Metropolitan Water Reclamation District of Greater Chicago

MONITORING AND RESEARCH DEPARTMENT

REPORT NO. 24-36

TUNNEL AND RESERVOIR PLAN McCOOK RESERVOIR ANNUAL GROUNDWATER MONITORING REPORT FOR 2023

April 2024

Protecting Our Water Environment

Metropolitan Water Reclamation District of Greater Chicago

CECIL LUE-HING RESEARCH AND DEVELOPMENT COMPLEX
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Edward W. Podczerwinski, P.E.
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April 26, 2024

Mr. Michael Brown
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Dear Mr. Brown:

Subject: Transmittal of the Report "Tunnel and Reservoir Plan McCook Reservoir Annual Groundwater Monitoring Report for 2023"

Please find attached the report entitled "Tunnel and Reservoir Plan McCook Reservoir Annual Groundwater Monitoring Report for 2023." The report was prepared for transmittal to the Illinois Environmental Protection Agency in accordance with the Chicagoland Underflow Plan McCook Reservoir Groundwater Monitoring and Analysis Plan.

If you have any questions or would like additional information, please contact Mr. Benjamin Morgan at (708) 588-3743 or MorganB@mwrd.org.

Very truly yours,

Albert Cox

Albert Cox, Ph.D.
Environmental Monitoring and Research Manager
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EWP:HZ::lf
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TUNNEL AND RESERVOIR PLAN MCCOOK RESERVOIR ANNUAL GROUNDWATER MONITORING REPORT FOR 2023

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°C	degrees Celsius
Ag	silver
As	arsenic
B	boron
Ba	barium
Be	beryllium
CCD	Chicago City Datum
Cd	cadmium
CFU	colony forming units
Cl^-	chloride
CN	cyanide
Co	cobalt
COD	chemical oxygen demand
Cr	chromium
CSF	combined sewer flow
Cu	copper
District	Metropolitan Water Reclamation District of Greater Chicago
EC	electrical conductivity
F	fluorine
Fe	iron
Hg	mercury
IAC	Illinois Administrative Code
IEPA	Illinois Environmental Protection Agency
MAP	Groundwater Monitoring and Analysis Plan
Mn	manganese
NH_3^--N	ammonia nitrogen
Ni	nickel
NO_3-N	nitrate nitrogen
P	phosphorus
Pb	lead
Ra	radium
Reservoir	Chicagoland Underflow Plan McCook Reservoir
Sb	antimony
Se	selenium
SO_4^{2-}	sulfate
TARP	Tunnel and Reservoir Plan
TDS	total dissolved solids
Tl	thallium
TL	tolerance limit
TOC	total organic carbon
USACE	United States Army Corps of Engineers
Zn	zinc

ACKNOWLEDGMENTS

The McCook Reservoir groundwater monitoring is conducted by the Monitoring and Research Department of the Metropolitan Water Reclamation District of Greater Chicago (District) under the Groundwater Monitoring and Analysis Plan prepared by the United States Army Corps of Engineers. Organic analyses were performed by Eurofins Environment Testing, inorganic analyses by the District's Analytical Laboratories Division, and fecal coliform analyses by the District's Analytical Bacteriology Laboratory. Special thanks to Ms. Sasha Powell, Mr. Daniel Lynch, Ms. Mallory Coghlan, and Mr. Brian LaFlame for collecting samples, to Dr. Essam El-Naggar for help managing the monitoring, and to Ms. Laura Franklin for typing and formatting this report.

DISCLAIMER

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

TUNNEL AND RESERVOIR PLAN McCOOK RESERVOIR ANNUAL GROUNDWATER MONITORING REPORT FOR 2023

McCook Reservoir Site Description

The Chicagoland Underflow Plan McCook Reservoir (Reservoir), located within Lyons Township in western Cook County, is part of the Tunnel and Reservoir Plan (TARP). The Reservoir was designed to reduce flooding in the Chicago area by providing storage of combined sewer flow (CSF) during storms. The Reservoir construction has been divided into two phases. Phase I of the Reservoir is complete and has been in operation since January 2018. Phase II of the Reservoir is still under construction and is anticipated to begin operation in 2029. When the capacity of the sewer systems is exceeded, the CSF is conveyed to the Reservoir by the TARP tunnels for storage until it can be treated at the Stickney Water Reclamation Plant.

The groundwater protection system surrounding the Reservoir is designed to prevent exfiltration of CSF from the Reservoir to the surrounding groundwater during high-stage conditions and control seepage of groundwater into the Reservoir during low-stage conditions. The groundwater protection system consists of a double-row grout curtain that completely surrounds Phases I and II of the Reservoir to a depth of -320 ft Chicago City Datum (CCD). The grouted area has achieved permeabilities of less than 1 lugeon.

Groundwater Monitoring Program

A Groundwater Monitoring and Analysis Plan (MAP) (United States Army Corps of Engineers [USACE], 2014), including seven groundwater monitoring wells around the perimeter of the Reservoir (Figure 1), was developed by the USACE in coordination with the District and approved by the Illinois Environmental Protection Agency (IEPA) to monitor groundwater conditions and the performance of the groundwater protection system.

