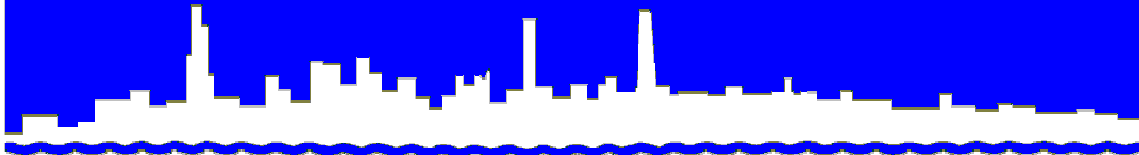


*Protecting Our Water Environment*



***Metropolitan Water Reclamation District of Greater Chicago***

***MONITORING AND RESEARCH  
DEPARTMENT***

***REPORT NO. 13-20***

***TUNNEL AND RESERVOIR PLAN***

***GLORIA ALITTO MAJEWSKI***

***CHICAGOLAND UNDERFLOW PLAN RESERVOIR***

***WATER QUALITY MONITORING WELLS***

***ANNUAL GROUNDWATER MONITORING REPORT***

***FOR 2012***

***July 2013***

**Protecting Our Water Environment**



**Metropolitan Water Reclamation District of Greater Chicago**

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July 25, 2013

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Ms. Marcia Willhite  
Bureau Chief  
Bureau of Water  
Illinois Environmental Protection Agency  
P. O. Box 19276  
Springfield, IL 62794-9276

Dear Ms. Willhite:

Subject: Tunnel and Reservoir Plan, Gloria Alitto Majewski Chicagoland Underflow Plan Reservoir Water Quality Monitoring Wells, Annual Groundwater Monitoring Report for 2012

Attached are three copies of "Tunnel and Reservoir Plan, Gloria Alitto Majewski Chicagoland Underflow Plan Reservoir Water Quality Monitoring Wells, Annual Groundwater Monitoring Report for 2012."

Very truly yours,

Thomas C. Granato, Ph.D.  
Director  
Monitoring and Research

TCG:PL:cm

Attachment

cc w/att: Ms. Sally K. Swanson (USEPA Region 5 - WC15J) - (2)

Dr. Zhang

Dr. Cox

Dr. Hundal

Dr. Lindo

cc w/o att: Mr. St. Pierre

Ms. Sharma

Mr. Cohen

**Metropolitan Water Reclamation District of Greater Chicago**  
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TUNNEL AND RESERVOIR PLAN  
GLORIA ALITTO MAJEWSKI  
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FOR 2012

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## ANNUAL DATA FOR MONITORING WELLS

### Introduction

Four monitoring wells, QK-1 through QK-4, are located on the perimeter of the Gloria Alitto Majewski (Majewski) Chicagoland Underflow Plan Reservoir. Well QK-1 is positioned on the northwest corner of the reservoir, with QK-2, -3, and -4 on the northeast, southeast, and southwest corners, respectively ([Figure 1](#)). In addition, there are nine privately owned water supply wells, WX1 through WX9, which are all located within 1,000 ft of the reservoir. The four monitoring wells are sampled quarterly (Illinois Environmental Protection Agency [IEPA] memorandum dated October 14, 1997). Groundwater elevations are measured during each sampling event. There are no observation wells associated with this site.

According to IEPA requirements, sampling and analysis will also be performed on a weekly basis for at least six weeks following a rain event in which the reservoir is used to store combined sewer overflow from the Tunnel and Reservoir Plan system. There were no fill events during 2012.

All monitoring wells in the Majewski Reservoir system were visited for the required number of samples. However, in a few instances, samples could not be retrieved from a few wells. During 2012, monitoring well QK-1 could not be sampled, while QK-2 generated only one sample due to inoperable pumps.

### Summary of Data for Monitoring Wells

The analytical data for groundwater sampled during 2012 from monitoring wells QK-1 through QK-4 are presented in [Table 1](#). Physical characteristics, such as elevation, groundwater temperature, and estimated time of recharge for each well between initial drawdown and sampling, are also included in this table. Fecal coliform counts for all wells were non-detectable. [Table 2](#) lists the descriptive statistics for groundwater data of monitoring wells QK-1 through QK-4 for the year 2012.

