	32
08/15/1996	8.3	94	848	4.0	9.0	363	0.43	212	<1.0	11	26
10/16/1996	8.5	93	296	2.0	10	296	0.37	75	<1.0	12	-108
12/04/1996	9.6	86	548	2.0	11	154	0.24	49	<1.0	10	-120
02/05/1997	7.3	87	490	6.0	11	108	0.16	40	<1.0	10	-119
04/24/1997	7.5	69	462	2.0	10	159	0.39	97	<1.0	11	-79
06/26/1997	7.2	67	456	1.0	10	117	0.33	105	<1.0	13	-83
08/07/1997	8.3	62	468	6.0	11	130	0.36	106	<1.0	11	-83
10/02/1997	8.3	68	462	3.0	10	117	0.37	104	<1.0	12	-78
12/18/1997	7.9	62	494	3.0	10	152	0.37	111	<1.0	10	-78
02/05/1998	8.0	76	498	3.0	11	148	0.34	113	<1.0	11	-76
04/09/1998	8.1	70	448	4.0	11	140	0.22	108	<1.0	11	-77
06/11/1998	8.1	61	462	3.0	11	159	0.34	107	<1.0	12	-77
08/13/1998	8.4	63	468	2.0	12	148	0.46	109	<1.0	14	-74
10/08/1998	8.7	63	444	2.0	13	214	0.36	99	<1.0	13	-72
12/10/1998	8.5	65	408	2.0	14	140	0.32	101	<1.0	10	-70
02/25/1999	8.0	36	452	2.0	13	145	0.35	96	<1.0	9.0	-73
04/08/1999	8.3	59	460	2.0	12	131	0.30	104	<1.0	13	-71
06/10/1999	7.7	61	478	2.0	11	156	0.31	99	<1.0	14	-69
08/19/1999	8.1	64	450	2.0	11	150	0.26	107	<1.0	13	-64
10/21/1999	8.4	71	472	1.0	11	154	0.24	109	<1.0	11	-61
12/02/1999	8.4	71	446	4.0	13	184	0.40	117	<1.0	11	-61
02/03/2000	8.3	76	496	3.0	13	152	0.50	101	<1.0	11	-60
04/13/2000	8.3	76	486	3.0	12	143	0.43	101	<1.0	11	-59
06/15/2000	8.3	69	366	4.0	11	150	0.41	108	<1.0	12	-65
08/31/2000	8.3	69	464	2.0	10	159	0.43	112	<1.0	12	-61
10/12/2000	6.7	69	492	2.0	105	84	0.28	37	<1.0	11	-71
12/06/2000	8.6	67	438	1.0	12	84	0.24	34	<1.0	10	-74
04/12/2001	8.4	65	390	2.0	13	63	0.24	25	<1.0	11	-77
06/28/2001	8.5	68	412	2.0	13	65	0.24	24	<1.0	11	-74
08/09/2001	7.9	56	394	2.0	12	73	0.20	25	<1.0	12	-76
10/11/2001	7.8	64	424	2.0	13	82	0.21	22	<1.0	11	-85
12/19/2001	7.6	65	402	3.0	14	65	0.21	23	<1.0	11	-87
02/27/2002	7.0	65	420	3.0	14	52	0.22	27	<1.0	11	-87
06/20/2002	7.4	66	486	3.0	12	56	0.22	19	<1.0	12	-87
08/29/2002	7.2	58	410	3.0	11	60	0.26	20	<1.0	12	-88
10/10/2002	7.0	59	394	3.0	13	62	0.28	17	<1.0	11	-89