The objectives of the monitoring program as specified in the MAP are:

- To characterize local background groundwater quality by measuring Field, Routine, Organic, and Inorganic parameters prior to Reservoir operation.
- To assess potential exfiltration of CSF effluent into groundwater by measuring Field and Routine parameters while the Reservoir is in high-stage operation.
- To determine potential migration of groundwater contaminants into the Reservoir system from the surrounding area by measuring Field, Routine, Organic, and Inorganic parameters while the Reservoir is in low-stage operation.
- To evaluate long-term changes in groundwater quality associated with Reservoir operations.

FIGURE 1: MCCOOK RESERVOIR SITE AND MONITORING WELL LOCATIONS

To evaluate changes in groundwater quality, monitoring wells are installed 100 feet outside the grout curtain. However, due to physical constraints near the Reservoir where it would be impossible to install or access wells, some are located greater than 100 feet from the grout curtain. In the summer of 2016, a USACE investigation discovered that wells G-04 and G-05 exhibited signs of a compromised annular seal. These wells were re-drilled during fall 2017 and became operational for monitoring in November 2017.

Background Monitoring. Background monitoring began in the first quarter of 2016. Groundwater samples collected during the background monitoring program were analyzed for concentrations of organic and inorganic parameters and groundwater quality indicators based on Illinois Class I Potable Resource Groundwater standards constituents in 35 Illinois Administrative Code (IAC) 620.410 (Class I) and Illinois General Use Water Quality standards constituents in 35 IAC 302 B. Background monitoring results were used to determine upper tolerance limits (TLs) in each well for all measured groundwater quality parameters to enable future assessment of groundwater protection system efficacy. The TL for all parameters were established in 2019 using all background data and the statistical approaches recommended in the MAP. The details are documented in the Appendix of the 2018 McCook annual report.

High-Stage/Fill Event Monitoring. High-stage monitoring is initiated when water elevation in the Reservoir exceeds -220 ft CCD. The initial high-stage/fill event threshold of -280 ft CCD was increased to -265 ft CCD in January 2018 and was increased again to -220 ft CCD in January 2022 to reflect the Reservoir operating conditions. During high-stage monitoring, samples are collected every 14 days until the Reservoir water elevation falls below -220 ft CCD. The intent of the high-stage monitoring is to measure groundwater quality when the Reservoir is under high positive (outward) gradients that have the potential to exfiltrate CSF water. For the current Phase I of the Reservoir operation during high-stage monitoring events, only wells G-01, G-02, G-03, G-04, and G-05 must be monitored. The measurements and analyses include four Field and nine Routine parameters as specified in Table 2 of the MAP.

Low-Stage Semiannual Monitoring. Low-stage monitoring is implemented on a semiannual basis to collect water quality data when the Reservoir is acting as a regional groundwater sink. Low-stage sampling requires that water elevation in the Reservoir is at or below the high-stage threshold elevation (-220 ft CCD). Low-stage samples can only be collected after low-stage operation has been maintained for at least four days to ensure that monitoring results are characteristic of the regional groundwater and do not reflect re-infiltration of groundwater constituents that exfiltrated during the high-stage operation. The first low-stage semiannual sampling occurs during the second quarter of each year (April-June), analyzing all eighty-one (81) Field, Routine, Organic, and Inorganic parameters as specified in Tables 2, 3, and 4 of the MAP. The second low-stage semiannual sampling occurs during the fourth quarter of each year (October-December), analyzing only the Field and Routine parameters. The two low-stage semiannual samplings require collecting samples from all seven wells.

This 2023 report of the groundwater monitoring program for the Reservoir presents field activities and analytical results for January 1, 2023 – December 31, 2023.

Monitoring Activities for 2023

During 2023, there were eight high-stage events at the Reservoir. Seven high-stage events lasted for less than two weeks, requiring one sampling per event. One high-stage event lasted for 20 days, requiring two samplings. The third high-stage event, which lasted from February 23 – 25, 2023 could not be sampled before the start of fourth high-stage event on February 27, 2023, so the samplings for these two events were combined into one. The Reservoir operated at high stage for a total of 48 days in 2023. Water samples were collected and immediately analyzed in the field for pH and electrical conductivity, and water temperature and depth were recorded. Samples were packed in ice and transported to District laboratories for analysis of the nine Routine parameters.

The first low-stage semiannual monitoring sampling was conducted during the second quarter of 2023 on June 7 and 8, 2023, after the Reservoir had been at low stage for over four days. Water sample pH, electrical conductivity, temperature, and elevation were recorded in the field. Aliquots of each sample were packed in ice and transferred to Eurofins Environment Testing for analysis of Organic constituents in accordance with requirements specified in the MAP. Additional aliquots of each sample were packed in ice and taken to the District's laboratories for analysis of Routine and Inorganic parameters.

The second semiannual sampling was conducted on November 7 – 9, 2023, following low-stage operation at the Reservoir for over four days. Field parameters for each water sample were measured. Water samples were packed in ice and brought to the District's laboratories for analysis of Routine parameters.

Analytical Results for 2023

High-Stage/Fill Event Monitoring. All analytical results for all high-stage samples collected from wells G-01, G-02, G-03, G-04, and G-05 and the duplicate samples are reported in Tables 1 through 5, respectively. Analytical results that exceed Class I standards are shown in bold text in each table. Analytical results were compared to upper TLs based on the background monitoring data.

