NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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July 10, 2024

Richard Watt
Ecology and Environment Engineering and Geology, P.C.
40 La Riviere Drive
Suite 320
Buffalo, New York 14202

Re: Site Characterization
Site Characterization Report
Hawkeye Trade Center and Residences
Site N^{o}: 828220
Rochester (C), Monroe (C)

Dear Mr. Watt:

The New York State Department of Environmental Conservation (Department) and New York State Department of Health (NYSDOH) has completed a review of your Site Characterization Report (SCR) submitted on June 10, 2022, and revised on March 25, 2024, for the Hawkeye Trade Center and Residences Site (Site) located at 1405–1447 St. Paul Street, Rochester, New York 14621. Based on the information presented in the revised March 2024 SCR, the SCR is conditionally approved based on the clarifications and modifications presented below.

1) Table 2: The Department understands that the soil cleanup objective (SCO) for Dibenzofuran is incorrect for the Commercial limit and the Protection of Groundwater limit. The correct SCO limit for Dibenzofuran is 350 parts per million (ppm) for Commercial use and 210 ppm for the Protection of Groundwater use. No soil samples exceeded the corrected SCO limits.

2) Table 2: The Department understands that the SCO for Cadmium is incorrect for the Protection of Groundwater limit. The correct SCO limit for Cadmium is 7.5 ppm for the Protection of Groundwater use. No soil samples exceeded the corrected SCO limit.

If you have any questions or concerns regarding this letter or need further assistance with the Site, please feel free to contact me at (585) 226-5349 or via email Joshua.Ramsey@dec.ny.gov.

Sincerely,

Joshua J. Ramsey
Project Manager

ec:
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Site Characterization Report
Hawkeye Trade Center and Residences
Rochester, New York
Site No. 828220

May 2023
Revised March 2024

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
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List of Abbreviations and Acronyms

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
AMSL	above mean sea level
ARAR	Applicable or Relevant and Appropriate Requirements
AST	aboveground storage tank
bgs	below ground surface
DCE	dichloroethene
DOE	United States Department of Energy
E & E	Ecology and Environment Engineering and Geology, P.C.
EPA	United States Environmental Protection Agency
LaBella	LaBella Associates, D.P.C.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS/MSD	matrix spike/matrix spike duplicate
ng/L	nanograms per liter
NYSDEC	New York State Department of Environmental Conservation
PAH	polynuclear aromatic hydrocarbon
PCBs	polychlorinated biphenyls
pCi/g	picoCuries per gram
pCi/L	picoCuries per liter
PFAS	per- and polyfluoroalkyl substances
PFOS	perfluorooctanesulfonic acid
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
RECs	recognized environmental conditions

List of Abbreviations and Acronyms (cont.)

SAP	Sampling and Analysis Plan
SCO	soil cleanup objective
SVOC	semivolatile organic compound
TAL	target analyte list
TCL	target compound list
TCE	trichloroethene
UST	underground storage tank
VISL	Vapor Intrusion Screening Level
VOC	volatile organic compound

1 Introduction

This Site Characterization report presents the results of activities conducted pursuant to Work Assignment D009807-19 by Ecology and Environment Engineering and Geology, P.C. (E & E) on behalf of the New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation, at the Hawkeye Trade Center and Residences (Site) to investigate potential impacts to environmental media. The scope of work, which was provided in the *Site Characterization Sampling and Analysis Plan* (SAP) (E & E 2021) was developed in response to the discovery of volatile organic compound (VOC) and metals-affected soil and groundwater at the Site during Phase II Site Assessments conducted by others in 2003 and 2017.

The primary elements of the site characterization work included:

- A camera inspection of accessible drains and piping leading to the former thorium settling pits and stormwater outfalls for potential leaks, breaks, or sediment source areas in the lines;
- Installation of soil borings and monitoring wells. Subsurface soil sampling was conducted to determine if contamination is present in soil;
- Sampling of new and existing monitoring wells to evaluate the extent of groundwater contamination at the site;
- Collection of a sediment sample from one manhole; and
- Collection of soil vapor samples near the north end of the property.

1.1 Site Location and Description

The Site is located at 1447 St. Paul Street in the city of Rochester, New York. The Site is comprised of eight buildings and two related parking lots located on 5 acres. Parking Lot No. 1 is in the southwest corner of the property west of Buildings 5 and 12A. Parking Lot No. 2 is in the northeastern quadrant of the property north of Building 11A (see Figure 1).

Other site features of note include four former thorium glass settling pits located in or near Buildings 5, 11, 12, and 12A, a former drywell of unknown purpose located west of Building 5 in Parking Lot No. 1, and the now-abandoned underground piping leading to these features. For the purposes of this report the former thorium settling pits have been numbered 1 through 4 (see Figure 1 and 1977 Underground Drainage Piping Map in Appendix A).

The Site is relatively flat and primarily developed by parking lots and buildings. Several small plant and grassy areas are located east of Building 6 and Parking Lot No. 2, and east and west of Building 5. The western edge of the property drops precipitously into the Genesee River gorge, along the edge of which lie several former stormwater outfalls and two of the four historical thorium settling pits.

1.2 Site History

Sanborn Fire Insurance Maps are provided in Appendix A. In 1892, a small part of the site was occupied by the Rochester Railway Company. By at least 1902, the site was occupied and operated by Kodak for the manufacture of glass lenses and optical equipment. Former buildings 1, 2, 3, 7, and 8 (demolished in 1999) occupied the location of Parking Lot No. 2 in the northern portion of the site and were operated by Rochester Photographic Products Company (also known as General Aristo Corporation in historical site documents). The southern portion of the site, in the area now occupied by Building 5, was historically occupied by a gasoline filling station and repair shops for the Rochester Transit Corporation and Rochester Railway Company.

Historical uses of the existing Site buildings are as follows:

- Building 4 – Multi-floor. Powerhouse
- Building 5 – Multi-floor. Offices, assembly (Floors 1 and 2), non-hazardous and hazardous waste storage (90-day; Floor 2), laboratory (Floor 7).
- Building 6 – Multi-floor. Offices.
- Building 10 – Multi-floor. Offices.
- Building 11 – Multi-floor. Offices.
- Building 11A – Single floor. Offices, paint booth, material storage and waste accumulation.
- Building 12 and 12A – Multi-floor. Offices, clean room, maintenance/fabrication shops, photo processing.

1.3 Previous Investigations

1.3.1 2003 Phase I

In 2003, Leader Professional Services conducted a Phase I Environmental Site Assessment of the Hawkeye Trade Center and satellite parking lots (Leader 2003). The following recognized environmental conditions (RECs) were identified:

Building 4 USTs

Three former 20,000-gallon underground storage tanks (USTs) were located at Building 4 for storage of fuel oil. Contaminated soil and groundwater were discovered during their removal in 1989. Aside from removal of affected media within the excavation, no further remediation was required by NYSDEC.

Potential Thorium Residue

Thorium was used in the glass manufacturing process at the Hawkeye facility between the 1930's and 1980's, where thorium-contaminated dust and waste made its way into building cavities, some sewer drain pipes, air ducts, and portions of Genesee River gorge via outfalls from three of four onsite settling pits.

Thorium use required a license from the Nuclear Regulatory Commission, which was managed by the New York State Department of Labor. Upon completion of thorium use at the facility, Kodak terminated the license and cleaned up radioactivity to regulated levels in Buildings 5, 11A, 12, 12A and the courtyard between Buildings 4 and 12A, according to a 1993 Radiological Decommissioning Report.

Thorium Glass Settling Pits

Four former thorium glass settling pits were located at the site, west of Building 5 (thorium settling pit No. 1), adjacent the southwest corner of Building 12 (thorium settling pit No. 2), near the southwest corner of Building 12A (thorium settling pit No. 3), and inside the northwest corner of Building 11A (thorium settling pit No. 4); see Figure 1. These pits were designed to remove glass particulates and abrasive out of the wastewater stream. The pits were cleaned and backfilled either prior to or during the 1993 radiological decommissioning activities.

Thorium in Genesee River Gorge

Former thorium settling pits along the west side of building 12 and 12A were located immediately above the gorge, and in 1992 an investigation was initiated to determine if any thorium-containing glass residue had migrated offsite. Cleanup was conducted in 1993 after contamination related to a historical release of thorium was identified on the eastern side of the Genesee River gorge below the site.

Polychlorinated Biphenyl Contamination in Gorge

In 1991 a potential release of polychlorinated biphenyls (PCBs) and Resource Conservation and Recovery Act (RCRA) metals was identified in a stormwater discharge pipe west of Building 12 and in soil and rock along the Genesee River gorge slope. The discharge pipe was cleaned in 1991 or 1992 and the soil was sampled around several catch basins. No source of the PCBs was identified.

Drywell

A former drywell of unknown purpose and construction is located west of Building 5. The Phase I report indicated that the piping leading to the drywell was abandoned in place; however, no documentation of these activities could be found. At the time of the Phase I investigation soil and groundwater surrounding this location was of unknown environmental quality.

Photo Processing Wastewater Release

In 1976 or 1977 a tank truck released photographic processing wastewater at the loading dock on the north side of Building 12. The spill entered the stormwater system that discharged into the Genesee River gorge west of Building 4. No cleanup activities were conducted.

Former Rochester Transit Corporation

The former Rochester Transit Corporation historically operated a repair shop in the current locations of Buildings 5 and 12A. Likewise, a former gas station,

Esso was in the current location of Building 5. At the time of the Phase I investigation, the environmental impacts of these historical operations were not known, and soil and groundwater conditions below these buildings have not been characterized.

Rochester Photographic Products Company

The Rochester Photographic Products Company (also known as the General Aristo Company historically occupied the location of Parking Lot No. 2. Buildings 1, 2, 3, 7, 8, 9, and 13, which once occupied this site, were demolished in 1999.

Other Spills, Permits, and Tanks

- In 1990, a spill of No. 6 fuel occurred in Building. 4. Contaminated soil and GW were removed, and spill file was closed in 1990.
- In 1996, a diesel spill was released by a privately-owned vehicle. The file was closed the same day.
- In 2000 an asbestos release occurred during building demolition. The file was closed 5 days after reporting.
- Kodak maintained Chemical Bulk Storage registration for five 475-gallon sodium hydroxide aboveground storage tanks (ASTs) located in Building 12 and used for water treatment.
- Kodak maintained a Petroleum Bulk Storage registration for a 33,000-gallon AST situated within a below-grade lined concrete vault for No. 5 or No. 6 fuel oil storage adjacent to Building 4. Leak monitoring reportedly occurred during tank use.

1.3.2 2005 Phase II – Leader

In 2004 Leader conducted a Phase II investigation (report issued 2005) to evaluate the following RECs (as reported in LaBella Associate's 2017 Phase II Site Assessment report):

- Building 4 former USTs;
- Thorium settling pits;
- Drywell;
- Release of photo-processing wastewater north of Building 12;
- Downgradient of Building 12 photo processing operations; and
- Area used for manufacturing at General Aristo Co. (Former Buildings 1, 2, 3, 7, 9, and 13).

Ten soil borings and seven bedrock/overburden interface monitoring wells were installed during the investigation (see Figure 1). Soil samples were collected for analysis of VOCs (site wide), semivolatile organic compounds (SVOCs) (site-wide), target analyte list (TAL) metals (site wide), and thorium (west of Building 12A, east of Building 5, southwest of Building 5). Select locations north and west of Building 12 were analyzed for general soil chemistry (i.e., pH, cyanide, nitrate,

sulfate). Groundwater samples were collected for the analysis of VOCs, SVOCs, metals (site wide), and thorium settling pits).

Findings of the 2004 Phase II included:

- Petroleum exceeded applicable NYSDEC groundwater quality standards in groundwater at the former UST area north of Building 4.
- Low-levels of trichloroethene (TCE) and 1,2-dichlorethene (DCE) were detected in site-wide soil and groundwater at the Site. Groundwater near Buildings 5, 11, and 12 exceeded applicable NYSDEC standards. The highest concentration of TCE detected in groundwater was 28 micrograms per liter (µg/L) in the sample collected from monitoring well IB12SW west of Building 12.
- Elevated nickel concentrations were detected in Parking Lot No. 2. Fill material was observed in several soil borings in Parking Lot No. 2.
- The ranges in thorium isotopes detected in soil and groundwater were determined not to be significant between upgradient and potential source areas.

1.3.3 2017 Phase II

In 2017 Labella Associates, P.C. conducted a Phase II investigation (LaBella 2017) focused on the following areas of the site:

- Further evaluation of the extent of petroleum impacted soil and groundwater north of Building 4.
- Evaluate potential presence of PCBs in soil and GW at the site west of Building 12 (i.e., 1991 PCB release identification).
- Further evaluate thorium in soil and groundwater.
- Further evaluate VOCs in soil and groundwater.
- Small building labeled “kerosene” storage on Sanborn map south of Building 10.
- Presence of cyanide in groundwater due to detection of cyanide in soil during the 2004 Leader Phase II.
- Further evaluate Parking Lot No. 2 urban fill.
- Evaluate the potential for soil vapor intrusion.

Thirteen soil borings (SB-10 through SB-18, and SB-28 through SB-31) were installed across the site, advanced from ground surface to bedrock (see Figure 1). Two of the borings (SB-12 and SB-28) were not sampled. From the remaining eleven borings, soil samples were collected for analysis of United States Environmental Protection Agency (EPA) Target Compound List (TCL) VOCs (five samples), TAL metals (six samples), PCBs (three samples), and thorium (two samples).