TABLE 5-37 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-57 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2002	7.8	58	434	4.0	12	55	0.22	18	<1.0	11	-86
02/27/2003	7.6	58	466	3.0	13	49	0.21	18	<1.0	10	-89
04/10/2003	7.4	66	468	2.0	11	51	0.22	19	<1.0	11	-91
08/28/2003	6.5	44	396	3.0	12	73	0.20	18	<1.0	12	-93
10/23/2003	7.4	66	366	3.0	11	68	0.24	16	<1.0	11	-95
12/11/2003	7.9	28	386	2.0	13	79	0.14	17	<1.0	10	-96
02/26/2004	7.2	32	278	2.0	12	64	0.40	17	<1.0	10	-97
04/15/2004	7.2	61	394	2.0	16	74	0.22	17	<1.0	12	-96
06/17/2004	8.0	57	400	9.0	13	57	0.23	18	<1.0	12	-96
08/12/2004	7.1	61	420	2.0	13	53	0.23	17	<1.0	11	-94
10/28/2004	7.5	55	388	2.0	13	54	0.23	17	<1.0	12	-93
04/07/2005	7.4	45	380	2.0	15	58	0.23	18	<1.0	10	-95
05/26/2005	7.5	47	380	2.0	13	61	0.22	18	<1.0	12	-94
06/16/2005	7.6	35	384	1.0	12	56	0.24	17	<1.0	11	-98
05/11/2006	7.4	30	380	0.70	13	59	0.19	18	<1.0	12	-99
08/02/2006	8.7	62	398	0.60	13	313	0.14	18	<1.0	13	-99
11/02/2006	7.8	33	426	0.60	14	56	0.20	18	<1.0	11	-108
03/22/2007	8.0	37	370	0.60	12	55	0.17	17	<1.0	11	-101
05/10/2007	8.3	47	362	0.60	13	61	0.22	18	<1.0	13	-107
08/02/2007	8.6	56	418	0.70	15	47	0.22	19	<1.0	12	-101
09/25/2008	8.9	39	378	1.0	12	55	0.21	18	2.0	12	-111
02/26/2009	8.3	44	384	<1.0	13	57	0.22	19	<1.0	11	-105
07/30/2009	8.6	43	380	<1.0	13	50	0.24	17	<1.0	12	-115
10/29/2009	8.7	45	396	<1.0	14	57	0.26	18	<1.0	11	-115
04/15/2010	7.7	41	392	<1.0	<15	54	0.25	19	<1.0	12	-98
06/30/2011	8.5	55	388	1.0	12	50	0.29	20	<1.0	13	-110
10/13/2011	8.5	41	334	<1.0	12	<15	0.15	30	<1.0	12	-100
12/22/2011	8.0	51	384	<1.0	13	55	0.21	18	<1.0	10	-107
03/21/2012	8.5	41	368	<1.0	12	53	0.26	20	<1.0	13	-114
04/26/2012	8.2	55	436	<1.0	13	55	0.27	18	<1.0	11	-115
06/28/2012	8.6	23	426	1.0	12	54	0.24	20	<1.0	12	-114
05/30/2013	8.4	43	382	1.0	14	51	0.29	21	7.0	14	-95
07/31/2013	8.6	45	378	<1.0	12	50	0.26	19	<1.0	11	-110
08/29/2013	8.2	46	424	1.0	12	49	0.25	19	<1.0	14	-101

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-38: GROUNDWATER QUALITY DATA FOR WELL QD-58 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/24/1996	8.0	52	376	3.0	12	32	0.35	119	<1.0	10	28
02/15/1996	8.1	62	316	3.0	11	10	0.35	129	<1.0	12	32
04/03/1996	8.1	52	328	3.0	10	12	0.36	145	<1.0	12	30
06/27/1996	8.3	50	392	6.0	10	24	0.33	131	<1.0	12	23
08/26/1996	8.3	56	364	4.0	10	14	0.35	126	<1.0	12	-22
10/24/1996	8.1	51	350	4.0	11	16	0.14	128	<1.0	10	17
12/18/1996	8.3	45	320	8.0	12	11	0.24	116	<1.0	9.0	-80
02/13/1997	7.4	62	334	2.0	13	12	0.16	134	<1.0	10	-84
04/30/1997	7.9	43	254	3.0	11	9.0	0.26	132	<1.0	12	-75
06/12/1997	7.8	43	330	2.0	14	12	0.14	129	<1.0	12	-77
08/14/1997	8.1	38	314	4.0	11	17	0.14	121	<1.0	12	-77
10/02/1997	8.1	41	258	2.0	11	38	0.23	125	<1.0	12	-77
12/04/1997	8.0	51	300	3.0	12	12	0.24	131	<1.0	10	-78
02/25/1998	8.0	43	284	2.0	11	12	0.23	126	<1.0	12	-76
04/16/1998	7.9	39	266	3.0	10	12	0.28	131	<1.0	12	-78
06/18/1998	7.9	37	286	2.0	10	12	0.20	135	<1.0	12	-80
08/20/1998	8.0	39	278	2.0	11	11	0.20	124	<1.0	14	-79
10/22/1998	8.9	37	262	1.0	12	10	0.33	121	<1.0	12	-79
12/18/1998	7.6	38	286	2.0	11	12	0.29	130	<1.0	11	-78
02/25/1999	7.9	23	256	1.0	11	9.0	0.25	129	<1.0	10	-81
04/15/1999	6.9	39	268	2.0	11	9.0	0.31	126	<1.0	12	-80
06/16/1999	7.1	38	282	2.0	10	6.0	0.24	132	<1.0	13	-86
08/05/1999	7.8	41	278	2.0	13	9.0	0.20	124	<1.0	12	-86
10/28/1999	8.3	43	266	1.0	11	11	0.30	131	<1.0	11	-83
12/02/1999	7.5	44	270	2.0	11	9.0	0.30	144	<1.0	12	-43
02/10/2000	8.1	48	326	1.0	23	6.0	0.34	128	<1.0	11	-82
04/20/2000	8.3	44	270	6.0	11	14	0.34	132	<1.0	11	-80
06/08/2000	8.0	42	274	2.0	9.0	7.0	0.31	135	<1.0	12	-89
08/03/2000	7.9	43	258	3.0	9.0	7.0	0.34	123	<1.0	12	-87
10/19/2000	8.2	43	340	1.0	16	9.0	0.32	120	<1.0	11	-87
12/07/2000	8.1	44	204	1.0	10	6.0	0.33	120	<1.0	10	-87
06/21/2001	8.3	36	296	1.0	15	2.0	0.32	99	<1.0	12	-85
08/16/2001	7.1	45	282	1.0	13	8.0	0.30	127	<1.0	12	-85
10/18/2001	7.5	45	274	1.0	11	5.0	0.24	90	<1.0	11	-83
12/06/2001	7.1	42	254	1.0	11	1.0	0.36	120	<1.0	11	-99
02/28/2002	7.1	40	278	2.0	12	<1.0	0.31	127	<1.0	11	-96
04/18/2002	7.4	45	306	3.0	16	2.0	0.27	121	<1.0	12	-95
06/27/2002	7.5	39	326	2.0	36	7.0	0.33	114	<1.0	12	-94
08/29/2002	7.5	42	294	2.0	9.3	6.0	0.32	120	<1.0	12	-95
10/17/2002	7.0	30	398	2.0	47	5.0	0.35	126	<1.0	11	-95