Total dissolved solids (TDS) exceeded the Class I standard in all samples from well G-01 and G-03, and in four samples from well G-05. The TDS for those four samples from well G-05 also exceeded the upper TL. Chloride concentrations exceeded the Class I standard in all samples from wells G-01 and G-03 but did not exceed the upper TLs for these wells. Sulfate exceeded the Class I standard in two samples from well G-01 and six samples from well G-05 but did not exceed the upper TLs for these wells.

There were a few exceedances of upper TLs for parameters that do not have established limits under the Class I standards. Total organic carbon (TOC) exceeded the upper TL in two samples from well G-03. The TOC was below reporting limits in all samples from wells G-01 and G-02, but the laboratory reporting limit for these samples was higher than the upper TLs at these wells. Chemical oxygen demand (COD) exceeded the upper TL in four samples from well G-02. Total phosphorus (P) exceeded the upper TL in five samples from well G-01 and one sample from well G-02. Total P was below the reporting limit in all remaining samples from well G-01 and all samples from G-04, but the reporting limit was greater than the upper TLs at these wells. Ammonia

TABLE 1: ANALYSIS OF GROUNDWATER SAMPLED FROM MONITORING WELL G-01 AT THE McCOOK RESERVOIR SITE DURING HIGH-STAGE OPERATION IN 2023

Fill Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC CFU/100 mL	Temp. °C	Elevation ft CCD
				mg/L										
Class I Standard[1]		**6.5–9.0**	**NS**[2]	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Upper TL[3]		5.3–8.1	586	3,845	2.7	40	1,280	730	0.13	2.8	1,607	<1	15.7	-106
1	01/05/23	6.9	185	**1,528**	<5.0	29	**369**	351	0.15	3.5	848	<1	12.5	-114
1DUP	01/05/23	6.9	185	**1,588**	<5.0	<20	**383**	364	0.16	3.5	819	<1	12.5	-114
2	02/15/23	6.8	187	**1,534**	<5.0	21	**423**	376	<0.15	3.1	938	<1	12.5	-113
3/4	02/28/23	6.9	184	**1,482**	<5.0	28	**405**	374	0.18	3.6	901	<1	12.7	-112
5.1	07/03/23	6.9	254	**1,690**	<5.0	<20	**428**	**425**	<0.15	2.9	880	<1	13.4	-112
5.2	07/20/23	6.8	189	**1,706**	<5.0	<20	**385**	375	0.15	4.1	884	<1	12.8	-109
6	08/03/23	6.8	250	**1,614**	<5.0	<20	**385**	389	<0.15	4.6	894	<1	12.7	-109
6DUP	08/03/23	6.8	250	**1,620**	<5.0	21	**385**	389	<0.15	4.5	903	<1	12.7	-109
7	08/15/23	6.9	185	**1,486**	<5.0	<20	**365**	368	0.19	4.5	864	<1	12.7	-107
8	09/20/23	6.7	193	**1,556**	<5.0	27	**389**	**436**	0.22	3.9	891	<1	13.8	-95

[1]Illinois Administrative Code (IAC) Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]No standard established by 35 IAC Part 620.410.
[3]For pH, upper and lower tolerance limits are shown.

TABLE 2: ANALYSIS OF GROUNDWATER SAMPLED FROM MONITORING WELL G-02 AT THE McCOOK RESERVOIR SITE DURING HIGH-STAGE OPERATION IN 2023

Fill Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC CFU/100 mL	Temp. °C	Elevation ft CCD
				mg/L										
Class I Standard[1]		**6.5−9.0**	**NS**[2]	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Upper TL[3]		5.7−8.1	182	1,214	4.3	31	383	207	0.68	2.2	791	<1	17.3	-69
1	01/05/23	7.0	116	928	<5.0	87	183	150	0.26	1.6	728	<1	12.6	-83
2	02/15/23	6.9	114	858	<5.0	33	187	158	0.21	1.9	643	<1	12.6	-83
2DUP	02/15/23	6.9	114	846	<5.0	21	187	159	0.21	1.8	646	<1	12.6	-83
3/4	03/02/23	7.0	113	864	<5.0	32	195	156	0.29	2.2	689	<1	12.6	-82
5.1	07/03/23	6.9	150	974	<5.0	21	192	165	0.28	1.7	1,014	<1	13.1	-82
5.2	07/21/23	6.8	117	1,020	<5.0	27	185	167	0.22	1.8	991	<1	13.5	-86
6	08/03/23	6.8	122	954	<5.0	<20	187	152	0.20	1.9	873	<1	13.2	-83
7	08/15/23	6.9	120	916	<5.0	28	186	156	0.25	1.7	993	<1	13.4	-83
7DUP	08/15/23	6.9	120	874	<5.0	30	185	155	0.25	1.8	998	<1	13.4	-83
8	09/20/23	6.7	117	906	<5.0	33	189	148	0.81	1.5	1,068	<1	13.2	-71

[1]Illinois Administrative Code (IAC) Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]No standard established by 35 IAC Part 620.410.
[3]For pH, upper and lower tolerance limits are shown.