Five of the soil borings were converted to monitoring wells, but only two wells had sufficient water for sampling (i.e., MW-12 located west of Building 4 and

MW-07 in Lot No. 2). Additionally, the monitoring wells installed by Leader in 2004 were sampled.

The following affected site media were identified during the 2017 Phase II investigation:

- Trace concentrations of TCE were detected below the NYSDEC Unrestricted Use Soil Cleanup Objective (SCO) (6 NYCRR Part 375-6.8), in soil at concentrations ranging from 1.2 to 43.6 micrograms per kilogram (µg/kg) in SB-11 west of Building 12A, SB-14 and SB-18 in Parking Lot No. 2, and SB-29 between Buildings 5 and 10.
- Metals were detected above the Unrestricted Use SCOs in the urban soil underlying Parking Lot No. 2. Silver was detected slightly above the SCO in the sample collected from SB-18 at 0.4 to 1.7 feet below ground surface (bgs). Silver and mercury were detected above the Unrestricted Use SCOs in the sample collected from SB-15 at 5 to 6 feet bgs. Copper, nickel, and mercury were detected above the Unrestricted Use SCOs in the sample collected from boring SB-16, also located in Lot No. 2.
- A trace concentration of Aroclor-1242 was detected in the sample collected from SB-29, located between Buildings 5 and 10.
- Concentrations of thorium isotopes were detected in samples collected from SB-29 and SB-31 but at concentrations below selected evaluation criteria.
- Four wells (MW-5, MW-6, MW-13, and SB4NE) were dry.
- TCE was detected in four of the monitoring wells above the evaluation criteria (i.e., IB11AW, IL2NE, MW-07, and MW-12). TCE was not detected in the 2017 sample collected at IB12SW, where the previous sampling in 2004 had the highest concentration at the site.

1.4 Site Geology and Hydrogeology

Historical investigations (Leader 2003; LaBella 2017) indicate soil overburden at the site consists of silty sand and gravel with silt and clay at depth (possible till). The overburden in the northern portion of the Site includes urban fill to a depth of approximately 1 to 2 feet bgs comprised of wood, glass, and brick fragments (LaBella 2017). Historical soil borings indicate that the thickness of the overburden at the Site generally ranges from of 4 to 12 feet with the shallowest refusal depths in the northwest portion of site under Parking Lot 2. Greater refusal depths were encountered along the west side of site just above the Genesee River gorge, and two borings were advanced to greater than 20 feet bgs east of Buildings 5 and 6 along St. Paul Street (LaBella 2017). The upper bedrock is shale of Silurian age.

As identified during this site characterization, groundwater flow in the overburden at the site is to the northwest (see Figure 2). Groundwater contours were generated using Golden Software's Surfer application using a minimum curvature gridding algorithm and based on depth-to-water measurements obtained from monitoring wells installed as part of this site characterization and other appropriate existing wells.

Depth to water measurements in overburden monitoring wells collected in October 2021 ranged from 1.47 feet bgs in MW-04, located in Parking Lot No. 5 south of the Site, to 12.08 feet bgs in MW-06, located in the northwest quadrant of the site west of Building 12 (see Figure 2 and Table 1). The field measurements correspond to groundwater elevations ranging from 441.58 feet above mean sea level (AMSL) in SB4NE located in the northwest corner of the site to 464.11 feet AMSL in MW-11, located southeast of the site in Parking Lot No. 11.

Several bedrock interface wells are also located at the site. These wells were installed during 2004 Phase II investigation. The depth to groundwater in the interface wells is generally deeper than in the overburden wells, ranging from 8.1 feet bgs in IB11AW, located adjacent Building 11, to 17.61 feet bgs in IB5NE, located on the eastern property line (see Figure 3 and Table 1). The water levels correspond to groundwater elevations ranging between 444.14 feet AMSL at IB12SW to 449.76 feet AMSL at IB59E. These elevations indicate a similar west-northwest groundwater flow direction at the bedrock interface as compared to the overburden well network, although the flow direction is slightly more westerly (see Figure 3).

Interface wells and overburden wells near each other indicate that a downward vertical gradient exists between the overburden and bedrock. Seven overburden monitoring wells are located within the areal distribution of interface wells at the site (i.e., MW-07, MW-12, MW-15, MW-18, MW-19, MW-22, and MW-23). The average groundwater elevation in these wells is approximately 1 foot higher than the average groundwater elevation in all interface wells (i.e., IL2NE, IB5NE, IB5SW, IB5SW2, IB6NE, IB11AW IB12SW).

2 Site Characterization Activities

Site characterization activities were primarily performed in October 2021 in accordance with the SAP (E & E 2021). In August 2022, based on comments on the draft Site Characterization report by the New York State Department of Health, the NYSDEC requested additional sampling of soil vapor to evaluate the vadose zone north of the facility. This follow-up sampling was completed on November 8, 2022. The primary scope of work included sampling and analysis of soil and groundwater for VOCs, SVOCs, PCBs, and metals, and soil vapor for VOCs. One soil sample and one groundwater sample were also analyzed for the emerging contaminants per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. LaBella provided drilling, monitoring well, and vapor point installation services as a subcontractor to E & E.

A New York State-licensed land surveyor (Popli Design Group) was subcontracted to perform site surveying activities. Following completion of monitoring well installation and sampling activities, the survey crew collected locations and elevations. In addition, they surveyed the locations of site buildings and other important site features to aid in preparation of a site base map. All locations were surveyed to a horizontal accuracy of 0.1 foot. Elevations were surveyed to a vertical accuracy of 0.01 foot.

New York Leak Detection provided a video survey of several sewer pipes suspected to lead to two of the four former thorium settling pits, and one of the former stormwater outfalls. No leaks or potential sources of subsurface contamination such as line breaks, nor contaminated sediment were identified (see further discussion in Section 3).

Laboratory analytical services for analysis of the soil and groundwater samples in 2021 were provided by Eurofins Environment Testing America under NYSDEC Callout ID 140402. Chemical testing was performed at Eurofins TestAmerica Buffalo (Amherst, NY) and thorium testing was performed at Eurofins TestAmerica St. Louis (St. Louis, MO).

Laboratory analytical services for analysis of the soil vapor samples were provided by Con-Test Analytical Laboratory (operated by Pace Analytical), located in East Longmeadow, MA, under NYSDEC Callout ID 144515.

2.1 Background Radiation Measurements

Background radiation readings were collected at the site at the beginning of each workday, and intermittently throughout the day using a Ludlum Model 2241-2RK

Digital Scaler-Ratemeter equipped with a Model 44-9 "pancake"-style alpha-beta-gamma detector. Background activity at the site ranged between approximately 20 to 80 counts per minute throughout the duration of site work.

2.2 Soil Sampling Procedures and Analyses

Between October 4 and 7, 2021, a total of 20 soil borings, designated SB01 through SB20, were installed using a track-mounted direct push (i.e., Geoprobe) drill rig at the outdoor locations, and a portable dolly-type Geoprobe rig for the indoor locations. Continuous macro-core sampling was conducted from ground surface to the refusal depth (presumed to be at the top of bedrock) at each location. All soil cores were logged in the field for soil type, color, and moisture content and screened for organic vapors with a photoionization detector (PID) and total gamma radiation using a digital ratemeter. Soil boring logs are provided in Appendix B.

One or two depth intervals were sampled at each soil boring location. A shallow soil sample was collected from a depth interval based on potential signs of contamination (PID/gamma readings), staining, or odors, and a second sample was collected from the 2-foot interval above the water table (or above bedrock if groundwater was not encountered). Boring SB12 was not sampled based on its proximity to a prior soil boring (i.e., SB-29 installed during the 2017 Phase II investigation) and only background readings on the PID and ratemeter were obtained.

Analytical parameters for soil sampling included:

- TCL VOCs by EPA SW-846 Method 8260C;
- SVOCs by EPA SW-846 Method 8270D;
- 1,4-Dioxane by EPA SW-846 Method 8270D-SIM;
- PCBs by EPA SW-846 Method 8082A;
- PFAS by EPA Method E537M;
- TAL metals by EPA SW-846 Methods 6010C/7470A; and
- Isotopic thorium by U.S. Department of Energy (DOE) Method A-01-R.

Figure 1 shows the soil boring locations, which are described below:

- SB01 located adjacent to the former dry well west of Building 5;
- SB02 adjacent to the former thorium settling pit No. 2 west of Building 12A;
- SB03, west of Building 12A;
- Three soil borings, designated SB04 through SB06, surrounding 2017 soil boring/monitoring well SB-16/MW-7 to further characterize metals-affected soil around this boring;
- Soil boring SB07 at the northern property boundary north of Lot No. 2 (near the northern property line);

- Soil boring SB08 east of Building 5 to characterize general background conditions at the site;
- Soil boring SB09 adjacent to thorium settling pit No. 1 located west of Building 5;
- SB10 and SB11 inside Building 5;
- SB12 in the courtyard south of Building 10;
- Three soil borings, designated SB13 through SB15, surrounding 2017 soil boring SB-18 where metals were detected above Unrestricted Use SCOs;
- SB16 located inside Building 12; and
- Three soil borings, designated SB18 through SB20, adjacent to 2004 well location SB4NE where petroleum exceeded NYSDEC groundwater quality standards in groundwater at the former UST area north of Building 4.

Deviations from the proposed scope in the SAP include:

- The borings proposed inside Building 4 could not be installed due to inaccessibility caused by a low-ceiling basement and the presence of power generating equipment;
- The proposed soil boring in Building 10 (SB12) was moved south into the courtyard north of Building 5 due to an unsafe working environment;
- The boring proposed inside Building 12A was shifted to the west and consolidated into one location (SB03) due to inaccessible office space; and
- The borings proposed around SB4NE were shifted to the north of the facility fence due to insufficient clearance and potential utility conflicts within the fenced area of the site.

2.3 Monitoring Well Installation

Eleven new monitoring wells, designated MW-14 through MW-24, were installed at a subset of the soil boring locations. Each well was constructed with a 5-foot-long, 1-inch-diameter, polyvinyl chloride (PVC) screen. Screens were set on top of bedrock (i.e., the refusal depth of the soil borings) and completed with 1-inch PVC risers. A filter sand pack was emplaced in the annulus around each screened interval to a depth of 1 foot above the top of the screen. The remainder of the annulus was backfilled with granular bentonite and the well constructions were completed with 4-inch diameter polycarbonate traffic-rated flush-mount curb-boxes. Well completion diagrams are shown the boring logs provided in Appendix B.

Figure 1 shows the monitoring well locations, which are described below:

- MW-14 and MW-15 were installed west of Building 12A, with MW-14 adjacent to thorium settling pit No. 2, in soil borings SB02 and SB03 respectively;
- MW-16 was installed in soil boring SB07 at the north end of parking lot No. 2 (near the north property boundary);

- MW-17 was installed in soil boring SB08 east of Building 5;
- MW-18 was installed in soil boring SB10 inside Building 5;
- MW-19 was installed in the courtyard north of Building 5 in soil boring SB12;
- MW-20 and MW-21 were installed in soil borings SB13 and SB15 near the northeast corner of Building 12;
- MW-22 was installed in soil boring SB16 inside Building 12;
- MW-23 was installed inside Building 11A in boring SB17; and
- MW-24 was installed in boring SB18 north of Building 4.

Deviations from the proposed scope in the SAP include:

- No monitoring well was installed in soil boring SB11 in the southern half of Building 5 due to shallow refusal depth and absence of groundwater;
- No monitoring well was installed in the soil boring adjacent to the former dry well as one already exists (IB5SW2);
- SB02/MW-14 served a dual purpose, both to replace the inaccessible boring location inside building 12A and to investigate thorium pit No. 2 which was located closer to Building 12A than historical maps indicated. Consequently, this monitoring well replaces two proposed locations;
- An additional monitoring well was installed in soil boring SB15, a location where no wells were originally proposed, based on high PID readings near the water table;
- A well was installed in background soil boring SB08 because historical monitoring well MW-13 could not be located; and
- No well was installed in Building 4 due to inaccessibility.

2.3.1 Monitoring Well Development

All new monitoring wells were developed no sooner than 24 hours after completion of well construction. The wells were developed using a bailer and/or peristaltic pump due to low yields. Development continued until water quality parameters (pH, temperature, conductivity, and turbidity) stabilized and turbidity was less than 50 nephelometric turbidity units, except in circumstances where the well went completely dry during multiple purge cycles.

2.4 Groundwater Sampling Procedures and Analyses

One round of static groundwater level measurements was collected from all new and existing monitoring wells at the site plus existing off-site wells MW-04 and MW-11 on October 25, 2021, prior to groundwater sampling (see Table 1). Groundwater levels were measured with an electronic water-level indicator graduated to 0.01 foot.

A total of 21 monitoring wells were sampled between October 25 and 29, 2021. Nine of the 11 new wells (MW-14 through MW-24) were successfully sampled.

MW-22 and MW-24 were dry and could not be sampled. Twelve historical monitoring wells (IB11AW, IB12SW, IB5NE, IB5SW, IB5SW2, IB6NE, IL2NE, SB4NE, MW-05, MW-06, MW-07, and MW-12) were also sampled. Monitoring well MW-13 could not be located.