TABLE 5-38 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-58 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
12/12/2002	7.7	42	322	2.0	11	1.3	0.28	112	<1.0	10	-93
02/27/2003	7.1	38	330	2.0	16	1.6	0.27	118	<1.0	11	-94
04/24/2003	7.3	39	306	1.0	19	5.0	0.23	119	<1.0	11	-95
06/26/2003	7.9	40	286	2.0	10	<0.70	0.25	120	<1.0	12	-104
08/20/2003	7.6	40	382	2.0	46	<0.70	0.27	119	<1.0	12	-101
10/30/2003	7.4	39	312	1.0	13	<0.70	0.32	112	<1.0	11	-100
12/10/2003	7.7	43	264	2.0	13	9.0	0.29	114	<1.0	11	-100
02/26/2004	7.1	26	536	2.0	11	2.0	0.35	116	<1.0	11	-102
04/15/2004	8.0	37	256	1.0	34	1.0	0.27	114	<1.0	12	-101
06/24/2004	7.5	45	322	3.0	12	4.0	0.29	120	<1.0	12	-98
10/14/2004	7.1	43	266	1.0	17	4.0	0.30	116	<1.0	11	-98
05/26/2005	7.7	24	248	1.0	12	1.0	0.30	118	<1.0	12	-103
06/30/2005	7.7	33	370	1.0	49	3.0	0.96	118	<1.0	12	-100
07/21/2005	7.7	21	180	<0.30	13	2.0	0.31	116	<1.0	12	-103
05/18/2006	7.0	42	292	0.40	1	3.0	0.26	118	<1.0	11	-98
08/03/2006	7.8	38	306	0.40	13	25	0.22	117	<1.0	12	-95
11/02/2006	7.6	26	280	0.30	12	2.0	0.24	116	<1.0	11	-104
05/02/2007	7.9	32	282	0.50	16	5.0	0.25	116	<1.0	16	-101
08/02/2007	7.9	32	602	0.40	13	1.0	0.28	114	<1.0	12	-100
12/05/2007	7.7	23	284	0.30	10	2.0	0.29	114	<1.0	10	-100
07/31/2008	7.9	39	262	0.20	10	0.40	0.29	117	<1.0	13	-95
09/25/2008	8.2	31	274	1.0	10	1.0	0.25	120	<1.0	12	-111
02/26/2009	7.9	32	252	<1.0	11	<2.0	0.28	119	<1.0	11	-112
04/23/2009	8.0	38	274	<1.0	14	3.4	0.27	110	<1.0	11	-110
10/29/2009	8.0	32	274	<1.0	13	2.3	0.32	114	<1.0	12	-106
04/15/2010	7.3	29	278	<1.0	<15	<2.0	0.32	110	<1.0	12	-96
04/20/2011	7.7	39	256	<1.0	11	<15	0.21	111	<1.0	11	-112
06/30/2011	7.8	40	254	<1.0	10	<15	0.40	114	<1.0	13	-104
03/21/2012	8.0	40	266	<1.0	15	<5.0	0.33	123	<1.0	13	-104
04/26/2012	7.6	41	310	<1.0	11	<5.0	0.33	116	<1.0	11	-107
06/28/2012	7.8	17	314	<1.0	10	<5.0	0.33	116	<1.0	13	-105
09/27/2012	7.3	38	248	<1.0	11	<5.0	0.32	114	<1.0	12	-103
05/30/2013	7.8	33	260	<1.0	11	<5.0	0.33	132	<1.0	14	-103
08/29/2013	7.3	44	286	3.0	11	<5.0	0.32	122	<1.0	13	-99
12/19/2013	8.1	33	268	<1.0	11	<5.0	0.32	123	<1.0	11	-107