TABLE 3: ANALYSIS OF GROUNDWATER SAMPLED FROM MONITORING WELL G-03 AT THE McCOOK RESERVOIR SITE DURING HIGH-STAGE OPERATION IN 2023

Fill Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC CFU/100 mL	Temp. °C	Elevation ft CCD
				mg/L										
Class I Standard[1]		**6.5−9.0**	**NS**[2]	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Upper TL[3]		5.7−8.4	312	1,826	19.3	93	618	167	0.24	32.0	570	<1	18.3	-95
1	01/04/23	7.1	199	**1,478**	19	72	**465**	131	<0.15	28	537	<1	13.8	-108
2	02/15/23	6.9	197	**1,378**	21	90	**493**	132	<0.15	28	561	<1	13.6	-108
3/4	02/28/23	7.0	210	**1,376**	21	89	**505**	131	<0.15	29	539	<1	14.3	-107
3/4DUP	02/28/23	7.0	210	**1,366**	21	93	**520**	135	<0.15	29	540	<1	14.3	-107
5.1	07/05/23	6.9	212	**1,432**	18	71	**488**	151	<0.15	30	525	<1	14.1	-95
5.2	07/20/23	6.8	203	**1,518**	17	65	**469**	152	<0.15	30	562	<1	14.6	-99
6	08/02/23	6.8	191	**1,468**	17	60	**453**	165	<0.15	29	564	<1	14.4	-106
7	08/15/23	7.0	202	**1,348**	18	63	**460**	166	<0.15	30	550	<1	14.2	-107
8	09/20/23	6.8	198	**1,506**	19	80	**473**	164	<0.15	30	566	<1	14.4	-114
8DUP	09/20/23	6.8	198	**1,468**	19	70	**481**	164	<0.15	28	586	<1	14.4	-114

[1]Illinois Administrative Code (IAC) Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]No standard established by 35 IAC Part 620.410.
[3]For pH, upper and lower tolerance limits are shown.

TABLE 4: ANALYSIS OF GROUNDWATER SAMPLED FROM MONITORING WELL G-04 AT THE McCOOK RESERVOIR SITE DURING HIGH-STAGE OPERATION IN 2023

Fill Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC	Temp.	Elevation
				mg/L								CFU/100 mL	°C	ft CCD
Class I Std[1]		**6.5–9.0**	**NS[2]**	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Upper TL[3]		6.3–9.2	179	1,100	8.1	30	213	584	0.11	19.0	746	<1	17.0	-34
1	01/04/23	7.0	137	1,110	<5.0	<20	154	298	<0.15	10	681	<1	14.1	-34
2	02/15/23	7.0	135	1,006	<5.0	<20	159	311	<0.15	10	701	<1	14.9	-29
3/4	02/28/23	7.0	160	1,014	<5.0	28	163	322	<0.15	9.5	703	<1	14.7	-27
5.1	07/06/23	7.0	133	1,110	<5.0	27	162	306	<0.15	9.6	660	<1	14.8	-24
5.1DUP	07/06/23	7.0	133	1,094	<5.0	<20	164	310	<0.15	9.9	665	<1	14.8	-24
5.2	07/19/23	6.8	125	1,128	<5.0	<20	160	295	<0.15	9.6	656	<1	16.0	-28
6	08/02/23	6.8	139	1,158	<5.0	<20	169	312	<0.15	9.7	652	<1	15.6	-31
7	08/16/23	6.9	143	1,056	<5.0	<20	169	310	<0.15	5.8	700	<1	15.6	-31
8	09/20/23	6.9	141	1,156	<5.0	<20	168	397	<0.15	9.8	738	<1	15.3	-32

[1]Illinois Administrative Code Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]No standard established by 35 IAC Part 620.410.
[3]For pH, upper and lower tolerance limits are shown.

TABLE 5: ANALYSIS OF GROUNDWATER SAMPLED FROM MONITORING WELL G-05 AT THE McCOOK RESERVOIR SITE DURING HIGH-STAGE OPERATION IN 2023

Fill Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC CFU/100 mL	Temp. °C	Elevation ft CCD
				mg/L										
Class I Standard[1]		**6.5–9.0**	**NS**[2]	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
Upper TL[3]		6.3–9.4	219	1,200	29.8	102	159	499	0.32	6.6	738	<1	15.3	-38
1	01/04/23	6.9	132	1,192	<5.0	<20	142	**401**	<0.15	6.0	761	<1	15.0	-40
2	02/15/23	7.0	137	1,142	<5.0	21	148	**419**	<0.15	6.0	787	<1	15.3	-28
3/4	02/28/23	6.9	125	1,082	<5.0	21	150	**438**	<0.15	5.7	779	<1	14.2	-30
5.1	07/06/23	6.9	134	**1,232**	<5.0	<20	159	400	<0.15	5.7	755	<1	14.4	-28
5.2	07/19/23	6.8	133	**1,228**	<5.0	<20	158	389	<0.15	5.9	762	<1	14.4	-34
5.2DUP	07/19/23	6.8	133	**1,240**	<5.0	<20	159	388	<0.15	5.9	753	<1	14.4	-34
6	08/02/23	6.9	137	**1,260**	<5.0	<20	164	**401**	<0.15	5.9	752	<1	14.8	-37
7	08/16/23	6.9	141	1,106	<5.0	<20	167	**401**	<0.15	5.7	770	<1	14.5	-38
8	09/20/23	6.9	139	**1,238**	<5.0	<20	169	**404**	<0.15	5.5	811	<1	14.2	-36

[1]Illinois Administrative Code (IAC) Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]No standard established by 35 IAC Part 620.410.
[3]For pH, upper and lower tolerance limits are shown.

exceeded the upper TL in all samples from well G-01. Hardness exceeded the upper TL in five samples from well G-02, one sample from well G-03, and all samples from well G-05. Groundwater temperature exceeded the upper TL in one sample from well G-05. Groundwater elevation exceeded the upper TL during one event in wells G-01 and G-03, and during seven events in wells G-04 and G-05. Fecal coliform bacteria were not detected in any high-stage samples.