Groundwater sampling was performed using EPA low-flow purging and sampling techniques with a bladder pump equipped with dedicated polyethylene bladders and tubing for 2-inch-diameter bedrock interface wells (IB11AW, IB12SW, IB5NE, IB5SW, IB5SW2, IB6NE, and IL2NE).

All 1-inch-diameter overburden monitoring wells were purged using a peristaltic pump due to low yields and the small diameter of the wells, except in the case of SB4NE, which is a 2-inch-diameter well, but had a low yield and purged dry. The overburden wells were sampled by purging three static well volumes or until the well went dry.

Upon stabilization of parameters or sufficient recharge, groundwater samples were collected and submitted to the laboratory for analysis of VOCs at all of the wells, and SVOCs, PCBs, and metals at all wells where sufficient volume was present (i.e., all except MW-05, MW-14, MW-15, MW-17, MW-18 and, in the case of PCBs and metals, SB4NE). Additionally, one sample for analysis of 1,4-dioxane and PFAS was collected from IB5SW2. Four of the wells (i.e., IB5SW, MW-06, MW-12, and MW-23) were sampled and analyzed for thorium isotopes. The samples were analyzed using the same analytical methods as the soil samples.

Groundwater sampling logs are provided in Appendix C.

Analytical parameters for groundwater sampling included:

- TCL VOCs by EPA SW-846 Method 8260C;
- SVOCs by EPA SW-846 Method 8270D;
- 1,4-Dioxane by EPA SW-846 Method 8270D-SIM;
- PCBs by EPA SW-846 Method 8082A;
- PFAS by EPA Method E537M;
- TAL metals by EPA SW-846 Methods 6010C/7470A; and
- Isotopic thorium by DOE Method A-01-R.

2.5 Soil Vapor Sampling

On November 8, 2022, E & E collected soil vapor samples to evaluate VOC vapors in the vadose zone north of the facility. Soil vapor probes SV-1 through SV-4 were installed using a direct push drill rig equipped with a blind-point rod that was driven to 5 feet bgs (see Figure 1). Upon reaching total depth, a stainless-steel vapor point screen connected to approximately 7 feet of low-density polyethylene tubing was lowered through the rods and threaded into the expendable point. The rods were then retracted, exposing the screen to the surrounding formation. A vapor well was constructed by backfilling the annulus around the

vapor screen to approximately 6 inches above the top of the screen with clean filter sand. An annular seal was constructed by emplacing granular bentonite from the top of the sand filter pack to the ground surface and hydrating with potable water.

To verify the integrity of the bentonite seals, E & E performed helium tracer gas tests at each sample location. Before each helium test, approximately two well volumes of air were purged from each vapor point to ensure that the soil vapor sample was representative of the vadose zone. After the well was purged an enclosure was placed over the sample probe. The tubing from the probe was passed through the enclosure and was connected to a hand-held helium detector. A foam gasket seal was employed around the edges of the enclosure and a charge of helium was delivered into the enclosure while the helium detector was running. The air within the vapor well was monitored for at least 5 minutes. No helium was detected in any of the soil vapor points during tracer gas testing.

Once the helium tracer gas test was completed, a constant-rate flow regulator and a 6-liter Summa canister were connected to the tubing for sample collection. The flow regulators were pre-set by the laboratory to collect the samples over a 1-hour period.

At the completion of the sampling activities, the soil vapor probes were removed and the borings were capped with material to match the surrounding grade. The samples were shipped via ground courier to the analytical laboratory for analysis of VOCs by EPA Method TO-15.

2.6 Sewer Line Camera Survey

On September 29, 2021, E & E investigated several manholes and attempted to trace storm sewer lines in the vicinity of former stormwater outfalls and the thorium settling pits. Where accessible, a camera was run into identified pipes to observe conditions and identify line breaks or sediment.

2.7 Decontamination Procedures

The following procedures were used for all non-dedicated equipment and tools including downhole equipment such as macro-core cutting shoes:

- Initially remove all foreign matter;
- Scrub with brushes in a laboratory-grade detergent solution;
- Rinse with potable water;
- Rinse with a 5-10% nitric acid solution (when sampling for metals); and
- Rinse with distilled water.

2.8 Quality Assurance/Quality Control

Quality assurance/quality control procedures were performed in accordance with E & E's 2020 *Master Quality Assurance Project Plan for New York State Department of Environmental Conservation Projects,* Contract No. D009807 (E & E 2020). Specific quality assurance/quality control activities included:

- Collection of field duplicates at a rate of 1 per 20 samples per matrix.
- Collection of additional volume for matrix spike/matrix spike duplicate (MS/MSD) analysis at a rate of 1 per 20 samples per matrix (except for soil vapor).
- Collection of at least one equipment rinsate blank daily from non-dedicated sampling equipment using laboratory-supplied analyte free water. One sample per matrix per day was collected for all analyses performed on that matrix. Additional rinsate blanks were collected for PFAS analysis.
- Documentation of all data and observations on field data sheets and/or in the field logbooks.
- Operation and calibration of all field instruments in accordance with operating instructions as supplied by the manufacturer.

Laboratory deliverables were reviewed in accordance with NYSDEC's general reporting requirements. The data were qualified following guidelines in EPA Region 2's data validation standard operating procedures and DOE laboratory procedures (see references in Section 5). The data review included an evaluation of the following:

- Sample preservation,
- Holding times,
- Reporting limits,
- Laboratory blanks,
- MS/MSD samples,
- Laboratory control samples,
- Field duplicates,
- Sample result verification, and
- Method-specific quality control samples.

Laboratory reports were provided as NYSDEC DER-10 Category B deliverables (see Appendix D).

Details of the data review are provided in the data usability summary reports provided in Appendix E. In general, there were several low-level detections of thorium, methylene chloride, and metals (mostly aluminum, copper, manganese, and zinc) that were rejected or qualified as not detected at an elevated detection limit due to detections in method and/or field blanks. Results for several metals and VOCs in soil were also qualified as estimated due to matrix interference. However, there were no significant impacts affecting the overall usability of the data (see Appendix E).

3 Results

3.1 Site Lithology

Site overburden consisted of a variety of silts, sandy silts, sand, and gravel, with generally poor cohesion. In the northern portion of the site, this unit is overlain by several feet of urban fill that includes sand, gravel, and brick fragments. These units are generally dry except in the bottom several feet of the boreholes. This entire sequence of unconsolidated sediments is underlain by a discontinuous layer of very dense or hard gravelly silt and silty gravel that is interpreted to be glacial till. The underlying bedrock, where recovered in soil cores, is weathered shale. The depth to bedrock ranges from 5 feet bgs at SB11 in Building 5 to a maximum of 15 feet bgs at SB08/MW-17 located in the southeast corner of the site (see Figure 1). Refusal depths in most of the soil borings ranged between 9 and 11 feet. Boring logs are provided in Appendix B.

Headspace screening of the soil cores for organic vapors was conducted in 2-foot increments using a PID. Organic vapor readings generally ranged within background at the site (i.e., 0 to less than 5 parts per million [ppm]), except in the 8- to 10-foot interval at SB-14, where headspace analysis indicated organic vapors at a concentration of 40 ppm. It was for this reason that this soil boring was converted to a monitoring well.

Alpha-beta-gamma activity was logged along the length of each soil core using the ratemeter. Values were reported in the boring logs as a range observed during logging. The activity rates did not exceed background values at the site. In particular, there was no evidence of radioactivity above background in soil adjacent to the former thorium settling pits.

3.2 Sewer Line Survey Results

A combined stormwater and sanitary sewer manhole was identified along the fence at the southern property line along Avenue E near the southwest corner of Building 5 (see Figure 1). The location of this manhole was not surveyed, but its general location lies approximately 40 feet east of the electrical access manhole depicted on Figure 1. It was suspected that this manhole led back to thorium settling pit No. 1, but a camera could not be advanced due to the depth of the manhole (approximately 10 feet). No sediment was present in the manhole.

A sanitary sewer cleanout was identified adjacent to thorium settling pit No. 1. A camera was inserted into the line that was determined to run beneath, but was not connected to, the former pit. No breaks or sediment were observed in this line.

One sewer manhole was identified west of Building 12A. A clay-tile pipe running east-west perpendicular to the western building wall from beneath the building was observed with no sediment present. An attempt to trace this line using a camera to an outfall was not successful, though the line was inspected and found to be lined with intact PVC. The pipe connects to a north-south running PVC sewer line with no manhole access. Any lines that once led to outfalls above the Genesee River Gorge or to thorium settling pits Nos. 2 and 3 are no longer in service, are inaccessible, or are now served by the north-south running pipe that presumably ties into the Monroe County stormwater sewer system.

An attempt was made to access storm sewer lines in Building 11A, where former thorium settling pit No. 4 was located. No lines could be accessed, and the footprint of the former pit could not be identified.

One sediment sample, designated EMH1-SED, was collected from an electrical manhole west of Building 12A (see Figure 1). This location was selected based on its position between thorium settling pit Nos. 2 and 3 and the fact that there was sediment available to sample.

3.3 Analytical Results

Tables 2 through 6 present the analytical results of soil, sediment, groundwater, and soil vapor sampling at the site. Contaminant concentrations in soil were compared to the Commercial and Protection of Groundwater SCOs from 6 NYCRR Part 375. The groundwater analytical results were compared to the NYSDEC Standards and Guidance values provided in the *Technical and Operational Guidance Series (TOGS) Memorandum #1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*, 1998 (with updates), for class GA groundwater (NYSDEC 1988). PFAS and 1,4-dioxane in groundwater were compared to NYSDEC's updated guidance values provided in the most recent addendum to this document (*https://www.dec.ny.gov/chemical/122803.html*). Final laboratory reports are provided in Appendix D.

3.3.1 Soil Results

A total of 22 soil samples were collected from 18 soil borings (see Table 2). A total of 15 VOCs were detected in one or more samples, mostly at relatively low concentrations. None of the VOC concentrations exceeded the Commercial SCOs in any of the soil samples. The highest concentration of VOCs wase detected in the soil sample collected from the 3-to 5-foot interval in SB-15. TCE was detected at a concentration of 11 milligrams per kilogram (mg/kg) in this sample, which is below the Commercial SCO of 200 mg/kg but exceeds the Protection of Groundwater SCO of 0.47 mg/kg. This result may indicate the presence of contaminated source material in the area. SB-15 is located near the northeast corner of Building 12, where the highest concentration of VOCs in groundwater was also detected (see further discussion below).

A total of 19 SVOCs, all polynuclear aromatic hydrocarbons (PAHs) and phthalates, were detected in one or more soil samples collected at the site. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene all exceeded the either the Commercial SCOs or the Protection of Groundwater SCOs

in multiple samples. Additionally, dibenz(a,h)anthracene exceeded the Protection of Groundwater SCO in one sample collected from the 0-2 foot interval is SB-06.

Benzo(a)pyrene exceeded the Commercial SCO of 1.0 mg/kg in three samples collected from the 0- to 2-foot interval at SB04, SB06, and SB07, ranging in concentration from 1.1 mg/kg to 2.9 mg/kg (see Table 2). Dibenz(a,h)anthracene (0.62 mg/kg) also exceeded the Commercial SCO of 0.56 mg/kg in the 0- to 2-foot sample interval at SB06 with an estimated concentration of 0.62 mg/kg. These three samples were collected from within the urban fill beneath Parking Lot No. 2.

Benzo(a)anthracene exceeded the Protection of Groundwater SCO of 1.0 mg/kg in four samples collected from the 0- to 2-foot interval at SB04, SB06, and SB07 and the 2- to 4-foot interval at SB13, ranging in concentration from 1.2 µg/kg to 3.4 mg/kg (see Table 2). Chrysene also exceeded the Protection of Groundwater SCO of 1.0 mg/kg in these four samples, ranging in concentration from 1.2 mg/kg to 3.7 mg/kg. Benzo(b)fluoranthene exceeded the Protection of Groundwater SCO of 1.7 mg/kg in three samples collected from the 0- to 2-foot interval at SB04, SB06, and SB07, ranging in concentration from 1.8 mg/kg to 4.4 mg/kg.

No PCBs were detected at concentrations exceeding the current Commercial or Protection of Groundwater SCOs in any of the samples. PCBs were present in only two samples (SB06 in the 0- to 2-foot interval and SB13 in the 2- to 4-foot interval) at a maximum concentration of 0.78 mg/kg.

Selenium and silver exceeded the Protection of Groundwater SCOs in one or more samples. The concentration of selenium (11.3 mg/kg) in the sample collected from the 5- to 7-foot interval in SB-03 exceeded the Protection of Groundwater SCO of 4 mg/kg. Silver exceeded the Protection of Groundwater SCO of 8.3 mg/kg in four soil samples as follows:

- 16.4 mg/kg in the sample the sample collected from the 0- to 2-foot interval in SB04;
- 21.5 mg/kg in the sample the sample collected from the 0- to 2-foot interval in SB06;
- 22.7 mg/kg in the sample collected from the 2- to 4-foot interval in SB13; and
- 8.6 mg/kg in the sample collected from the 3- to 5- foot interval in SB15.

Mercury was detected in most of the soil samples but all at concentrations below the Commercial and Protection of Groundwater SCOs. The maximum concentration of 1.2 mg/kg was detected in the sample collected at the 2- to 4-foot interval of SB-13, located northeast of Building 12. Although this concentration does not exceed the SCOs, it is worth noting that this is the same location where the maximum concentration of PCBs was detected.