FIGURE 1: MAP OF FOUR MONITORING WELLS AND NINE PRIVATE WELLS SURROUNDING THE GLORIA ALITTO MAJEWSKI CHICAGOLAND UNDERFLOW PLAN RESERVOIR

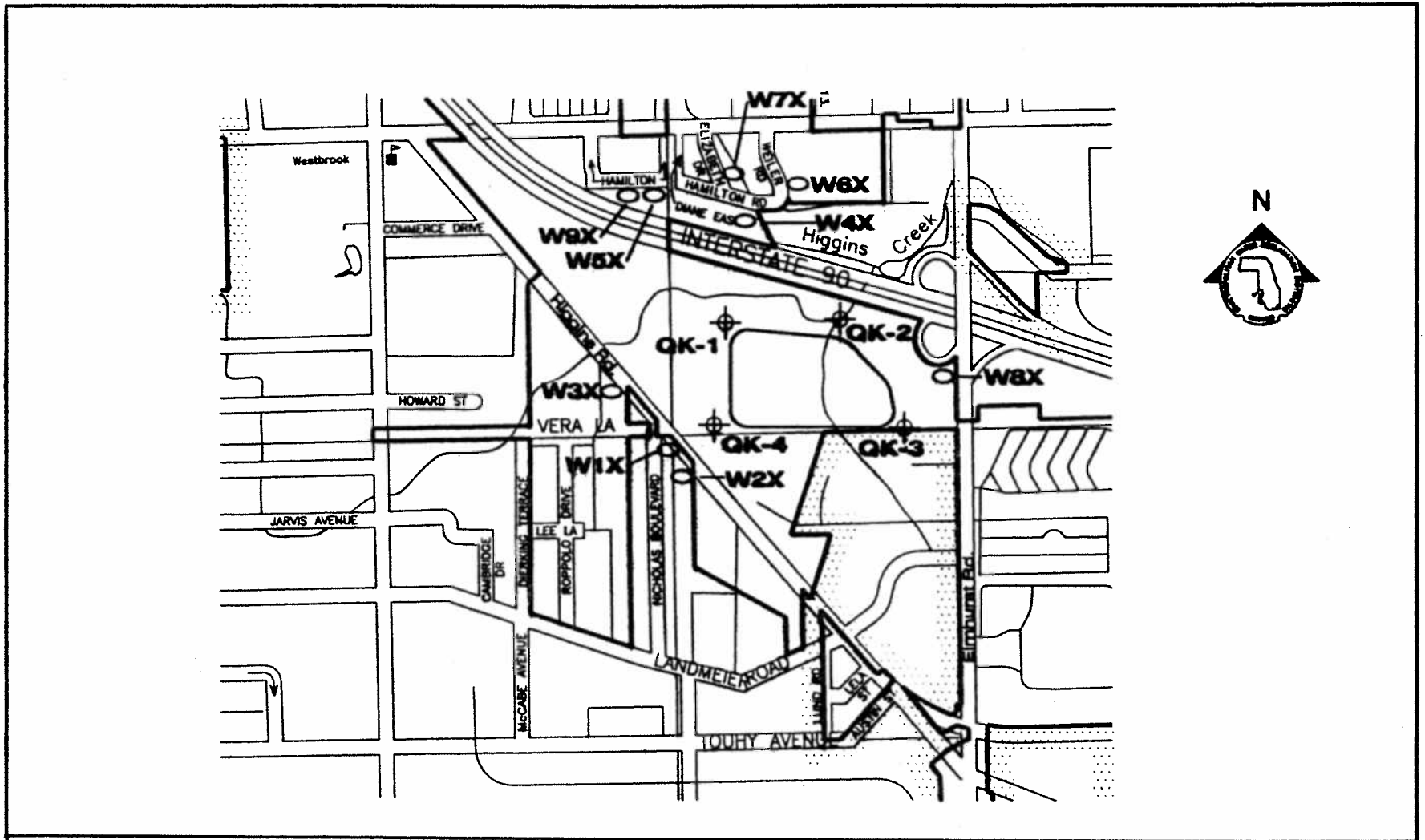




TABLE 1: ANALYSIS OF WATER FROM MONITORING WELLS QK-1 THROUGH QK-4 IN THE GLORIA ALITTO MAJEWSKI CHICAGOLAND UNDERFLOW PLAN OF THE TUNNEL AND RESERVOIR PLAN SAMPLED DURING 2012