Low-Stage Semiannual Monitoring. All results for Field and Routine parameters for low-stage semiannual sampling and TLs for these parameters are reported in Table 6. The results for Inorganic and Radioactive parameters are reported in Table 7, and all associated upper TLs for parameters in Table 7 are listed in Table 8. The results for Organic parameters are reported in Table 9, and all associated upper TLs for parameters in Table 9 are listed in Table 10. Analytical results that exceed the Class I standards are shown in bold text in Tables 6, 7, and 9. Analytical results were compared to upper TLs based on the background monitoring data.

There were a few exceedances of Class I standards and upper TLs by Routine and Field parameters (Table 6). The TDS exceeded the Class I standard in both semiannual samples from wells G-01 and G-03, and in the first semiannual sample from well G-05. However, among these samples, it exceeded the upper TL only for well G-05. The chloride concentration exceeded the Class I standard in both semiannual samples from wells G-01, G-03, and G-07, but did not exceed the upper TLs for these wells. Sulfate concentrations exceeded the Class I standard in the first semiannual sample from well G-05, and the second semiannual samples from wells G-01 and G-06, but only exceeded the upper TL for well G-06.

There were a few exceedances of upper TLs among parameters without established Class I standards. The TOC exceeded the upper TLs in the first semiannual sample from well G-03 and in the second semiannual sample from well G-07. The TOC was below the reporting limit in both samples from wells G-01, G-02, and G-06, but the reporting limit was higher than the upper TLs for these wells. The COD was below the reporting limit in both samples from well G-06, but the reporting limit was higher than the upper TL for this well. Total P exceeded the upper TL in the second semiannual sample from well G-01. Total P was below the reporting limit in the first semiannual sample from well G-01 and all samples from wells G-04 and G-06, but the reporting limit was higher than the upper TLs for these wells. Ammonia exceeded the upper TL in both samples from well G-01 and the first semiannual sample from well G-02. Hardness exceeded the upper TL in both samples from wells G-02 and G-05. Groundwater elevation exceeded the upper TLs during both semiannual monitoring events at wells G-04 and G-05. Fecal coliform bacteria were not detected in any low-stage semiannual sample.

Among the Inorganic parameters that are measured once per year during the first low-stage semiannual sampling event, boron exceeded the Class I standard in well G-06 (Table 7) but did not exceed the upper TL for this well (Table 8). Chromium, iron, manganese, and nickel exceeded the Class I standards in well G-02, and iron and manganese exceeded the upper TLs for this well.

There were a few detections of Organic parameters in groundwater collected during the first low-stage semiannual sampling (Table 9). Vinyl chloride in wells G-05, G-06, and G-07 exceeded the Class I standard, but it only exceeded the upper TL for well G-07. Bis(2-ethylhexyl)phthalate was below the reporting limit in all wells, but the reporting limits were higher than the Class I standard and the upper TLs for all wells.

TABLE 6: ANALYSIS OF ROUTINE PARAMETERS IN GROUNDWATER SAMPLED FROM EACH MONITORING WELL AT THE McCOOK RESERVOIR SITE DURING LOW-STAGE SEMIANNUAL SAMPLING IN JUNE AND NOVEMBER 2023

Well	Sampling Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC CFU/100 mL	Temp. °C	Elevation ft CCD
					mg/L										
Class I Standard[1]			**6.5–9.0**	**NS**[2]	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
G-01		Upper TL[3]	5.3–8.1	586	3,845	2.7	40	1,280	730	0.13	2.8	1,607	<1	15.7	-106
	1	06/06/23	6.8	248	**1,698**	<5.0	<20	**400**	393	<0.15	4.0	848	<1	13.2	-111
	2	11/07/23	6.8	244	**1,556**	<5.0	28	**362**	**426**	0.18	4.3	887	<1	13.4	-109
G-02		Upper TL	5.7–8.1	182	1,214	4.3	31	383	207	0.68	2.2	791	<1	17.3	-69
	1	06/06/23	6.8	152	994	<5.0	27	189	151	0.44	2.6	2,716	<1	13.2	-83
	2	11/07/23	6.9	93.9	934	<5.0	28	187	145	0.37	1.8	1,180	<1	12.6	-88
G-03		Upper TL	5.7–8.4	312	1,826	19.3	93	618	167	0.24	32.0	570	<1	18.3	-95
	1	06/07/23	6.9	209	**1,466**	21.2	72	**497**	137	<0.15	28.6	534	<1	14.4	-111
	2	11/09/23	6.9	203	**1,438**	19.1	77	**467**	153	<0.15	31.2	543	<1	14.2	-109
G-04		Upper TL	6.3–9.2	179	1,100	8.1	30	213	584	0.11	19.0	746	<1	17.0	-34
	1	06/08/23	7.0	138	1,118	<5.0	21	164	312	<0.15	9.4	687	<1	14.8	-29
	2	11/08/23	6.9	129	1,098	<5.0	<20	171	313	<0.15	9.8	666	<1	14.8	-33
G-05		Upper TL	6.3–9.4	219	1,200	29.8	102	159	499	0.32	6.6	738	<1	15.3	-38
	1	06/08/23	6.8	125	**1,208**	<5.0	<20	153	**409**	<0.15	5.7	735	<1	14.5	-31
	1DUP	06/08/23	6.8	125	**1,212**	<5.0	<20	152	**412**	<0.15	5.7	761	<1	14.5	-31
	2	11/08/23	7.0	148	1,148	<5.0	<20	169	396	<0.15	5.8	760	<1	13.1	-32
G-06		Upper TL	6.0–7.9	176	1,324	3.8	17	147	392	0.081	3.7	804	<1	16.2	-13
	1	06/08/23	7.0	115	1,064	<5.0	<20	87	400	<0.15	3.3	715	<1	13.2	-20
	2	11/08/23	6.9	141	1,054	<5.0	<20	77	**419**	<0.15	3.2	688	<1	14.3	-31