No PFAS compounds were detected in the one analytical sample tested for these compounds at SB16.

Thorium sampling results indicate activities of thorium radioisotopes that range between approximately 0.1 and 0.8 picoCuries per gram (pCi/g) for Th-232, Th-

228, and Th-230 (see Table 3). These activity levels are within the same order of magnitude observed in the background sample collected from SB08, which is located upgradient of Building 5. These activity levels are also below the Soil Cleanup Criterion in Subpart B of 40 CFR Part 192.12 for radium-226 of 5 pCi/g for surface (i.e., top 6 inches of soil column) and 15 pCi/g for subsurface soil as discussed in an EPA memorandum entitled *Use of Soil Cleanup Criteria in 40 CRF Part 192 as Remediation Goals for CERCLA sites* (EPA 1998). Since thorium decays to radium-226, a gamma emitter, Part 192 regulations have been used as Applicable or Relevant and Appropriate Requirements (ARARs) at Superfund sites for thorium-contaminated soil.

3.3.2 Sediment Sample Results

One sediment sample, designated EMH1-SED, was collected from an electrical manhole west of Building 12A (see Figure 2). This location was selected based on its position between thorium settling pit Nos. 1 and 2 and the fact that there was sediment available to sample. The sample was analyzed for VOCs, PCBs, metals, and thorium with none of the results exceeding the current or proposed Commercial SCOs, background soil concentrations for thorium, nor the ARARs (see Tables 2 and 3). SCOs were used to screen this sample because the sediment was collected from a manhole and does not represent ecological sediment conditions.

3.3.3 Groundwater Results

A total of 21 new and existing monitoring wells were sampled for analysis of VOCs (see Table 4). Where volume was sufficient, samples were collected and analyzed for SVOCs, PCBs, and metals. In total, 16 wells were sampled for SVOCs, 15 wells were sampled for PCBs and metals, and one sample was collected for analysis of 1,4-dioxane and PFAS from well IB5SW2.

Ten VOCs were detected in one or more of the groundwater samples. Two compounds (TCE and cis-1,2-DCE) were detected at concentrations exceeding the Class GA groundwater standard of 5 µg/L. There were TCE exceedances in seven wells at concentrations ranging from 5.7 µg/L at IL2NE (located in the northeast corner of the property) to 130 µg/L at MW-21 (located on the east side of Building 12); see Table 4.

Twenty metals were detected in at least one groundwater sample collected at the Site. Of these, 11 exceeded the Class GA standards or guidance values in one or more samples, including:

- Arsenic – 27 to 120 µg/L;
- Beryllium – 4.8 µg/L;
- Chromium, total – 99 to 140 µg/L;
- Copper – 260 to 270 µg/L;
- Iron – 420 to 146,000 µg/L;
- Lead – 27 to 260 µg/L;
- Magnesium – 67,100 to 120,000 µg/L;

- Manganese – 400 to 3,300 µg/L;
- Mercury – 0.78 to 1.9 µg/L;
- Nickel – 110 to 230 µg/L; and
- Sodium – 25,100 to 967,000 µg/L

Four of these metals are RCRA metals (i.e., arsenic, chromium, lead, and mercury). The highest concentrations of RCRA metals exceedances and the most prevalent number of TAL metals exceedances are in samples collected from wells MW-07, MW-16, and MW-20, all three of which are located in the Parking Lot No. 2 in the northern portion of the site, where urban fill is present.

Only one SVOC, di-n-butyl-phthalate, was detected in groundwater at the site, at a trace concentration of 0.32 µg/L (estimated) in the sample collected from MW-23, located in Building 11A. No PCBs were detected in groundwater at the site.

1,4-Dioxane was not detected in the sample collected at IB5SW2, located near the southwest corner of Building 5. However, 10 PFAS compounds were detected in the groundwater sample collected at this location, including an exceedance for perfluorooctanesulfonic acid (PFOS) at a concentration of 4 nanograms per liter (ng/L). PFOS has a guidance value of 2.7 ng/L.

Trace activities of Th-232 and Th-228 were detected at two monitoring well locations (IB6NE and IB11AW); see Table 5. These activity levels ranged from 0.0909 to 0.315 picoCuries per liter (pCi/L). EPA's Maximum Contaminant Level for alpha particle activity in groundwater is 15 pCi/L. Thorium isotopes, where are alpha emitters, were all detected well below this level.

3.3.4 Soil Vapor Results

In total, 22 VOCs were detected in one or more of the four soil vapor samples (see Table 6). The highest concentrations of VOCs were detected in the samples collected at SV-02 and SV-03 (see Figure 1). The highest concentrations of individual compounds were benzene (1.0 to 56 micrograms per cubic meter [µg/m^3]), cyclohexane (1.8 to 59 µg/m^3), heptane (4.4 to 110 µg/m^3), hexane (110 to 180 µg/m^3), propene (44 µg/m^3 in the duplicate sample), toluene (5.4 to 59 µg/m^3), and TCE (55 to 790 µg/m^3).

Five of the 22 compounds detected were also present in both soil and groundwater at the site (i.e., chloroform, cyclohexane, PCE, toluene, and TCE) and six additional compounds detected in soil vapor were also detected in soil only at the site (i.e., acetone, benzene, carbon disulfide, ethylbenzene, and xylenes). Except for TCE, none of these compounds exceeded the Commercial SCOs or the more conservative Protection of Groundwater SCOs for VOCs in the soil samples collected at the site nor the MCLs in the groundwater samples collected at the site. Most of these compounds (aside from PCE and TCE) are either gasoline constituents or additives, or laboratory contaminants (e.g., acetone).

There are no regulatory guidance or cleanup criteria for VOCs in shallow soil vapor in New York. Therefore, the soil vapor data were screened against EPA's Vapor Intrusion Screening Levels (VISLs) for a residential scenario with a target cancer risk of 1×10^{-6} and a target hazard quotient of 0.1 for non-cancer effects. Combined, these are the most conservative entry parameters for use with the VISL calculator. Three compounds exceeded the Target Sub-Slab and Near-source Soil Vapor Concentrations:

- Benzene (56 µg/m3) exceeded the VISL of 12 µg/m3 in the sample from SV-03;
- 1,3-Butadiene exceeded the VISL of 3.12 µg/m3 in the samples collected from SV-03 and SV-04 (and its duplicate); and
- TCE exceeded the VISL of 6.95 µg/m3 in the sample SV-02 (790 µg/m3) and SV-03 (55 µg/m3).

The VISLs are not automatic response action levels, nor are they cleanup criteria, but rather guidelines to determine if additional investigation or remediation activities are warranted. Additionally, the underlying models for the VISLs are generally applicable to buildings where the potential for vapor intrusion is a concern. As such, they are presented in Table 6 merely as a point of reference to indicate potential site contaminants of concern, which are benzene and TCE.

4 Discussion

4.1 Summary

Soil results from this investigation are comparable to previous investigations at the site. Exceedances of the Protection of Groundwater SCOs for three PAHs were detected in samples collected from the northern portion of the site beneath Parking Lot No. 2 where urban fill is present. Additionally, two PAHs exceeded the Commercial SCOs in the same area of the site. This location was sampled to help delineate an exceedance of silver above the residential SCO observed during the 2017 Phase II investigation at LaBella boring SB-18.

The groundwater results are also comparable to the historical results, specifically those collected during the 2004 and 2017 Phase II investigations. During the 2004 Phase II, low-level exceedances of the evaluation criteria for TCE and 1,2-DCE were detected across the site, with the highest concentration of TCE (28 µg/L) detected in IB12SW adjacent to thorium settling pit No. 3, and the highest concentration of total (cis- and trans-) 1,2-DCE (23 µg/L) was detected in IB5SW, adjacent to thorium settling pit No. 1. Other concentrations of TCE ranged from 7.7 to 16 µg/L. In 2017, an expanded well network was sampled with similar results. During that sampling event, TCE exceedances ranged from 8.1 to 15.4 µg/L in MW-07.

During this site characterization, the highest exceedances of TCE in site groundwater were 14, 64, and 130 µg/L in existing well IB11AW and new wells MW-20 and MW-21, respectively, all located east of Building 12. These three well locations are in the vicinity of a former reservoir located in what is now the asphalt parking area between Buildings 11A and 12 that, according to historical site maps, measured approximately 50 feet in diameter and was abandoned in 1936 (see 1977 Underground Drainage Piping Map, Appendix A).

Historical metals results for groundwater indicate elevated levels of iron, sodium, magnesium, and manganese at the site above the Class GA groundwater standards and guidance criteria. The concentrations of these metals detected during the current investigation are likely indicative of the background chemistry of groundwater at the site (for iron, magnesium, and manganese) or representative of ubiquitous groundwater contamination due to road-salting in the case of sodium.

In contrast, the exceedances of RCRA metals in groundwater, specifically arsenic, total chromium, lead, and mercury may be site-related based on the observed presence of urban fill. However, it is believed that these exceedances are not representative of the dissolved phase. All wells where one or more of these metals

exceeded standards (MW-06, MW-07, MW-12, MW-16, MW-20) are 1-inch diameter wells with low yields that precluded low-flow sampling. Consequently, the groundwater samples had high turbidities. This high colloidal load in the samples likely biased the metals results high.

4.2 Recommendations

There were very few detections of contaminants in soil at concentrations exceeding Commercial SCOs or Protection of Groundwater SCOs. Additional delineation of SVOCs in soil in the northern portion of the site may be considered to effectively manage in-place those exceedances of the Commercial SCOs. The currently identified affected soils are located beneath an asphalt cover that, with suitable repairs and maintenance, could function as an engineered cover system.

TCE was detected at a concentration exceeding the Protection of Groundwater SCO in soil in the northern part of the site in Parking Lot No. 2. The highest concentration of TCE in groundwater was also detected at this same location, near the northeast side of Building 12. Groundwater is not used as a drinking water source in the city of Rochester; therefore, there are no human receptors using contaminated groundwater in the vicinity of the site.

TCE was also detected in two soil vapor samples along the northern property boundary of the site. However, TCE was not detected to the east in the residential neighborhood located along St. Paul Street, nor was it detected in the westernmost point along the northern property line. The presence of TCE in soil vapor is likely related to the concentrations of TCE detected in groundwater in Parking Lot 2. However, groundwater flow is primarily to the west, towards the Genesee River Gorge; therefore, TCE impacts are considered unlikely in the residential area east of the site or at the Rochester School for the Deaf north of the site.

Benzene was also detected at a potentially elevated concentration in one soil vapor sample in this same area of the site. However, benzene was not detected in any of the groundwater samples and was detected only at trace concentrations estimated below the reporting limit in soil samples across the site (i.e., no benzene "source" was encountered). The benzene detection in soil vapor, along with the trace detections of other gasoline constituents and additive compounds, is indicative of the general history of fueling and repair stations located in the area or may be related to the presence of urban fill.

Additional groundwater sampling for metals may be warranted to rule out the exceedances of RCRA metals in groundwater as artifacts of the sampling technique. However, given that all the wells where these exceedances occurred are low-yield, low-flow sampling may not be feasible, and consideration should be given to collection of field-filtered samples.

5 References

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Tables

Table 1 Monitoring Well Data and Groundwater Elevations
Hawkeye Trade Center and Residences, Rochester, NY

Well ID	Northing	Easting	Well Diameter (inches)	Ground Surface Elevation (feet AMSL)	Top of Casing Elevation (feet AMSL)	Depth to Water (feet BTOC)	Measured Total Depth (feet BTOC)	Groundwater Elevation (feet AMSL)
IB11AW	1161075.0	1403642.5	2.0	454.78	454.42	8.10	22.5	446.32
IB12SW	1160978.4	1403494.9	2.0	455.46	455.02	10.88	14.1	444.14
IB5NE	1160830.5	1403805.4	2.0	467.76	467.37	17.61	29.2	449.76
IB5SW	1160676.6	1403562.6	2.0	454.91	454.56	6.72	14.2	447.84
IB5SW2	1160591.4	1403520.8	2.0	457.13	456.79	7.94	18.8	448.85
IB6NE	1161017.5	1403826.7	2.0	464.82	464.43	16.02	22.8	448.41
IL2NE	1161184.9	1403854.2	2.0	461.93	461.55	13.43	22.9	448.12
MW-04	1160364.6	1403613.4	1.0	461.38	461.33	1.47	7.5	459.86
MW-05	1160618.5	1403423.5	1.0	455.00	454.93	8.42	9.7	446.51
MW-06	1161089.4	1403496.4	1.0	454.44	454.44	10.39	12.1	444.05
MW-07	1161139.3	1403743.9	1.0	455.20	455.11	6.36	9.0	448.75
MW-11	1160611.8	1404038.5	1.0	465.70	465.59	1.48	10.7	464.11
MW-12	1160826.3	1403591.9	1.0	454.90	454.65	4.91	8.4	449.74
MW-14	1160761.5	1403467.1	1.0	454.58	454.37	7.98	8.7	446.39
MW-15	1160851.1	1403495.9	1.0	455.44	455.27	8.53	9.4	446.74
MW-16	1161202.2	1403686.2	1.0	454.30	454.11	5.28	9.2	448.83
MW-17	1160715.4	1403794.5	1.0	467.14	466.96	9.63	14.0	457.33
MW-18	1160819.3	1403705.1	1.0	455.51	455.34	4.80	9.6	450.54
MW-19	1160916.7	1403625.1	1.0	454.86	454.64	4.20	8.1	450.44
MW-20	1161165.3	1403627.0	1.0	453.40	453.20	6.55	9.0	446.65
MW-21	1161126.3	1403605.5	1.0	454.39	454.15	8.61	9.9	445.54
MW-22	1161022.1	1403557.2	1.0	455.46	455.20	9.07	9.5	446.13
MW-23	1161055.5	1403705.3	1.0	455.36	455.17	6.05	9.7	449.12
MW-24	1161267.2	1403494.5	1.0	452.84	452.60	10.02	10.3	442.58
SB4NE	1161251.2	1403547.7	2.0	453.55	453.21	11.65	12.8	441.56