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-39: GROUNDWATER QUALITY DATA FOR WELL QD-59 IN
THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
01/24/1996	8.0	54	246	9.0	27	28	0.22	201	<1.0	10	12
02/15/1996	7.8	67	300	4.0	22	5.0	0.26	236	<1.0	11	36
04/03/1996	8.0	50	290	6.0	20	7.0	0.25	256	<1.0	12	28
06/20/1996	8.0	49	366	5.0	21	12	0.23	240	<1.0	13	24
08/28/1996	7.8	51	276	2.0	21	9.0	0.23	225	<1.0	12	19
10/24/1996	8.1	49	300	2.0	21	21	0.06	242	<1.0	12	24
12/18/1996	8.2	50	328	2.0	19	9.0	0.23	251	<1.0	9.0	13
02/13/1997	7.4	64	322	2.0	20	11	0.33	233	<1.0	10	-49
04/30/1997	7.8	45	266	3.0	26	10	0.21	229	<1.0	11	-61
06/12/1997	7.6	48	296	3.0	29	12	0.12	225	<1.0	12	-64
08/14/1997	7.8	46	318	4.0	35	17	0.05	214	<1.0	11	-66
10/02/1997	8.0	47	296	3.0	44	39	0.17	223	<1.0	12	-62
12/04/1997	7.9	72	336	2.0	48	13	0.15	221	<1.0	12	-60
02/25/1998	7.9	58	320	2.0	51	16	0.15	226	<1.0	12	-59
04/16/1998	7.8	63	330	3.0	54	16	0.23	241	<1.0	11	-55
06/18/1998	7.6	69	372	4.0	54	27	0.12	242	<1.0	12	-54
08/20/1998	7.6	80	630	2.0	93	58	0.24	335	<1.0	14	-50
10/22/1998	8.1	62	634	2.0	135	71	0.43	374	<1.0	12	-47
12/18/1998	7.6	87	482	3.0	100	40	0.29	311	<1.0	11	-44
02/25/1999	7.9	41	580	2.0	135	53	0.33	368	<1.0	10	-44
04/15/1999	6.8	72	554	2.0	121	40	0.39	306	<1.0	12	-42
06/16/1999	6.8	88	664	3.0	158	59	0.28	367	<1.0	13	-41
08/05/1999	7.5	101	796	2.0	180	61	0.29	409	<1.0	14	-42
10/28/1999	7.9	100	744	2.0	173	53	0.55	380	<1.0	11	-38
12/02/1999	7.3	93	736	3.0	173	50	0.37	427	<1.0	13	-34
02/10/2000	8.0	68	614	1.0	190	53	0.43	377	<1.0	11	-36
04/20/2000	7.9	106	540	5.0	183	72	0.40	350	<1.0	11	-34
06/08/2000	7.8	70	732	4.0	170	59	0.37	376	<1.0	12	-36
08/03/2000	7.6	73	540	5.0	173	61	0.41	364	<1.0	12	-35
10/19/2000	7.9	72	274	2.0	159	68	0.40	350	<1.0	11	-33
12/07/2000	7.9	73	622	1.0	168	78	0.40	345	<1.0	11	-32
02/08/2001	7.8	70	726	2.0	159	75	0.40	378	<1.0	11	-33
04/19/2001	8.1	70	690	2.0	173	70	0.38	350	<1.0	11	-32
06/21/2001	7.8	108	674	2.0	159	73	0.38	340	<1.0	11	-32
08/16/2001	7.9	95	634	2.0	151	89	0.39	446	<1.0	12	-33
10/18/2001	7.2	65	678	2.0	164	69	0.33	305	<1.0	11	-30
12/06/2001	6.6	50	560	2.0	156	77	0.39	295	<1.0	11	-40
02/28/2002	7.1	71	640	4.0	175	72	0.38	290	<1.0	11	-36
04/18/2002	7.0	49	634	3.0	150	78	0.36	327	<1.0	12	-34