TABLE 6 (Continued): ANALYSIS OF ROUTINE PARAMETERS IN GROUNDWATER SAMPLED FROM EACH MONITORING WELL AT THE MCCOOK RESERVOIR SITE DURING LOW-STAGE SEMIANNUAL SAMPLING IN JUNE AND NOVEMBER 2023

Well	Sampling Event	Sample Date	pH	EC mS/m	TDS	TOC	COD	Cl^-	SO_4^{2-}	Total P	NH_3-N	Hardness	FC CFU/100 mL	Temp. °C	Elevation ft CCD
								mg/L							
Class I Standard[1]			**6.5−9.0**	**NS**	**1,200**	**NS**	**NS**	**200**	**400**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**
G-07		Upper TL	5.8−7.8	536	2,856	12.2	62	558	610	4.3	192[4]	1,430	<1	20.3	-3
	1	06/07/23	7.1	137	802	6.8	36	**212**	161	0.6	59	395	<1	14.5	-5
	2	11/09/23	7.1	105	878	15.8	51	**202**	142	1.1	55	613	<1	13.9	-12
	2DUP	11/09/23	7.1	105	854	NRR[5]	NRR	**203**	142	1.6	56	NRR	<1	13.9	-12

[1]Illinois Administrative Code Title (IAC) 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]No standard established by 35 IAC Part 620.410.
[3]For pH, upper and lower tolerance limits are shown.
[4]McCook Reservoir site was previously unpaved biosolids lagoons. Elevated NH_3-N may reflect infiltration or drilling through old biosolids lagoon sediments.
[5]NRR: No reportable result due to likely sample contamination.

TABLE 7: ANALYSIS OF INORGANIC AND RADIOACTIVE PARAMETERS IN GROUNDWATER SAMPLED FROM EACH MONITORING WELL AT THE MCCOOK RESERVOIR SITE DURING THE FIRST LOW-STAGE SEMIANNUAL SAMPLING IN JUNE 2023

Parameter	Units	Class I Standard[1]	G-01	G-02	G-03	G-04	G-05	G-05DUP[2]	G-06	G-07
Ag	mg/L	0.05	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
As	"	0.01	<0.002	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	0.004
B	"	2.0	0.466	0.386	0.892	1.96	1.84	1.90	**3.42**	0.233
Ba	"	2.0	0.041	0.104	0.080	0.040	0.054	0.055	0.029	0.049
Be	"	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cd	"	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Co	"	1.0	<0.002	0.013	<0.002	<0.002	<0.002	<0.002	<0.002	0.003
Cr	"	0.1	<0.004	**0.513**	0.006	<0.004	<0.004	<0.004	<0.004	<0.004
Cu	"	0.65	<0.002	0.027	<0.002	<0.002	<0.002	<0.002	<0.002	0.004
CN	"	0.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
F	"	4.0	0.348	0.289	0.478	0.454	0.365	0.367	0.371	0.313
Fe	"	5.0	0.168	**15.9**	0.430	0.690	0.515	0.538	0.547	2.43
Hg	"	0.002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Mn	"	0.15	0.020	**0.730**	0.016	0.013	0.024	0.025	0.009	0.037
Ni	"	0.1	0.006	**0.197**	0.019	0.002	<0.002	<0.002	0.002	0.007
NO_3^--N	"	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Pb	"	0.0075	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Sb	"	0.006	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Se	"	0.05	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Tl	"	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Zn	"	5.0	0.026	0.051	0.013	<0.010	<0.010	<0.010	0.011	0.047
Ra-226	pCi/L	20	1.18	1.35	1.89	1.37	1.32	1.39	1.62	1.02
Ra-228	"	20	1.34	<1.59	3.69	1.92	1.42	1.23	0.9	<1.14

[1]Illinois Administrative Code Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]Duplicate sample.