Key:
AMSL = above mean sea level
BTOC = below top of casing
Coordinates in New York State Plane West, Survey Feet

Source: Ecology and Environment Engineeringand Geology, P.C. 2022

Table 2 Summary of Positive Analytical Results for Soil Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Commercial SCO [1]	Protection of Groundwater SCOs [1]	Location ID:	EMH1-SED	SB01	SB02	SB03	SB04	SB05	SB06	SB06	SB07	SB08	SB08	SB08	SB09	SB10
			Sample Name:	EMH1-SED	SB01-Z06-08	SB02-Z07-09	SB03-Z05-07	SB04-Z00-02	SB05-Z00-02	SB06-Z00-02	SB06-Z08-10	SB07-Z00-02	SB08-Z00-04	SB08-Z06-08	SB08-Z06-08 (DUP)	SB09-Z05-06	SB10-Z01-03
			Depth:	0 - 0 ft	6 - 8 ft	7 - 9 ft	5 - 7 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	8 - 10 ft	0 - 2 ft	0 - 4 ft	6 - 8 ft	6 - 8 ft	5 - 6 ft	1 - 3 ft
			Date:	44477.5694	44473.4347	44473.4965	44473.5417	44473.6076	44473.6354	44473.6563	44473.6632	44474.4208	44474.4868	44474.5	44474.5	44475.4549	44475.4979
Volatile Organic Compounds by Method SW8260C (mg/kg)																	
Acetone	500	0.05		**0.026 J**	0.0041 U	0.0039 U	**0.0085 J**	**0.010 J**	0.0041 U	**0.0057 J**	**0.014 J**	**0.0058 J**	0.0039 U	0.0034 U	0.0035 U	0.0041 U	0.0044 U
Benzene	44	0.06		0.00026 U	0.00024 U	0.00023 U	**0.00022 J**	0.00027 U	0.00024 U	0.00027 U	**0.00044 J**	**0.00028 J**	0.00023 U	0.0002 U	0.0002 U	0.00024 U	0.00026 U
Carbon Disulfide	N/A	N/A		0.0027 U	0.0024 U	0.0023 U	0.0022 U	0.0027 U	0.0024 U	0.0027 U	**0.0033 J**	0.0023 U	0.0023 U	0.002 U	0.0021 U	0.0025 U	0.0026 U
Chloroform	350	0.37		0.00033 U	0.00030 U	0.00029 U	0.00027 U	**0.00068 J**	**0.00037 J**	**0.00036 J**	0.00029 U	**0.00078 J**	0.00029 U	0.00025 U	0.00026 U	0.0003 U	0.00033 U
cis-1,2-Dichloroethene	500	0.25		0.00068 U	0.00062 U	0.00059 U	0.00055 U	0.00070 U	0.00062 U	0.0007 U	**0.0014 J**	0.00059 U	0.0006 U	0.00051 U	0.00053 U	0.00063 U	0.00068 U
Cyclohexane	N/A	N/A		0.00075 U	0.00068 U	0.00065 U	0.00061 U	0.00077 U	0.00068 U	0.00076 U	**0.023**	**0.00076 J**	0.00066 U	0.00056 U	0.00058 U	0.00069 U	0.00074 U
Ethylbenzene	390	1		0.00037 U	0.00034 U	0.00032 U	0.00030 U	**0.0063**	0.00034 U	**0.0016 J**	**0.0038 J**	0.00032 U	0.00032 U	0.00028 U	0.00029 U	0.00034 U	0.00036 U
Isopropylbenzene (Cumene)	N/A	N/A		0.00081 U	0.00073 U	0.00070 U	0.00065 U	0.00083 U	0.00073 U	0.00082 U	**0.0011 J**	0.00069 U	0.00071 U	0.00061 U	0.00062 U	0.00074 U	0.0008 U
Methyl Ethyl Ketone (2-Butanone)	500	0.12		0.0020 U	0.0018 U	0.0017 U	0.0016 U	0.0020 U	0.0018 U	0.002 U	0.0017 U	0.0017 U	0.0017 U	0.0015 U	0.0015 U	0.0018 U	0.0019 U
Methylcyclohexane	N/A	N/A		0.00081 U	0.00074 U	0.0007 U	**0.00087 J**	0.00083 U	0.00074 U	0.00083 U	**0.066**	**0.0012 J**	0.00071 U	0.00061 U	0.00063 U	0.00075 U	0.0008 U
Tetrachloroethene (PCE)	150	1.3		0.00072 U	0.00065 U	0.00062 U	0.00058 U	0.00074 U	0.00065 U	0.00073 U	0.00063 U	**0.0019 J**	0.00063 U	0.00054 U	0.00056 U	**0.0011 J**	0.00071 U
Toluene	500	0.7		0.00040 U	0.00037 U	**0.00048 J**	**0.00044 J**	**0.097**	**0.0019 J**	**0.012**	**0.0055**	**0.00073 J**	0.00035 U	0.0003 U	0.00031 U	0.00037 U	0.0004 U
trans-1,2-Dichloroethene	500	0.19		0.00055 U	0.00050 U	0.00048 U	0.00045 U	0.00057 U	0.0005 U	0.00056 U	0.00049 U	0.00048 U	0.00048 U	0.00041 U	0.00043 U	0.00051 U	0.00054 U
Trichloroethene (TCE)	200	0.47		0.0012 U	0.0011 U	0.0010 U	**0.0011 J**	**0.013**	**0.0056**	**0.012**	**0.0018 J**	**0.023**	**0.0034 J**	**0.0017 J**	**0.0016 J**	0.0011 U	0.0012 U
Xylenes	500	1.6		0.00090 U	**0.00092 J**	0.00078 U	0.00073 U	**0.030**	0.00082 U	**0.009 J**	**0.037**	0.00077 U	0.00079 U	0.00067 U	0.00069 U	0.00082 U	0.00089 U
Semivolatile Organic Compounds by Method SW8270D (mg/kg)																	
1,4-Dioxane (p-Dioxane)	N/A	N/A		0.72 U	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	N/A	N/A		--	0.041 U	0.041 U	0.042 U	0.37 U	0.39 U	0.38 U	0.04 U	0.37 U	0.039 U	0.037 U	0.037 U	0.041 U	0.038 U
Acenaphthylene	500	107		--	0.027 U	0.027 U	**0.11 J**	0.24 U	0.25 U	0.25 U	0.026 U	0.24 U	0.025 U	0.024 U	0.024 U	0.027 U	0.024 U
Anthracene	500	1000		--	0.051 U	0.051 U	**0.46**	0.46 U	0.48 U	**0.88 J**	0.049 U	0.46 U	0.049 U	0.046 U	0.046 U	0.051 U	0.047 U
Benzo(a)Anthracene	5.6	1		--	0.021 U	**0.041 J**	**0.97**	**1.3 J**	**0.77 J**	**3.4**	**0.024 J**	**1.2 J**	0.02 U	0.018 U	0.018 U	0.021 U	0.019 U
Benzo(a)Pyrene	1	22		--	0.03 U	**0.037 J**	**0.65**	**1.1 J**	**0.66 J**	**2.9**	0.029 U	**1.1 J**	0.029 U	0.027 U	0.027 U	0.03 U	0.028 U
Benzo(b)Fluoranthene	5.6	1.7		--	0.033 U	**0.042 J**	**0.90**	**1.8 J**	**0.88 J**	**4.4**	0.032 U	**1.8 J**	0.031 U	0.029 U	0.029 U	0.033 U	0.03 U
Benzo(g,h,i)Perylene	500	1000		--	0.022 U	**0.023 J**	**0.30**	**0.90 J**	**0.52 J**	**2.3**	0.021 U	**0.98 J**	0.021 U	0.02 U	0.02 U	0.022 U	0.02 U
Benzo(k)Fluoranthene	56	1.7		--	0.027 U	0.027 U	**0.35**	**0.56 J**	**0.36 J**	**1.6 J**	0.026 U	**0.53 J**	0.025 U	0.024 U	0.024 U	0.027 U	0.024 U
Bis(2-ethylhexyl)Phthalate	N/A	N/A		--	0.07 U	0.071 U	0.071 U	0.63 U	0.66 U	0.66 U	0.068 U	0.64 U	0.067 U	0.063 U	0.063 U	0.07 U	0.065 U
Carbazole	N/A	N/A		--	0.024 U	0.024 U	**0.071 J**	0.22 U	0.23 U	**0.42 J**	0.023 U	0.22 U	0.023 U	0.022 U	0.022 U	0.024 U	0.022 U
Chrysene	56	1		--	0.046 U	0.046 U	**0.80**	**1.4 J**	**0.82 J**	**3.7**	0.044 U	**1.3 J**	0.044 U	0.041 U	0.041 U	0.046 U	0.042 U
Dibenz(a,h)Anthracene	0.56	1000		--	0.036 U	0.037 U	**0.11 J**	0.33 U	0.34 U	**0.62 J**	0.035 U	0.33 U	0.035 U	0.033 U	0.033 U	0.036 U	0.033 U
Dibenzofuran	180	N/A		--	0.024 U	0.024 U	**0.053 J**	0.22 U	0.23 U	0.23 U	0.023 U	0.22 U	0.023 U	0.022 U	0.022 U	0.024 U	0.022 U
Di-n-Butyl Phthalate	N/A	N/A		--	0.035 U	0.035 U	0.036 U	0.32 U	0.33 U	0.33 U	**0.056 J**	0.32 U	0.034 U	0.031 U	0.032 U	0.035 U	0.032 U
Fluoranthene	500	1000		--	0.022 U	**0.080 J**	**2.0**	**2.2**	**1.3 J**	**9.1**	**0.051 J**	**2.4**	0.021 U	0.02 U	0.02 U	0.022 U	0.02 U
Fluorene	500	386		--	0.024 U	0.024 U	**0.099 J**	0.22 U	0.23 U	**0.25 J**	0.023 U	0.22 U	0.023 U	0.022 U	0.022 U	0.024 U	0.022 U
Indeno(1,2,3-c,d)Pyrene	5.6	8.2		--	0.025 U	0.026 U	**0.33**	**0.78 J**	**0.42 J**	**2.0**	0.025 U	**0.85 J**	0.024 U	0.023 U	0.023 U	0.026 U	0.023 U
Phenanthrene	500	1000		--	0.03 U	**0.069 J**	**1.7**	**0.47 J**	**0.35 J**	**4.8**	**0.047 J**	**0.63 J**	0.029 U	0.027 U	0.027 U	0.03 U	0.028 U
Pyrene	500	1000		--	0.024 U	**0.062 J**	**1.5**	**2.4**	**1.3 J**	**7.1**	**0.038 J**	**2.0**	0.023 U	0.022 U	0.022 U	0.024 U	0.022 U
PCBs by Method SW8082A (mg/kg)																	
PCB-1248 (Aroclor 1248)	1	3.2		0.048 U	0.045 U	0.048 U	0.049 U	0.043 U	0.047 U	0.052 U	0.039 U	0.049 U	0.052 U	0.044 U	0.040 U	0.057 U	0.042 U
PCB-1260 (Aroclor 1260)	1	3.2		0.11 U	0.11 U	0.11 U	0.12 U	0.10 U	0.11 U	**0.17 J**	0.094 U	0.12 U	0.13 U	0.11 U	0.097 U	0.14 U	0.10 U
Per- and Polyfluoroalkyl Substances by 537(M) (µg/kg)				--	--	--	--	--	--	--	--	--	--	--	--	--	--