Well <sup>1</sup>	Date Sampled	pH	EC <sup>2</sup>	TDS <sup>2</sup>	TOC <sup>2</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	NH <sub>3</sub> -N	Hardness	Fecal Coliform	Temp	Water Elevation <sup>3</sup>	Recharge Time
			mS/m	----- mg/L -----						MPN/100 mL	°C	ft	hr
QK-2	05/16/12	7.8	98	936	2	<10	516	0.29	496	<1	13.0	2.0	<4
QK-3	02/16/12	6.9	62	720	1	42	242	0.48	417	<1	10.6	8.5	<4
QK-3	05/16/12	7.3	96	734	1	42	265	0.64	431	<1	14.1	-65	<4
QK-3	08/01/12	7.3	46	1,126	5	13	464	0.29	468	<1	14.5	-8.5	<4
QK-3	11/14/12	6.6	32	1,098	1	14	553	0.27	619	<1	11.2	-7.5	<4
QK-4	02/16/12	7.2	72	990	1	44	411	0.60	576	<1	10.8	20.9	<4
QK-4	05/16/12	7.3	106	986	1	47	414	0.58	576	<1	16.8	0.9	<4
QK-4	08/01/12	7.2	56	1,174	7	48	421	0.56	574	<1	13.3	10.9	<4
QK-4	11/14/12	7.2	70	956	1	52	258	0.48	548	<1	11.1	20.9	<4

<sup>1</sup>Well QK-1 could not be sampled during 2012; pump inoperable and well intermittently dry. QK-2 generated sample only once; pump inoperable.

<sup>2</sup>EC = electrical conductivity; TDS = total dissolved solids; TOC = total dissolved organic carbon.

<sup>3</sup>Relative to Chicago city datum (579.48 ft above mean sea level) at intersection of Madison and State Streets.

TABLE 2: DESCRIPTIVE STATISTICS FOR GROUNDWATER DATA OF MONITORING WELLS QK-1 THROUGH QK-4 IN THE GLORIA ALITTO MAJEWSKI CHICAGOLAND UNDERFLOW PLAN OF THE TUNNEL AND RESERVOIR PLAN DURING 2012

Well <sup>1</sup>	Statistic	pH	EC <sup>2</sup>	TDS <sup>2</sup>	TOC <sup>2</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>2-</sup>	NH <sub>3</sub> -N	Hardness	Fecal Coliform <sup>3</sup>
			mS/m	----- mg/L -----			-----		MPN/100 mL	
QK-3	Minimum	6.6	32	720	1	13	242	0.27	417	<1
	Mean	7.0	59	920	2	28	381	0.42	484	<1
	Maximum	7.3	96	1,126	5	42	553	0.64	619	<1
	Std. Dev.	0.4	27	223	2	16	152	0.17	93	NA <sup>4</sup>
	Median	7.1	54	916	1	28	364	0.39	450	<1
	Coeff. of Var. (%)	5.0	47	24	81	59	40	42	19	NA
QK-4	Minimum	7.2	56	956	1	44	258	0.48	548	<1
	Mean	7.2	76	1,027	3	48	376	0.56	569	<1
	Maximum	7.3	106	1,174	7	52	421	0.60	576	<1
	Std. Dev.	0.0	21	99	3	3	79	0.05	14	NA
	Median	7.2	71	988	1	48	413	0.57	575	<1
	Coeff. of Var. (%)	0.7	28	10	117	7	21	9.5	2	NA

<sup>1</sup>Well QK-1 could not be sampled during 2012; pump inoperable and well intermittently dry. QK-2 generated sample only once; pump inoperable.

<sup>2</sup>EC = electrical conductivity; TDS = total dissolved solids; TOC = total dissolved organic carbon.

<sup>3</sup>Geometric mean calculated.

<sup>4</sup>Not applicable.