TABLE 5-39 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-59 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			----- mg/L -----				MPN/ 100 mL	°C	ft ²
06/26/2003	7.9	65	570	5.0	125	110	0.31	302	<1.0	12	-36
08/20/2003	7.6	59	644	4.0	128	109	0.35	302	<1.0	12	-35
10/30/2003	7.2	84	652	6.0	142	106	0.34	267	<1.0	12	-35
12/10/2003	7.6	96	550	3.0	129	114	0.34	298	<1.0	11	-34
02/26/2004	7.4	32	450	2.0	10	109	0.42	293	<1.0	11	-37
04/15/2004	8.0	76	526	2.0	26	98	0.31	275	<1.0	12	-36
06/24/2004	7.0	93	556	3.0	121	75	0.35	302	<1.0	12	-36
08/26/2004	7.3	94	556	3.0	122	79	0.32	287	<1.0	12	-39
10/14/2004	7.3	86	558	1.0	122	75	0.36	281	<1.0	11	-35
12/16/2004	7.1	37	540	1.0	118	71	0.32	266	<1.0	11	-36
04/07/2005	7.4	60	508	2.0	110	69	0.33	282	<1.0	11	-39
06/30/2005	7.5	63	562	1.0	112	69	0.36	281	<1.0	12	-34
07/21/2005	7.6	41	494	1.0	113	64	0.34	266	<1.0	13	-38
05/18/2006	7.2	77	484	0.60	112	62	0.34	278	<1.0	11	-38
08/03/2006	7.7	85	524	0.80	110	139	0.30	278	<1.0	13	-36
11/02/2006	7.7	40	490	0.60	113	58	0.46	256	<1.0	11	-37
05/02/2007	7.7	65	472	0.70	112	47	0.32	270	<1.0	11	-35
08/02/2007	7.8	46	442	0.70	129	52	0.33	277	<1.0	14	-35
12/05/2007	7.6	42	534	0.60	119	63	0.34	269	<1.0	11	-34
07/31/2008	7.9	94	624	0.40	111	49	0.37	285	<1.0	13	-33
10/30/2008	7.4	100	586	1.0	123	53	0.42	234	<1.0	12	-43
12/18/2008	7.4	28	546	1.0	114	50	0.32	258	<1.0	10	-42
02/05/2009	7.8	48	504	<1.0	129	54	0.33	266	<1.0	11	-44
04/23/2009	7.8	71	550	<1.0	132	54	0.33	250	<1.0	12	-39
07/30/2009	7.8	54	546	<1.0	127	52	0.34	261	<1.0	12	-38
03/18/2010	7.6	43	460	<1.0	114	46	0.36	289	<1.0	12	-38
05/15/2010	7.2	48	500	<1.0	116	45	0.36	262	<1.0	13	-33
09/02/2010	7.5	60	524	<1.0	116	50	0.35	270	<1.0	13	-47
04/20/2011	7.6	71	538	1.1	116	43	0.24	268	<1.0	11	-44
06/30/2011	7.6	76	530	1.0	116	41	0.44	273	<1.0	14	-38
11/17/2011	7.9	64	452	<1.0	112	34	0.39	258	<1.0	11	-54
03/21/2012	7.6	53	474	1.0	119	43	0.35	267	<1.0	12	-39
04/26/2012	7.6	73	604	<1.0	119	45	0.36	274	<1.0	12	-45
06/28/2012	7.7	23	460	<1.0	42	97	0.38	259	<1.0	13	-43
09/27/2012	7.4	53	530	1.0	117	43	0.39	281	<1.0	12	-45
05/30/2013	8.8	43	386	<1.0	118	13	0.30	162	<1.0	12	-43
08/29/2013	7.3	83	574	1.0	103	33	0.35	274	<1.0	12	-37

TABLE 5-39 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-59 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m				mg/L			MPN/ 100 mL	°C	ft ²
12/19/2013	7.8	59	454	<1.0	104	41	0.37	270	<1.0	12	-46

¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

TABLE 5-40: GROUNDWATER QUALITY DATA FOR WELL QD-60 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
01/24/1996	7.9	62	368	5.0	47	140	0.38	263	<1.0	10	4.0
04/03/1996	7.9	57	378	5.0	40	72	0.41	283	<1.0	13	3.0
06/20/1996	7.8	56	510	7.0	41	75	0.39	269	<1.0	15	5.0
08/28/1996	7.8	65	462	2.0	43	81	0.38	268	<1.0	12	4.0
10/24/1996	8.0	56	452	3.0	42	76	0.01	286	<1.0	12	3.0
12/18/1996	7.6	59	410	6.0	42	71	0.31	281	<1.0	10	-73
02/13/1997	7.9	80	438	2.0	43	87	0.17	284	<1.0	11	-115
04/30/1997	7.8	67	416	2.0	44	105	0.39	285	<1.0	12	-119
06/12/1997	7.6	64	484	2.0	42	83	0.31	294	<1.0	13	-122
08/14/1997	7.7	60	496	6.0	42	90	0.30	268	<1.0	13	-131
10/02/1997	7.9	61	432	4.0	41	87	0.34	279	<1.0	13	-125
12/04/1997	7.9	72	476	2.0	44	85	0.32	283	<1.0	12	-125
02/25/1998	7.7	69	446	1.0	43	82	0.32	274	<1.0	12	-128
04/16/1998	7.8	63	438	2.0	44	107	0.36	277	<1.0	12	-126
06/18/1998	8.1	57	464	3.0	43	114	0.30	279	<1.0	13	-125
08/20/1998	7.8	59	426	1.0	45	106	0.31	272	<1.0	16	-123
10/22/1998	8.5	61	432	1.0	46	101	0.39	258	<1.0	13	-124
12/18/1998	7.6	63	406	2.0	47	102	0.36	275	<1.0	11	-124
02/25/1999	7.8	33	422	1.0	45	105	0.33	273	<1.0	10	-124
04/15/1999	6.9	63	432	1.0	45	93	0.41	267	<1.0	13	-125
06/16/1999	7.0	61	432	1.0	46	110	0.32	268	<1.0	14	-124
08/05/1999	7.6	66	436	1.0	45	108	0.29	270	<1.0	14	-124
10/28/1999	8.1	70	430	1.0	46	106	0.45	282	<1.0	13	-122
12/02/1999	7.4	61	394	1.0	49	125	0.37	300	<1.0	13	20
02/10/2000	7.9	67	444	1.0	63	109	0.39	269	<1.0	10	-122
04/20/2000	7.9	69	414	3.0	49	103	0.41	264	<1.0	12	-121
06/08/2000	8.2	69	454	3.0	45	105	0.24	279	<1.0	13	-124
08/03/2000	7.8	69	463	3.0	48	105	0.41	265	<1.0	12	-122
10/19/2000	8.1	67	456	1.0	46	109	0.39	261	<1.0	12	-121
12/07/2000	8.0	70	966	<1.0	44	124	0.40	257	<1.0	11	-120
02/08/2001	7.9	68	456	1.0	41	106	0.39	287	<1.0	11	-120
04/19/2001	8.1	66	490	1.0	60	104	0.38	264	<1.0	12	-119
06/21/2001	7.9	59	402	1.0	40	108	0.38	271	<1.0	12	-118
08/16/2001	7.5	61	464	1.0	60	116	0.38	269	<1.0	13	-117
10/18/2001	7.0	69	434	1.0	46	105	0.33	269	<1.0	12	-117
12/06/2001	6.6	39	446	1.0	46	109	0.39	238	<1.0	12	-123
02/28/2002	7.2	60	452	2.0	52	96	0.41	286	<1.0	12	-122
04/18/2002	7.5	70	470	1.0	54	109	0.37	259	<1.0	13	-120
06/27/2002	7.6	76	418	1.0	43	106	0.41	246	<1.0	14	-119
08/29/2002	7.7	66	430	1.0	39	113	0.45	279	<1.0	13	-119