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2022

Table 2 Summary of Positive Analytical Results for Soil Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Commercial SCO [1]	Protection of Groundwater SCOs [1]	Location ID:	EMH1-SED	SB01	SB02	SB03	SB04	SB05	SB06	SB06	SB07	SB08	SB08	SB08	SB09	SB10
			Sample Name:	EMH1-SED	SB01-Z06-08	SB02-Z07-09	SB03-Z05-07	SB04-Z00-02	SB05-Z00-02	SB06-Z00-02	SB06-Z08-10	SB07-Z00-02	SB08-Z00-04	SB08-Z06-08	SB08-Z06-08 (DUP)	SB09-Z05-06	SB10-Z01-03
			Depth:	0 - 0 ft	6 - 8 ft	7 - 9 ft	5 - 7 ft	0 - 2 ft	0 - 2 ft	0 - 2 ft	8 - 10 ft	0 - 2 ft	0 - 4 ft	6 - 8 ft	6 - 8 ft	5 - 6 ft	1 - 3 ft
			Date:	44477.5694	44473.4347	44473.4965	44473.5417	44473.6076	44473.6354	44473.6563	44473.6632	44474.4208	44474.4868	44474.5	44474.5	44475.4549	44475.4979
Metals by Method SW6010C (mg/kg)																	
Aluminum	N/A	N/A		**9020 J+**	**7930**	**4500**	**5950**	**8890**	**6470**	**16800**	**7800**	**6520**	**6860 J+**	**6080**	**5010**	**10500**	**8120**
Antimony	N/A	N/A		0.49 U	0.50 U	0.47 U	**20.5 J**	**1.1 J**	0.47 U	0.43 U	0.49 U	0.44 U	0.48 UJ	0.44 U	0.41 U	0.48 UJ	0.46 U
Arsenic	16	16		**7.8**	**6.8**	**6.0**	**10.9**	**4.6**	**5.9**	**4.0**	**4.1**	**4.8**	**12.3 J-**	**2.4**	**2.7**	**7.4**	**4.5**
Barium	400	820		**72.9 J**	**24.5**	**16.2**	**27**	**146**	**50.2**	**274**	**68.4**	**46.5**	**38.8 J+**	**31.4**	**27.7**	**25.1 J+**	**43.7**
Beryllium	590	47		**0.4**	**0.44**	**0.38**	**0.42**	**0.49**	**0.39**	**1.1**	**0.41**	**0.38**	**0.3**	**0.29**	**0.24**	**0.49**	**0.38**
Cadmium	9.3	75		**2.9**	**0.13 J**	**0.26**	**0.67**	**0.67**	**0.15 J**	**0.39**	**0.12 J**	**0.17 J**	**0.12 J**	**0.078 J**	**0.074 J**	**0.083 J**	**0.091 J**
Calcium	N/A	N/A		**86100**	**138000**	**242000**	**66500**	**127000**	**169000**	**164000**	**87400**	**128000**	**65400**	**36700**	**29300**	**116000**	**1540**
Chromium, Total	1500	N/A		**23.5**	**10**	**5.2**	**23.9**	**12.5**	**7.9**	**21.7**	**9.4**	**15.2**	**8.9**	**8.8**	**7.2**	**10.4**	**9.1**
Cobalt	N/A	N/A		**24.1**	**5.2**	**3.6**	**9.7**	**4.5**	**4.2**	**6.1**	**4.6**	**3.5**	**9.6**	**5.2**	**5.2**	**5.1**	**4.7**
Copper	270	1720		**198 J**	**14.4**	**11.6**	**86.5**	**24.8**	**9.3**	**20.1**	**11.2**	**11.3**	**12**	**6.7**	**7.6**	**5.9**	**9.6**
Iron	N/A	NA		**56800**	**12100**	**8930**	**126000**	**11000**	**10100**	**20300**	**10100**	**11100**	**13300**	**12400**	**9960**	**11400**	**12600**
Lead	1000	450		**79 J+**	**33.7**	**20.2**	**82.1**	**79.1**	**25.5**	**36**	**17.4**	**31.9**	**6.0**	**2.9**	**3.0**	**17.7**	**7.5**
Magnesium	N/A	NA		**21300**	**19100**	**8710**	**7310**	**24600**	**25500**	**24400**	**30000**	**44800**	**4300 J-**	**6210**	**6020**	**24200**	**1690**
Manganese	10000	2,000		**733**	**396**	**375**	**923**	**366**	**366**	**327**	**355**	**275**	**609**	**366**	**357**	**395**	**306**
Nickel	310	130		**32.7**	**13.2**	**9.1**	**27**	**12**	**10.8**	**19.9**	**11.4**	**8.7**	**13.8**	**11.5**	**11.1**	**12.3**	**12**
Potassium	N/A	N/A		**1560 J+**	**3660**	**2380**	**2060**	**1460**	**3230**	**1920**	**2760**	**2170**	**1460 J+**	**1510**	**1020**	**5630 J+**	**1810**
Selenium	1500	4		0.49 U	0.50 U	0.47 U	**11.3**	0.45 U	0.58 U	1.8 U	0.49 U	0.44 U	1.2 U	0.44 U	0.41 U	0.48 U	0.46 U
Silver	1500	8.3		**0.34 J**	**0.33 J**	0.24 U	0.25 U	**16.4**	**3.5**	**21.5**	**0.38 J**	**2.2**	0.24 U	0.22 U	0.21 U	0.24 U	0.23 U
Sodium	N/A	N/A		**333**	**414**	**347**	**542**	**301**	**543**	**1040**	**541**	**319**	**384**	**415**	**405**	**157 J**	**110 J**
Vanadium	N/A	N/A		**18.7**	**10.8**	**6.0**	**22.5**	**18.2**	**10**	**42.3**	**12.1**	**13.9**	**15**	**15.8**	**11.7**	**12.3**	**16.9**
Zinc	10000	2480		**189 J-**	**27.6**	**89.9**	**56.2**	**112**	**77.6**	**84.0**	**62.1**	**74.5**	**28.0**	**21.9**	**21.3**	**45.8 J-**	**37.4**
Mercury by Method SW7471B (mg/kg)																	
Mercury	2.8	730		**0.0080 J**	**0.0063 J**	**0.013 J**	**0.022**	**0.039**	**0.036**	**0.089**	**0.037**	**0.046**	0.0051 U	0.0047 U	**0.0097 J**	0.0052 U	**0.011 J**

Key:

Qualifiers

J = Estimated value

J+ = Estimated value, high biased

J- = Estimated value, low biased

U = Not detected (method detection limit shown)

UJ = Not detected/estimated detection limit

Other

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

N/A = Not regulated/no available criteria

PoG = Protection of Groundwater

Bold values denote positive detections.

Exceeds Protection of Commercial SCO values.

Exceeds Protection of Groundwater SCO values.

1. New York State Department of Environmental Conservation, 6 NYCRR Part 375 Environmental Remediation Programs, 2006 , Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2022

Table 2 Summary of Positive Analytical Results for Soil Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Commercial SCO [1]	Protection of Groundwater SCOs [1]	Location ID:	SB11	SB13	SB14	SB15	SB15	SB16	SB18	SB19	SB19	SB20
			Sample Name:	SB11-Z01-03	SB13-Z02-04	SB14-Z02-04	SB15-Z03-05	SB15-Z08-10	SB16-Z07-09	SB18-Z03-05	SB19-Z03-05	SB19-Z08-10	SB20-Z03-05
			Depth:	1 - 3 ft	2 - 4 ft	2 - 4 ft	3 - 5 ft	8 - 10 ft	7 - 9 ft	3 - 5 ft	3 - 5 ft	8 - 10 ft	3 - 5 ft
			Date:	44475.5625	44476.3819	44476.4028	44476.4236	44476.4375	44476.4583	44476.5417	44476.559	44476.5625	44476.5833
Volatile Organic Compounds by Method SW8260C (mg/kg)													
Acetone	500	0.05		0.004 U	**0.015 J**	0.0042 U	0.004 U	0.0042 U	0.0048 U	**0.014 J**	**0.014 J**	**0.015 J**	**0.022 J**
Benzene	44	0.06		0.00023 U	0.00026 U	0.00025 U	0.00023 U	0.00024 U	0.00028 U	0.00022 U	0.00022 U	**0.00019 J**	0.00024 U
Carbon Disulfide	N/A	N/A		0.0024 U	0.0027 U	0.0025 U	0.0024 U	0.0025 U	0.0028 U	0.0023 U	0.0022 U	0.002 U	0.0024 U
Chloroform	350	0.37		0.00029 U	**0.0020 J**	0.00031 U	**0.00053 J**	0.00031 U	0.00035 U	0.00028 U	0.00027 U	0.00024 U	0.0003 U
cis-1,2-Dichloroethene	500	0.25		0.00061 U	**0.012**	0.00064 U	**0.0037 J**	**0.0071**	0.00073 U	0.00058 U	0.00057 U	0.0005 U	0.00062 U
Cyclohexane	N/A	N/A		0.00067 U	0.00075 U	0.0007 U	0.00067 U	0.0007 U	0.0008 U	0.00063 U	0.00062 U	**0.00083 J**	**0.0013 J**
Ethylbenzene	390	1		0.00033 U	0.00037 U	0.00035 U	0.00033 U	0.00034 U	0.00039 U	0.00031 U	**0.00041 J**	**0.00053 J**	**0.00039 J**
Isopropylbenzene (Cumene)	N/A	N/A		0.00072 U	0.00081 U	0.00076 U	0.00072 U	0.00075 U	0.00086 U	0.00068 U	0.00067 U	0.00059 U	0.00073 U
Methyl Ethyl Ketone (2-Butanone)	500	0.12		0.0017 U	0.002 U	0.0018 U	0.0018 U	0.0018 U	0.0021 U	0.0016 U	0.0016 U	**0.0033 J**	**0.0048 J**
Methylcyclohexane	N/A	N/A		0.00072 U	0.00081 U	0.00076 U	0.00073 U	0.00075 U	0.00087 U	**0.00073 J**	0.00067 U	**0.0013 J**	**0.0039 J**
Tetrachloroethene (PCE)	150	1.3		0.00064 U	**0.0016 J**	**0.00094 J**	**0.021**	**0.0010 J**	0.00076 U	0.0006 U	0.0006 U	0.00053 U	0.00065 U
Toluene	500	0.7		0.00036 U	**0.00075 J**	**0.00049 J**	0.00036 U	0.00038 U	0.00043 U	0.00034 U	**0.00038 J**	**0.00041 J**	**0.00046 J**
trans-1,2-Dichloroethene	500	0.19		0.00049 U	**0.00055 J**	0.00052 U	0.00049 U	0.00051 U	0.00059 U	0.00046 U	0.00046 U	0.0004 U	0.0005 U
Trichloroethene (TCE)	200	0.47		0.001 U	**0.078**	**0.0086**	**11**	**0.046**	0.0013 U	0.00099 U	0.00098 U	0.00086 U	0.0011 U
Xylenes	500	1.6		0.0008 U	0.0009 U	0.00084 U	0.0008 U	0.00083 U	0.00096 U	0.00076 U	0.00075 U	**0.0017 J**	**0.0010 J**
Semivolatile Organic Compounds by Method SW8270D (mg/kg)													
1,4-Dioxane (p-Dioxane)	N/A	N/A		--	--	--	--	--	0.068 U	--	--	--	--
2-Methylnaphthalene	N/A	N/A		0.039 U	0.19 U	0.2 U	0.041 U	0.041 U	0.042 U	**0.19 J**	0.36 U	0.37 U	0.36 U
Acenaphthylene	500	107		0.025 U	0.12 U	0.13 U	0.026 U	0.027 U	0.027 U	0.12 U	0.23 U	0.24 U	0.23 U
Anthracene	500	1000		0.048 U	0.24 U	0.24 U	0.05 U	0.051 U	0.052 U	0.22 U	0.45 U	0.46 U	0.44 U
Benzo(a)Anthracene	5.6	1		0.019 U	**1.2**	**0.47 J**	**0.22**	0.021 U	0.021 U	0.09 U	0.18 U	0.19 U	0.18 U
Benzo(a)Pyrene	1	22		0.029 U	**0.83 J**	**0.41 J**	**0.23**	**0.056 J**	0.031 U	**0.30 J**	**0.35 J**	**0.37 J**	**0.40 J**
Benzo(b)Fluoranthene	5.6	1.7		0.031 U	**1.3**	**0.48 J**	**0.32**	**0.067 J**	0.034 U	**0.27 J**	**0.29 J**	**0.35 J**	**0.41 J**
Benzo(g,h,i)Perylene	500	1000		0.021 U	**0.69 J**	**0.27 J**	**0.22**	**0.052 J**	0.022 U	0.095 U	0.19 U	**0.28 J**	**0.37 J**
Benzo(k)Fluoranthene	56	1.7		0.025 U	**0.42 J**	**0.21 J**	**0.14 J**	0.027 U	0.027 U	0.12 U	0.23 U	0.24 U	0.23 U
Bis(2-ethylhexyl)Phthalate	N/A	N/A		0.066 U	**1.6**	0.34 U	0.069 U	0.071 U	0.072 U	0.31 U	0.62 U	0.64 U	0.61 U
Carbazole	N/A	N/A		0.023 U	0.11 U	0.12 U	0.024 U	0.024 U	0.025 U	0.11 U	0.21 U	0.22 U	0.21 U
Chrysene	56	1		0.043 U	**1.2**	**0.49 J**	**0.21**	0.046 U	0.047 U	0.2 U	**0.52 J**	**0.83 J**	**0.76 J**
Dibenz(a,h)Anthracene	0.56	1000		0.034 U	**0.26 J**	0.17 U	**0.081 J**	0.037 U	0.037 U	0.16 U	0.32 U	0.33 U	0.32 U
Dibenzofuran	180	N/A		0.023 U	0.11 U	0.12 U	0.024 U	0.024 U	0.025 U	0.11 U	0.21 U	0.22 U	0.21 U
Di-n-Butyl Phthalate	N/A	N/A		0.033 U	0.16 U	0.17 U	0.035 U	0.035 U	0.036 U	0.15 U	0.31 U	0.32 U	0.31 U
Fluoranthene	500	1000		0.021 U	**2.6**	**0.99**	**0.32**	**0.079 J**	0.022 U	**0.32 J**	**0.41 J**	**0.33 J**	**0.74 J**
Fluorene	500	386		0.023 U	0.11 U	0.12 U	0.024 U	0.024 U	0.025 U	0.11 U	0.21 U	0.22 U	0.21 U
Indeno(1,2,3-c,d)Pyrene	5.6	8.2		0.024 U	**0.55 J**	**0.21 J**	**0.21**	**0.044 J**	0.026 U	**0.16 J**	0.22 U	0.23 U	0.22 U
Phenanthrene	500	1000		0.029 U	**1.1**	0.14 U	**0.048 J**	**0.041 J**	0.031 U	**0.24 J**	0.27 U	**0.61 J**	**0.46 J**
Pyrene	500	1000		0.023 U	**2.1**	**0.8 J**	**0.32**	**0.083 J**	0.025 U	**0.53 J**	**0.60 J**	**0.76 J**	**0.79 J**
PCBs by Method SW8082A (mg/kg)													
PCB-1248 (Aroclor 1248)	1	3.2		0.041 U	**0.40**	0.043 U	0.042 U	0.043 U	0.052 U	0.039 U	--	--	--
PCB-1260 (Aroclor 1260)	1	3.2		0.098 U	**0.38**	0.10 U	0.10 U	0.10 U	0.12 U	0.094 U	--	--	--
Per- and Polyfluoroalkyl Substances by 537(M) (µg/kg)				--	--	--	--	--	**None Detected**	--	--	--	--