TABLE 8: UPPER TOLERANCE LIMITS FOR INORGANIC AND RADIOACTIVE PARAMETERS IN EACH MONITORING WELL AT THE McCOOK RESERVOIR SITE ESTABLISHED BY BACKGROUND MONITORING PRIOR TO OPERATION IN JANUARY 2018

Parameter	Units	G-01	G-02	G-03	G-04	G-05	G-06	G-07
Ag	mg/L	0.025	0.025	0.025	0.025	0.025	0.025	0.025
As	"	0.0018	0.025	0.0028	0.0035	0.0027	0.025	0.0086
B	"	0.598	0.51	1.09	2.5	2.5	7.1	0.59
Ba	"	0.048	0.092	0.15	0.095	0.053	0.058	0.09
Be	"	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Cd	"	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Co	"	0.035	0.0081	0.0032	0.035	0.035	0.035	0.0048
Cr	"	0.025	0.633	0.13	0.035	0.035	0.035	0.035
Cu	"	0.0044	0.015	0.0095	0.0031	0.0025	0.0062	0.0074
CN	"	0.1	0.1	0.1	0.1	0.1	0.1	0.1
F	"	0.05	0.05	0.33	0.4	0.35	0.37	0.05
Fe	"	4.92	10.5	4.48	1.37	0.95	1.43	2.44
Hg	"	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Mn	"	0.099	0.103	0.21	0.036	0.026	0.021	0.012
Ni	"	0.011	0.25	0.065	0.0092	0.0062	0.05	0.01
NO_3^--N	"	1.08	0.075	0.075	0.075	0.075	0.075	0.075
Pb	"	0.00375	0.00375	0.0056	0.0077	0.00375	0.00375	0.00375
Sb	"	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Se	"	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Tl	"	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Zn	"	0.01	0.01	0.01	0.057	0.1	0.069	0.01
Ra-226	pCi/L	2.78	2.33	2.58	1.89	1.6	2.24	3.75
Ra-228	"	3.19	1.51	4.12	3.08	1.65	1.89	4.64

TABLE 9: ANALYSIS OF ORGANIC PARAMETERS IN GROUNDWATER SAMPLED FROM EACH MONITORING WELL AT THE MCCOOK RESERVOIR SITE DURING THE FIRST LOW-STAGE SEMIANNUAL SAMPLING IN JUNE 2023

Parameter	Class I Standard[1]	Max RL[2]	G-01	G-02	G-03	G-04	G-05	G-05DUP[3]	G-06	G-07
	mg/L									
Herbicides										
2,4-D	0.07	0.0012	<0.0011	<0.0011	<0.0012	<0.0012	<0.0011	<0.0011	<0.0011	<0.0011
Silvex (2,4,5-TP)	0.05	0.0009	<0.00085	<0.00086	<0.00090	<0.00090	<0.00087	<0.00084	<0.00088	<0.00086
Atrazine	0.003	0.0017	<0.0017	<0.0016	<0.0017	<0.0016	<0.0016	<0.0017	<0.0016	<0.0016
Dalapon	0.2	0.0058	<0.0055	<0.0056	<0.0058	<0.0058	<0.0056	<0.0054	<0.0057	<0.0056
Simazine	0.004	0.0013	<0.0013	<0.0013	<0.0014	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013
PCBs, Total	0.0005	0.00035	<0.00033	<0.00033	<0.00035	<0.00034	<0.00033	<0.00033	<0.00032	<0.00032
Pesticides										
Alachlor	0.002	0.00035	<0.00033	<0.00033	<0.00035	<0.00034	<0.00033	<0.00033	<0.00032	<0.00032
Aldicarb	0.003	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Carbofuran	0.04	0.0009	<0.00090	<0.00090	<0.00090	<0.00090	<0.00090	<0.00090	<0.00090	<0.00090
Chlordane (technical)	0.002	0.000069	<0.000065	<0.000066	<0.000069	<0.000067	<0.000067	<0.000066	<0.000064	<0.000064
Endrin	0.002	0.000035	<0.000033	<0.000033	<0.000035	<0.000034	<0.000033	<0.000033	<0.000032	<0.000032
gamma-BHC (Lindane)	0.0002	0.000035	<0.000033	<0.000033	<0.000035	<0.000034	<0.000033	<0.000033	<0.000032	<0.000032
Heptachlor	0.0004	0.000035	<0.000033	<0.000033	<0.000035	<0.000034	<0.000033	<0.000033	<0.000032	<0.000032
Heptachlor epoxide	0.0002	0.000035	<0.000033	<0.000033	<0.000035	<0.000034	<0.000033	<0.000033	<0.000032	<0.000032
Methoxychlor	0.04	0.000069	<0.000065	<0.000066	<0.000069	<0.000067	<0.000067	<0.000066	<0.000064	<0.000064
Toxaphene	0.003	0.00035	<0.00033	<0.00033	<0.00035	<0.00034	<0.00033	<0.00033	<0.00032	<0.00032
Volatile Organic Compounds										
1,1,1-Trichloroethane	0.2	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane	0.005	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	0.007	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	0.005	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	0.005	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dibromo-3-Chloropropane	0.0002	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Ethylene Dibromide	0.00005	0.00001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzene	0.005	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050

TABLE 9 (Continued): ANALYSIS OF ORGANIC PARAMETERS IN GROUNDWATER SAMPLED FROM EACH MONITORING WELL AT THE MCCOOK RESERVOIR SITE DURING THE FIRST LOW-STAGE SEMIANNUAL SAMPLING IN JUNE 2023