TABLE 5-40 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-60 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
10/17/2002	7.0	60	388	2.0	43	113	0.43	267	<1.0	12	-115
12/12/2002	7.1	62	460	2.0	39	110	0.33	241	<1.0	11	-113
02/27/2003	6.9	60	422	4.0	39	102	0.34	259	<1.0	12	-112
04/24/2003	7.8	61	412	1.0	40	110	0.39	253	<1.0	12	-111
06/26/2003	8.0	63	458	1.0	56	121	0.35	251	<1.0	13	-118
08/20/2003	7.5	63	472	1.0	54	130	0.36	252	<1.0	13	-117
10/30/2003	6.9	56	462	1.0	55	126	0.37	234	<1.0	12	-114
12/10/2003	7.6	68	416	1.0	54	142	0.33	255	<1.0	12	-113
02/26/2004	7.1	28	752	1.0	54	130	0.43	249	<1.0	12	-114
04/15/2004	7.8	65	442	1.0	73	120	0.36	239	<1.0	12	-111
06/24/2004	7.3	66	460	2.0	53	99	0.38	255	<1.0	13	-110
08/26/2004	7.3	69	438	8.0	54	105	0.35	245	<1.0	12	-110
10/14/2004	7.4	70	446	1.0	47	107	0.41	249	<1.0	12	-108
12/16/2004	7.3	36	428	1.0	47	104	0.34	239	<1.0	12	-110
04/07/2005	7.5	52	426	1.0	58	106	0.36	261	<1.0	11	-111
06/30/2005	7.5	54	456	<0.30	50	105	0.33	247	<1.0	12	-98
07/21/2005	7.6	35	410	<0.30	51	98	0.33	248	<1.0	13	-111
05/18/2006	7.1	65	424	0.20	51	104	0.39	260	<1.0	12	-99
08/03/2006	7.7	62	438	0.20	52	190	0.31	248	<1.0	13	-112
11/02/2006	7.8	35	472	0.20	52	101	0.31	249	<1.0	11	-115
05/02/2007	7.9	51	476	0.20	85	80	0.25	243	<1.0	12	-110
08/02/2007	7.7	41	442	0.20	45	85	0.32	240	<1.0	13	-111
12/05/2007	7.4	30	444	<0.20	40	102	0.36	237	<1.0	11	-107
07/31/2008	8.1	74	462	0.20	40	94	0.37	250	<1.0	14	-106
10/30/2008	7.3	82	438	1.0	43	100	0.41	224	<1.0	12	-120
12/18/2008	8.0	30	438	1.0	40	95	0.31	226	<1.0	10	-113
02/05/2009	7.8	38	396	<1.0	50	99	0.18	242	<1.0	11	-114
04/23/2009	7.8	58	436	<1.0	48	101	0.31	223	<1.0	12	-113
07/30/2009	7.7	44	428	<1.0	46	95	0.38	235	<1.0	13	-115
03/18/2010	7.7	37	428	<1.0	42	94	0.39	263	<1.0	12	-105
05/15/2010	7.5	40	428	<1.0	44	94	0.36	235	<1.0	14	-108
09/02/2010	7.5	45	400	<1.0	43	110	0.34	247	<1.0	13	-120
04/20/2011	7.6	57	426	<1.0	43	98	0.27	248	<1.0	12	-116
11/17/2011	7.7	41	318	<1.0	49	96	0.19	243	<1.0	10	-124
12/22/2011	8.0	44	410	<1.0	44	100	0.37	251	<1.0	12	-108
03/21/2012	7.7	44	414	<1.0	43	98	0.38	251	<1.0	13	-107
04/26/2012	7.3	57	478	<1.0	45	96	0.37	250	<1.0	12	-108
06/28/2012	7.7	36	624	<1.0	114	44	0.35	276	<1.0	13	-106
09/27/2012	7.6	44	422	<1.0	44	97	0.32	251	<1.0	13	-106
05/30/2013	7.7	45	450	<1.0	40	98	0.42	272	<1.0	13	-103

TABLE 5-40 (Continued): GROUNDWATER QUALITY DATA FOR WELL QD-60 IN THE DES PLAINES SYSTEM OF THE TUNNEL SYSTEM AND RESERVOIR PLAN

Sample Date	pH	EC ¹	TDS ¹	TOC ¹	Cl ⁻	SO ₄ ⁻	NH ₃ -N	Hardness	FC ¹	Temp	GWE ¹
		mS/m			mg/L				MPN/ 100 mL	°C	ft ²
08/29/2013	7.2	69	462	<1.0	42	92	0.39	269	<1.0	12	-112
12/19/2013	8.0	49	428	<1.0	44	111	0.40	262	<1.0	12	-107

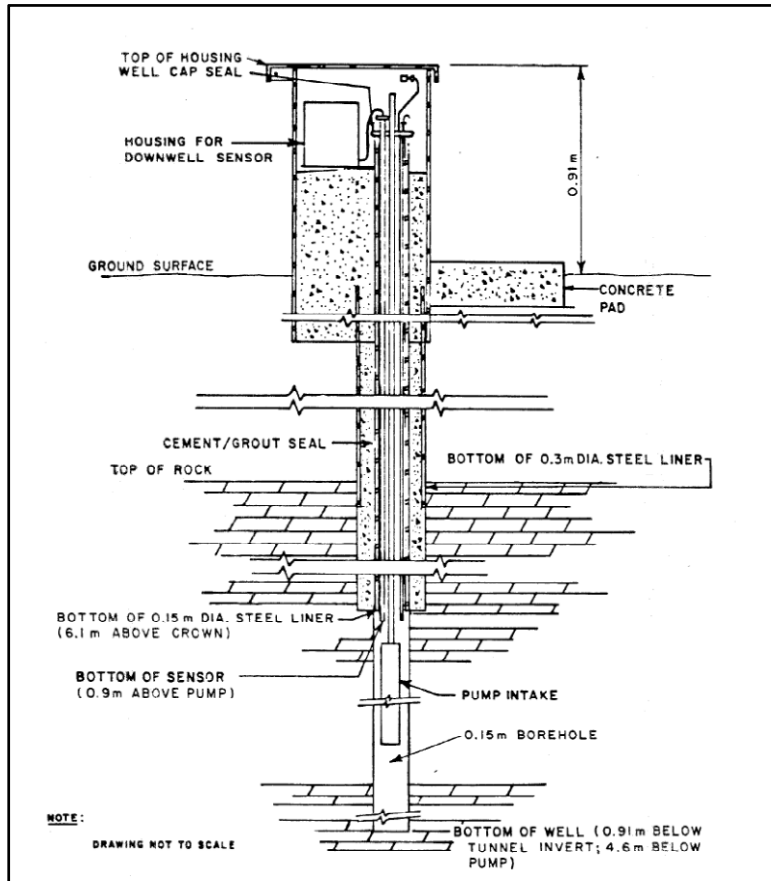
¹EC=Electrical Conductivity, TDS=Total Dissolved Solids, TOC=Total Organic Carbon, FC=Fecal Coliform, GWE=Groundwater Elevation.