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2022

Table 2 Summary of Positive Analytical Results for Soil Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Commercial SCO [1]	Protection of Groundwater SCOs [1]	Location ID:	SB11	SB13	SB14	SB15	SB15	SB16	SB18	SB19	SB19	SB20
			Sample Name:	SB11-Z01-03	SB13-Z02-04	SB14-Z02-04	SB15-Z03-05	SB15-Z08-10	SB16-Z07-09	SB18-Z03-05	SB19-Z03-05	SB19-Z08-10	SB20-Z03-05
			Depth:	1 - 3 ft	2 - 4 ft	2 - 4 ft	3 - 5 ft	8 - 10 ft	7 - 9 ft	3 - 5 ft	3 - 5 ft	8 - 10 ft	3 - 5 ft
			Date:	44475.5625	44476.3819	44476.4028	44476.4236	44476.4375	44476.4583	44476.5417	44476.559	44476.5625	44476.5833
Metals by Method SW6010C (mg/kg)													
Aluminum	N/A	N/A		**8790**	**11900**	**11400**	**11200**	**11000**	**15100**	**10800**	--	--	--
Antimony	N/A	N/A		0.45 U	0.45 U	0.48 U	**1.8 J**	0.50 U	0.50 U	0.45 U	--	--	--
Arsenic	16	16		**6.2**	**6.8**	**3.7**	**9.8**	**10**	**9.9**	**4.6**	--	--	--
Barium	400	820		**35.8**	**170**	**54.9**	**64.6**	**54**	**64.8**	**45.1**	--	--	--
Beryllium	590	47		**0.47**	**0.6**	**0.48**	**0.59**	**0.55**	**0.68**	**0.41**	--	--	--
Cadmium	9.3	75		**0.13 J**	**0.8**	**0.22 J**	**0.24 J**	**0.54**	**0.24 J**	**0.19 J**	--	--	--
Calcium	N/A	N/A		**132000**	**116000**	**17500**	**79200**	**138000**	**38100**	**73800**	--	--	--
Chromium, Total	1500	N/A		**9.6**	**16.7**	**11.8**	**12.6**	**13.1**	**16.2**	**13.5**	--	--	--
Cobalt	N/A	N/A		**4.2**	**5.9**	**5.8**	**5.4**	**6.9**	**9.2**	**5.9**	--	--	--
Copper	270	1720		**7.1**	**112**	**8.5**	**90.4**	**68.8**	**25.4**	**19.1**	--	--	--
Iron	N/A	NA		**9300**	**16900**	**13100**	**13400**	**14000**	**20900**	**13000**	--	--	--
Lead	1000	450		**20.4**	**68.5**	**48.1**	**75.5**	**31.8**	**22.9**	**18.9**	--	--	--
Magnesium	N/A	NA		**17500**	**19600**	**4490**	**11400**	**16500**	**10200**	**31800**	--	--	--
Manganese	10000	2,000		**333**	**395**	**369**	**354**	**420**	**1050**	**403**	--	--	--
Nickel	310	130		**9.4**	**16**	**11.4**	**18.6**	**17.3**	**23.4**	**14.2**	--	--	--
Potassium	N/A	N/A		**4850**	**2590**	**1790**	**4150**	**5720**	**4900**	**3580**	--	--	--
Selenium	1500	4		0.45 U	0.45 U	0.48 U	0.51 U	0.50 U	0.50 U	0.45 U	--	--	--
Silver	1500	8.3		0.23 U	**22.7**	**2.2**	**8.6**	**1.8**	**0.32 J**	**0.48 J**	--	--	--
Sodium	N/A	N/A		**242**	**665**	**682**	**1250**	**938**	**208**	**230**	--	--	--
Vanadium	N/A	N/A		**11.1**	**23.7**	**17.6**	**16.8**	**13.4**	**23.1**	**19.9**	--	--	--
Zinc	10000	2480		**48.5**	**153**	**40.9**	**78.1**	**156**	**64.6**	**57.0**	--	--	--
Mercury by Method SW7471B (mg/kg)													
Mercury	2.8	730		0.0048 U	**1.2**	**0.041**	**0.14**	**0.071**	**0.0058 J**	**0.070**	--	--	--

Key:

Qualifiers

J = Estimated value

J+ = Estimated value, high biased

J- = Estimated value, low biased

U = Not detected (method detection limit shown)

UJ = Not detected/estimated detection limit

Other

µg/kg = Micrograms per kilogram

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

N/A = Not regulated/no available criteria

PoG = Protection of Groundwater

Bold values denote positive detections.

Exceeds Protection of Commercial SCO values.

Exceeds Protection of Groundwater SCO values.

1. New York State Department of Environmental Conservation, 6 NYCRR Part 375 Environmental Remediation Programs, 2006 , Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2022

Table 3 Thorium Results in Soil Samples
Hawkeye Trade Center and Residences, Rochester, New York

Location ID:	EMH1-SED				SB01				SB02			
Sample Name:	EMH1-SED				SB01-Z06-08				SB02-Z07-09			
Sample Date:	10/8/2021				10/4/2021				10/4/2021			
Analyte												
Isotopic Thorium (Alpha Spectrometry) (pCi/g)	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.302	0.105		0.0538	0.587	0.143		0.0466	0.57	0.15		0.0658
Thorium-228	0.175	0.0942		0.091	0.433	0.131		0.0887	0.745	0.182		0.107
Thorium-230	0.131	0.129	U	0.181	0.375	0.135		0.114	0.495	0.159		0.123

Location ID:	SB07				SB08				SB08			
Sample Name:	SB07-Z00-02				SB08-Z00-04				SB08-Z06-08			
Sample Date:	10/5/2021				10/5/2021				10/5/2021			
Analyte												
Isotopic Thorium (Alpha Spectrometry) (pCi/g)	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.419	0.115		0.0479	0.646	0.16		0.0657	0.34	0.113		0.0642
Thorium-228	0.49	0.137	J+	0.1	0.54	0.153		0.0933	0.369	0.129		0.103
Thorium-230	0.347	0.128		0.111	0.459	0.155		0.124	0.386	0.143		0.122

Location ID:	SB08				SB09				SB13			
Sample Name:	SB08-Z06-08 (DUP)				SB09-Z05-06				SB13-Z02-04			
Sample Date:	10/5/2021				10/6/2021				10/7/2021			
Analyte												
Isotopic Thorium (Alpha Spectrometry) (pCi/g)	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.276	0.098		0.0571	0.496	0.149		0.0628	0.523	0.138		0.0525
Thorium-228	0.357	0.122		0.0938	0.765	0.196		0.107	0.417	0.138		0.12
Thorium-230	0.239	0.117		0.113	0.386	0.156		0.136	0.475	0.152		0.117

Location ID:	SB16			
Sample Name:	SB16-Z07-09			
Sample Date:	10/7/2021			
Analyte				
Isotopic Thorium (Alpha Spectrometry) (pCi/g)	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.583	0.151		0.0676
Thorium-228	0.646	0.169		0.112
Thorium-230	0.305	0.132		0.119

Key:

J+ = estimated, high biased

U = not detected (method detection limit shown)

MDC = minimum detectable concentration

pCi/g = picocuries/gram

Uncert = uncertainty

Qual = qualifier

DUP = field duplicate

Source: Ecology and Environment Engineering and Geology, P.C.

Table 4 Summary of Positive Analytical Results for Groundwater Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Location ID: / Date: / Screening Criteria [1]	IB11AW 10/28/21	IB12SW 10/28/21	IB5NE 10/29/21	IB5SW 10/27/21	IB5SW2 10/25/21	IB6NE 10/26/21	IL2NE 10/28/21	MW-05 10/27/21	MW-06 10/27/21	MW-07 10/27/21	MW-12 10/28/21	MW-14 10/27/21	MW-15 10/27/21	MW-16 10/27/21	MW-17 10/29/21
Volatile Organic Compounds by Method 8260C (µg/L)																
1,1,2-Trichloro-1,2,2-Trifluoroethane	5	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.62 U	0.31 U	0.31 U	0.62 U	0.31 U	0.31 U	**0.93 J**	0.62 U	0.31 U
Chloroform	7	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.68 U	0.34 U	0.34 U	**1.3 J**	0.34 U	0.34 U	**0.5 J**	**0.93 J**	0.34 U
cis-1,2-Dichloroethene	5	**5.1**	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	1.6 U	0.81 U	0.81 U	1.6 U	0.81 U	0.81 U	0.81 U	1.6 U	0.81 U
Cyclohexane	N/A	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.36 U	**0.29 J**	0.18 U	**0.4 J**	0.18 U	0.18 U	0.18 U	0.36 U	0.18 U
Methylcyclohexane	N/A	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.32 U	**0.37 J**	0.16 U	**0.68 J**	0.16 U	0.16 U	0.16 U	0.32 U	0.16 U
tert-Butyl Methyl Ether	10	**3.9**	0.16 U	0.16 U	0.16 U	0.16 U	**7.3**	0.32 U	0.16 U	0.16 U	0.32 U	0.16 U	0.16 U	0.16 U	0.32 U	0.16 U
Tetrachloroethene (PCE)	5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	**1.7 J**	0.36 U	0.36 U	**0.97 J**	0.36 U	0.36 U	0.36 U	**1.4 J**	0.36 U
Toluene	5	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	1.0 U	**0.56 J**	0.51 U	1.0 U	0.51 U	0.51 U	0.51 U	1.0 U	0.51 U
Trichloroethene (TCE)	5	**14**	**2.8**	0.46 U	0.46 U	**0.83 J**	0.46 U	**5.7**	0.46 U	0.46 U	**18**	**7.9**	0.46 U	**1.8**	**29**	**0.82 J**
Vinyl Chloride	2	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	0.90 U	1.8 U	0.90 U	0.90 U	1.8 U	0.90 U	0.90 U	0.90 U	1.8 U	0.90 U
Semivolatile Organic Compounds by Method SW8270D (µg/L)																
Di-n-Butyl Phthalate	50	0.34 U	0.34 U	0.33 U	0.35 U	0.32 U	0.31 U	0.31 U	--	0.31 U	7.8 U	0.31 U	--	--	7.8 U	--
1,4-Dioxane by Method SW8270D-SIM (µg/L)	0.35	--	--	--	--	0.11 U	--	--	--	--	--	--	--	--	--	--
PCBs by Method SW8082A (µg/L)	0.09	All ND	All ND	All ND	All ND	All ND	All ND	All ND	--	All ND	All ND	All ND	--	--	All ND	--
Fluorinated Alkyl Substances by 537(M) (ng/L)																
Perfluorobutanesulfonic acid (PFBS)	N/A	--	--	--	--	**2.3**	--	--	--	--	--	--	--	--	--	--
Perfluorobutanoic Acid	N/A	--	--	--	--	**12**	--	--	--	--	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	N/A	--	--	--	--	**0.76 J**	--	--	--	--	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	N/A	--	--	--	--	**2.4**	--	--	--	--	--	--	--	--	--	--
Perfluorohexanesulfonic acid (PFHxS)	N/A	--	--	--	--	**2.9**	--	--	--	--	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	N/A	--	--	--	--	**2.4**	--	--	--	--	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	N/A	--	--	--	--	**0.76 J**	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	2.7	--	--	--	--	**4.0**	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	6.7	--	--	--	--	**4.8**	--	--	--	--	--	--	--	--	--	--
Perfluoropentanoic Acid (PFPeA)	N/A	--	--	--	--	**2.3**	--	--	--	--	--	--	--	--	--	--
Metals by Method SW6010C (µg/L)																
Aluminum	N/A	**7900**	170 U	60 U	**820**	**410**	**2500**	60 U	--	60 U	**11200**	**6300**	--	--	**44200**	--
Arsenic	25	5.6 U	5.6 U	**8.9 J**	5.6 U	5.6 U	5.6 U	5.6 U	--	5.6 U	**27**	5.6 U	--	--	**37**	--
Barium	1000	**91**	**57**	**32**	**22**	**42**	**260**	**74**	--	**41**	**55**	**53**	--	--	**250**	--
Beryllium	3	**0.41 J**	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	--	0.30 U	**0.45 J**	0.30 U	--	--	**1.6 J**	--
Cadmium	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	--	0.50 U	**1.8 J**	0.50 U	--	--	**1.3 J**	--
Calcium	N/A	**127000**	**30700**	**18700**	**44000**	**46900**	**262000**	**42900**	--	**31100**	**74700**	**59500**	--	--	**66200**	--
Chromium, Total	50	**7.9**	**1.4 J**	1.0 U	**3.8 J**	1.7 U	**4.1**	**9.1**	--	**140**	**42**	**110**	--	--	**99**	--
Cobalt	N/A	**4.7**	0.63 U	**0.89 J**	0.63 U	0.63 U	**72**	0.63 U	--	0.63 U	**6.9**	**3.2 J**	--	--	**24**	--
Copper	200	5.5 U	1.6 U	**3.5**	**7.0 J**	3.7 U	7.2 U	2.0 U	--	1.6 U	**260**	8.9 U	--	--	**270**	--
Iron	300	**4600**	**630**	**210**	**470**	**170**	**1700**	**130**	--	**160**	**13100**	**7100**	--	--	**49200**	--
Lead	25	**6.1 J**	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	--	3.0 U	**27**	**7.4 J**	--	--	**140**	--
Magnesium	35000	**33000**	**6800**	**5300**	**6300**	**9400**	**120000**	**14500**	--	**5700**	**14300**	**13000**	--	--	**15100**	--
Manganese	300	**220**	**33**	**25**	**26**	2.1 U	**2000**	**6.2**	--	**7.3**	**400**	**280**	--	--	**810**	--
Nickel	100	**9.0 J**	**1.6 J**	**1.5 J**	**2.6 J**	1.3 U	**72**	**3.6 J**	--	1.3 U	**110**	**8.3 J**	--	--	**79**	--
Potassium	N/A	**10100**	**890**	**2100**	**11000**	**2900**	**11900**	**3800**	--	**4100**	**13200**	**5900**	--	--	**16000**	--
Silver	50	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	--	1.7 U	**24**	1.7 U	--	--	**21**	--
Sodium	20000	**377000**	**212000**	**667000**	**25100**	**279000**	**967000**	**715000**	--	**459000**	**167000**	**36700**	--	--	**297000**	--
Vanadium	N/A	**9.6**	1.5 U	**3.7 J**	**6.8**	1.5 U	**2.8 J**	1.5 U	--	1.5 U	**49**	**9.1**	--	--	**79**	--
Zinc	2000	**46**	4.0 U	6.6 U	9.5 U	1.5 U	**200**	3.1 U	--	1.5 U	**110**	**25**	--	--	**310**	--
Mercury by Method SW7470A (µg/L)																
Mercury	0.7	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	--	0.043 U	**0.90**	0.043 U	--	--	**0.78**	--