Parameter	Class I Standard[1]	Max RL[2]	G-01	G-02	G-03	G-04	G-05	G-05DUP[3]	G-06	G-07
	mg/L									
Volatile Organic Compounds (Continued)										
Carbon tetrachloride	0.005	0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chlorobenzene	0.1	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethene	0.07	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0087	0.012
Ethylbenzene	0.7	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Methylene Chloride	0.005	0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Methyl tert-butyl ether	0.07	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Styrene	0.1	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Tetrachloroethene	0.005	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Toluene	1	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
trans-1,2-Dichloroethene	0.1	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Trichloroethene	0.005	0.0005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Vinyl chloride	0.002	0.001	<0.0010	<0.0010	<0.0010	<0.0010	**0.0026**	**0.0038**	**0.13**	**0.0044**
Xylenes, Total	10	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Semivolatile Organic Compounds										
1,2,4-Trichlorobenzene	0.07	0.00100	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichlorobenzene	0.6	0.00100	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,4-Dichlorobenzene	0.075	0.00100	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Benzo[a]pyrene	0.0002	0.00014	<0.00013	<0.00013	<0.00014	<0.00013	<0.00012	<0.00014	<0.00013	<0.00012
Bis(2-ethylhexyl)phthalate	0.006	0.0068	<0.0067	<0.0064	<0.0068	<0.0064	<0.0062	<0.0068	<0.0064	<0.0062
Hexachlorocyclopentadiene	0.05	0.014	<0.013	<0.013	<0.014	<0.013	<0.012	<0.014	<0.013	<0.012
Pentachlorophenol	0.001	0.00026	<0.00025	<0.00025	<0.00026	<0.00026	<0.00026	<0.00025	<0.00026	<0.00025
Phenolics, Total Recoverable	0.1	0.005	<0.0050	<0.0050	0.0072	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

[1]Illinois Administrative Code Title 35 Part 620.410 Class I Standards. Bold text indicates exceedance.
[2]Maximum Laboratory Reporting Limit for analyses of an analyte at all monitoring wells.
[3]Duplicate sample.

TABLE 10: UPPER TOLERANCE LIMITS FOR ORGANIC PARAMETERS IN EACH MONITORING WELL AT THE McCOOK RESERVOIR SITE ESTABLISHED BY BACKGROUND MONITORING PRIOR TO OPERATION IN JANUARY 2018

Parameter	G-01	G-02	G-03	G-04	G-05	G-06	G-07
	mg/L						
Herbicides							
2,4-D	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Silvex (2,4,5-TP)	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Atrazine	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Dalapon	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Simazine	0.001	0.001	0.001	0.001	0.001	0.001	0.001
PCBs, Total	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Pesticides							
Alachlor	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Aldicarb	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Carbofuran	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Chlordane (technical)	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Endrin	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
gamma-BHC (Lindane)	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Heptachlor	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025	0.00025
Heptachlor epoxide	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Methoxychlor	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Toxaphene	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Volatile Organic Compounds							
1,1,1-Trichloroethane	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
1,1,2-Trichloroethane	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
1,1-Dichloroethene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
1,2-Dichloroethane	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
1,2-Dichloropropane	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
1,2-Dibromo-3-Chloropropane	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001

TABLE 10 (Continued): UPPER TOLERANCE LIMITS FOR ORGANIC PARAMETERS IN EACH MONITORING WELL AT THE McCOOK RESERVOIR SITE ESTABLISHED BY BACKGROUND MONITORING PRIOR TO OPERATION IN JANUARY 2018

Parameter	G-01	G-02	G-03	G-04	G-05	G-06	G-07
	mg/L						
Volatile Organic Compounds (Continued)							
Ethylene Dibromide	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025
Benzene	0.0025	0.0025	0.0025	0.0025	0.0025	0.00057	0.0025
Carbon tetrachloride	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Chlorobenzene	0.001	0.001	0.001	0.001	0.001	0.001	0.001
cis-1,2-Dichloroethene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0130	0.0029
Ethylbenzene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Methylene Chloride	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Methyl tert-butyl ether	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Styrene	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Tetrachloroethene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Toluene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
trans-1,2-Dichloroethene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Trichloroethene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0011
Vinyl chloride	0.001	0.001	0.001	0.001	0.0052	0.203	0.001
Xylenes, Total	0.0025	0.0025	0.0025	0.0025	0.0022	0.0025	0.0025
Semivolatile Organic Compounds							
1,2,4-Trichlorobenzene	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025	0.000025
1,2-Dichlorobenzene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
1,4-Dichlorobenzene	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Benzo[a]pyrene	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Bis(2-ethylhexyl) phthalate	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Hexachlorocyclopentadiene	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
Pentachlorophenol	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Phenolics, Total	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025

REFERENCES

Illinois Administrative Code Title 35, § 620.410 Groundwater Quality Standards for Class I: Potable Resource Groundwater (Amended at 36 Ill. Reg. 15206, effective October 5, 2012).

United States Army Corps of Engineers (USACE). 2014. Chicago Underflow Plan McCook Reservoir Lyons Township, Illinois. Groundwater Monitoring and Analysis Plan. Amended July 2014. Approved by IEPA April 2015.