²Elevation relative to city of Chicago datum of 579.2 ft above North American Vertical Datum of 1988.

APPENDIX A

SCHEMATIC FOR MONITORING WELL

FIGURE A-1: SCHEMATIC FOR MONITORING WELL



APPENDIX B

**STANDARD OPERATING PROCEDURE FOR SAMPLING TUNNEL AND
RESERVOIR PLAN WELLS**

STANDARD OPERATING PROCEDURE FOR SAMPLING TUNNEL
AND RESERVOIR PLAN WELLS

1. Unlock and open well cover.
2. Take an instantaneous reading of the well water level by lowering the depth probe of a portable water level sensing meter down the well casing. Water levels should be recorded to the top of the outer casing.
3. Calculate the volume of water within the well, utilizing the data obtained in Step 2. Since most wells are considered to be slow rechargers, 90 percent of the well volume will be purged, and then 75 percent of the remaining well volume is purged 48 hours later. For the fast rechargers, 150 percent of the well volume is purged and a sample is then collected immediately following purging.
4. Calculate the purge volume (gallons), utilizing the water elevation (ft) measured in Step 3.

Calculations: Volume of H₂O in well = $\pi r^2 h$ (cu ft) * 1.34 ---> gallons

where $\pi = 3.142$

h = height of H₂O in well = depth of installation – elevation of H₂O measured

r = radius of well;

conversion factor = 1.34 (1 cu ft * 0.134 = gallons)

Note: Conversion factor used for the CUP wells = 0.134 (narrow-bore wells)

Conversion factor used for the Upper Des Plaines wells = 5.87 (larger-bore wells)

Conversion factor used for ALL OTHER wells = 1.34 (larger-bore wells)

(The different conversion factors compensate for the radius of the wells).

To adjust for the rate of activity in wells:

- i. Slow rechargers (75 percent activity) – at pump down, a factor of 0.90 is applied to calculate the final purge volume.
 - ii. Fast rechargers (150 percent activity) – at pump down, a factor of 1.5 is applied to calculate the final purge volume.
5. To purge a well, attach a 3/4" hose to the discharge pipe in the well casing. Attach a water meter to the end of this hose, to measure the volume of water purged.
 6. Attach the power cord from the generator to the well connection.
 7. Start the generator, and activate the power switch.
 8. Monitor the water meter on the discharge hose, and deactivate the pump immediately when the predetermined purge volume is reached. The purged water may be discharged onto the ground.

9. After the correct purge volume has been pumped from the well, the power cord and hose are disconnected, and a final water level reading of the well is taken.
10. For the slow rechargers, return to the well approximately 48 hours following pump down, to collect samples. The purge volume immediately before sampling will be 75 percent of the calculated volume present in the well (apply a factor of 0.75). After the calculated purge volume is extracted, two samples are collected from the discharge end of the water meter - one sample for General Chemistry analytes (1-gallon aliquot) and one for Fecal Coliform bacteria (250-mL aliquot). Both aliquots of samples are then clearly identified with LIMS-generated labels applied to each sample container.
11. For the fast rechargers, the wells are sampled almost immediately following pump down by the same procedure used in Step 10.
12. Immediately following collection, the temperature, electrical conductivity (EC), and pH of each sample are measured for the samples placed in the one-gallon container, using a hand-held portable pH/EC/Temperature/Salinity meter (YSI Model 63).
13. Samples are then placed in a cooler packed with ice to maintain them at a temperature of approximately $\leq 4^{\circ}\text{C}$ and delivered to Stickney ALD as soon as possible.
14. Secure the well cover.
15. All log sheets are completed daily in the field, and submitted to the supervisor.
16. All equipment used in the field are cleaned and rinsed with distilled water. The pH/EC/Temp meter is serviced and recalibrated on a bi-weekly basis.

Prepared/edited 01/13/2016.