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2021

Table 4 Summary of Positive Analytical Results for Groundwater Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Location ID: / Date: / Screening Criteria [1]	MW-18 10/28/21	MW-19 10/28/21	MW-20 10/27/21	MW-21 10/27/21	MW-23 10/26/21	SB4NE 10/29/21
Volatile Organic Compounds by Method 8260C (µg/L)							
1,1,2-Trichloro-1,2,2-Trifluoroethane	5	0.31 U	0.31 U	1.2 U	1.2 U	0.31 U	0.62 U
Chloroform	7	0.34 U	0.34 U	1.4 U	1.4 U	0.34 U	0.68 U
cis-1,2-Dichloroethene	5	0.81 U	0.81 U	**40**	**40**	0.81 U	1.6 U
Cyclohexane	N/A	0.18 U	0.18 U	**13**	0.72 U	0.18 U	0.36 U
Methylcyclohexane	N/A	0.16 U	0.16 U	**22**	0.64 U	0.16 U	0.32 U
tert-Butyl Methyl Ether	10	0.16 U	0.16 U	0.64 U	0.64 U	0.16 U	0.32 U
Tetrachloroethene (PCE)	5	0.36 U	0.36 U	**3.9 J**	**1.8 J**	0.36 U	0.72 U
Toluene	5	0.51 U	0.51 U	2.0 U	2.0 U	0.51 U	1.0 U
Trichloroethene (TCE)	5	**1.6**	0.46 U	**64**	**130**	**3.9**	0.92 U
Vinyl Chloride	2	0.90 U	0.90 U	3.6 U	**6.8**	0.90 U	1.8 U
Semivolatile Organic Compounds by Method SW8270D (µg/L)							
Di-n-Butyl Phthalate	50	--	0.31 U	7.8 U	0.31 U	**0.32 J**	1.6 U
1,4-Dioxane by Method SW8270D-SIM (µg/L)	0.35	--	--	--	--	--	--
PCBs by Method SW8082A (µg/L)	0.09	--	All ND	All ND	All ND	All ND	--
Fluorinated Alkyl Substances by 537(M) (ng/L)							
Perfluorobutanesulfonic acid (PFBS)	N/A	--	--	--	--	--	--
Perfluorobutanoic Acid	N/A	--	--	--	--	--	--
Perfluorodecanoic acid (PFDA)	N/A	--	--	--	--	--	--
Perfluoroheptanoic acid (PFHpA)	N/A	--	--	--	--	--	--
Perfluorohexanesulfonic acid (PFHxS)	N/A	--	--	--	--	--	--
Perfluorohexanoic acid (PFHxA)	N/A	--	--	--	--	--	--
Perfluorononanoic acid (PFNA)	N/A	--	--	--	--	--	--
Perfluorooctanesulfonic acid (PFOS)	2.7	--	--	--	--	--	--
Perfluorooctanoic acid (PFOA)	6.7	--	--	--	--	--	--
Perfluoropentanoic Acid (PFPeA)	N/A	--	--	--	--	--	--
Metals by Method SW6010C (µg/L)							
Aluminum	N/A	--	**140 J**	**96100**	60 U	**2600**	--
Arsenic	25	--	5.6 U	**120**	5.6 U	5.6 U	--
Barium	1000	--	**72**	**490**	**110**	**66**	--
Beryllium	3	--	0.30 U	**4.8**	0.30 U	0.30 U	--
Cadmium	5	--	0.50 U	**1.1 J**	0.50 U	0.50 U	--
Calcium	N/A	--	**36100**	**596000**	**89400**	**55400**	--
Chromium, Total	50	--	**1.5 J**	**110**	**4.0**	**4.1**	--
Cobalt	N/A	--	0.63 U	**84**	**0.92 J**	**1.9 J**	--
Copper	200	--	9.1 U	**180**	**9.8 J**	**25**	--
Iron	300	--	**43 J**	**146000**	**420**	**4400**	--
Lead	25	--	**6.4 J**	**260**	3.0 U	**5.2 J**	--
Magnesium	35000	--	**2000**	**67100**	**19700**	**8400**	--
Manganese	300	--	**6.1**	**3300**	**90**	**220**	--
Nickel	100	--	**2.1 J**	**230**	**3.8 J**	**4.0 J**	--
Potassium	N/A	--	**2800**	**47000**	**11300**	**5000**	--
Silver	50	--	1.7 U	**8.5**	1.7 U	1.7 U	--
Sodium	20000	--	**9600**	**772000**	**784000**	**6200**	--
Vanadium	N/A	--	**2.3 J**	**150**	1.5 U	**4.3 J**	--
Zinc	2000	--	**49**	**650**	8.7 U	**27**	--
Mercury by Method SW7470A (µg/L)							
Mercury	0.7	--	0.043 U	**1.9**	0.043 U	0.043 U	--

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2021

Table 4 Summary of Positive Analytical Results for Groundwater Samples
Hawkeye Trade Center and Residences, Rochester, New York

Analyte	Location ID: Date: Screening Criteria [1]

Key:

Qualifiers

J = Estimated value

U = Not detected (method detection limit shown)

ND = non-detect

Notes

G = Guidance value (no standard available)

N/A = Not regulated/no available criteria

Other

ng/L = Nanograms per liter

µg/L = Micrograms per liter

-- = Analyte not analyzed for

Bold values denote positive detections.

Exceeds groundwater standard or guidance value.

1. New York State Department of Environmental Conservation, Technical and Operational Guidance Series Memorandum #1.1.1: *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations*, 1998 (with updates), Class GA Groundwater Standards and Guidance Values.

Key at end of table.

Source: Ecology and Environment Engineering and Geology, P.C. 2021

Table 5 Thorium Results in Groundwater Samples
Hawkeye Trade Center and Residences, Rochester, New York

Sample Name:	IB5SW				IB5SW2				IB5SW2- DUP			
Sample Date:	10/27/2021				10/25/2021				10/25/2021			
Analyte												
Isotopic Thorium (Alpha Spectrometry) (pCi/L)	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.0605	0.0772	U	0.106	0.0656	0.0788	U	0.112	0.0118	0.0399	U	0.0845
Thorium-228	-0.0608	0.106	U	0.278	-0.0299	0.121	U	0.237	-0.0245	0.118	U	0.232
Thorium-230	0.0774	0.0901	U	0.124	0.0625	0.169	U	0.239	0.0803	0.174	U	0.24

Sample Name:	IB6NE				IB 11AW				IB 12SW			
Sample Date:	10/26/2021				10/28/2021				10/28/2021			
Analyte												
Isotopic Thorium (Alpha Spectrometry) (pCi/L)	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.0909	0.0813		0.0793	0.141	0.143	U	0.176	-0.00603	0.0594	U	0.178
Thorium-228	0.304	0.183		0.211	0.315	0.235		0.296	0.127	0.158	U	0.256
Thorium-230	0.175	0.185	U	0.228	0.245	0.32	U	0.533	0.135	0.121	R	0.134

Sample Name:	MW-06				MW-12				MW-23			
Sample Date:	10/27/2021				10/28/2021				10/26/2021			
Analyte												
Isotopic Thorium (Alpha Spectrometry) (pCi/L)	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC	Activity	Uncert +/-	Qual	MDC
Thorium-232	0.0	0.0464	U	0.139	0.0545	0.113	U	0.222	0.0807	0.133	U	0.23
Thorium-228	0.13	0.13	U	0.19	0.149	0.199	U	0.331	-0.0157	0.188	U	0.382
Thorium-230	0.334	0.176	R	0.139	0.368	0.22	R	0.151	0.0993	0.24	U	0.348

Key:

U = not detected (method detection limit shown)

R = data unusable

MDC = minimum detectable concentration

pCi/l = picocuries/liter

Uncert = uncertainty

Qual = qualifier

Source: Ecology and Environment Engineering and Geology, P.C. 2021

Table 6 Summary of Positive Analytical Results for Soil Gas Samples
Hawkeye Trade Center and Residences, Rochester, New York

	Location ID:	SV-01	SV-02	SV-03	SV-04	SV-04-DUP
	Date:	11/8/2022	11/8/2022	11/8/2022	11/8/2022	11/8/2022
	Screening Criteria [(1)]					
Volatile Organic Compounds by Method TO-15 (µg/m^3)						
Acetone	N/A	**34**	19 U	19 U	**63**	**66**
Benzene	12	**5.5**	**1.0**	**56**	**6.0**	**6.0**
1,3-Butadiene	3.12	0.44 U	0.44 U	**3.3**	**4.8**	**4.7**
Carbon Disulfide	2,430	6.2 U	**16**	**8.3**	**8.5**	**8.7**
Chloroethane	13,900	**0.74**	0.53 U	0.53 U	0.53 U	0.53 U
Chloroform	4.07	**3.0**	**3.8**	**1.1**	0.98 U	0.98 U
Chloromethane	313	**2.0**	0.83 U	0.83 U	0.83 U	0.83 U
Cyclohexane	20,900	0.69 U	**1.8**	**59**	**3.0**	**4.5**
Dichlorodifluoromethane (Freon 12)	348	**2.2**	**2.2**	**2.0**	**2.0**	**2.1**
Ethanol	N/A	**16**	15 U	15 U	15 U	15 U
Ethylbenzene	37.4	0.87 U	0.87 U	**2.4**	**1.1**	**1.2**
Heptane	1,390	**70**	**4.4**	**110**	**5.2**	**5.5**
Hexane	468	**110**	28 U	**180**	28 U	28 U
2-Hexanone (MBK)	104	0.82 U	0.82 U	0.82 U	0.82 U	**1.2**
4-Methyl-2-pentanone (MIBK)	10,400	0.82 U	0.82 U	0.82 U	**2.0**	**2.4**
Propene	10,400	14 U	14 U	14 U	**43**	**44**
Tetrachloroethene	139	1.4 U	**2.1**	**3.4**	1.4 U	1.4 U
Toluene	17,400	**5.4**	**3.3**	**59**	**16**	**16**
Trichloroethene	6.95	1.1 U	**790**	**55**	1.1 U	1.1 U
1,2,4-Trimethylbenzene	209	0.98 U	**1.3**	0.98 U	0.98 U	0.98 U
m&p-Xylene	348	**1.7**	**2.7**	**11**	**3.4**	**3.4**
o-Xylene	348	**0.87**	**1.1**	**3.6**	**1.2**	**1.3**

Key:

Qualifiers

U = not detected (method detection limit shown)

Other

µg/m^3 = micrograms per cubic meter

"-DUP" denotes field duplicate sample

N/A = no available criteria

Bold values denote positive detections.

Exceeds Target Screening Level.

Notes:

(1) USEPA Vapor Intrusion Screening Level for residential scenario; target sub-slab and near-source soil gas concentration (target cancer risk = 10^{-6} and target hazard quotient = 0.1)

Source: Ecology and Environment Engineering and Geology, P.C. 2022

Figures

NOTES:

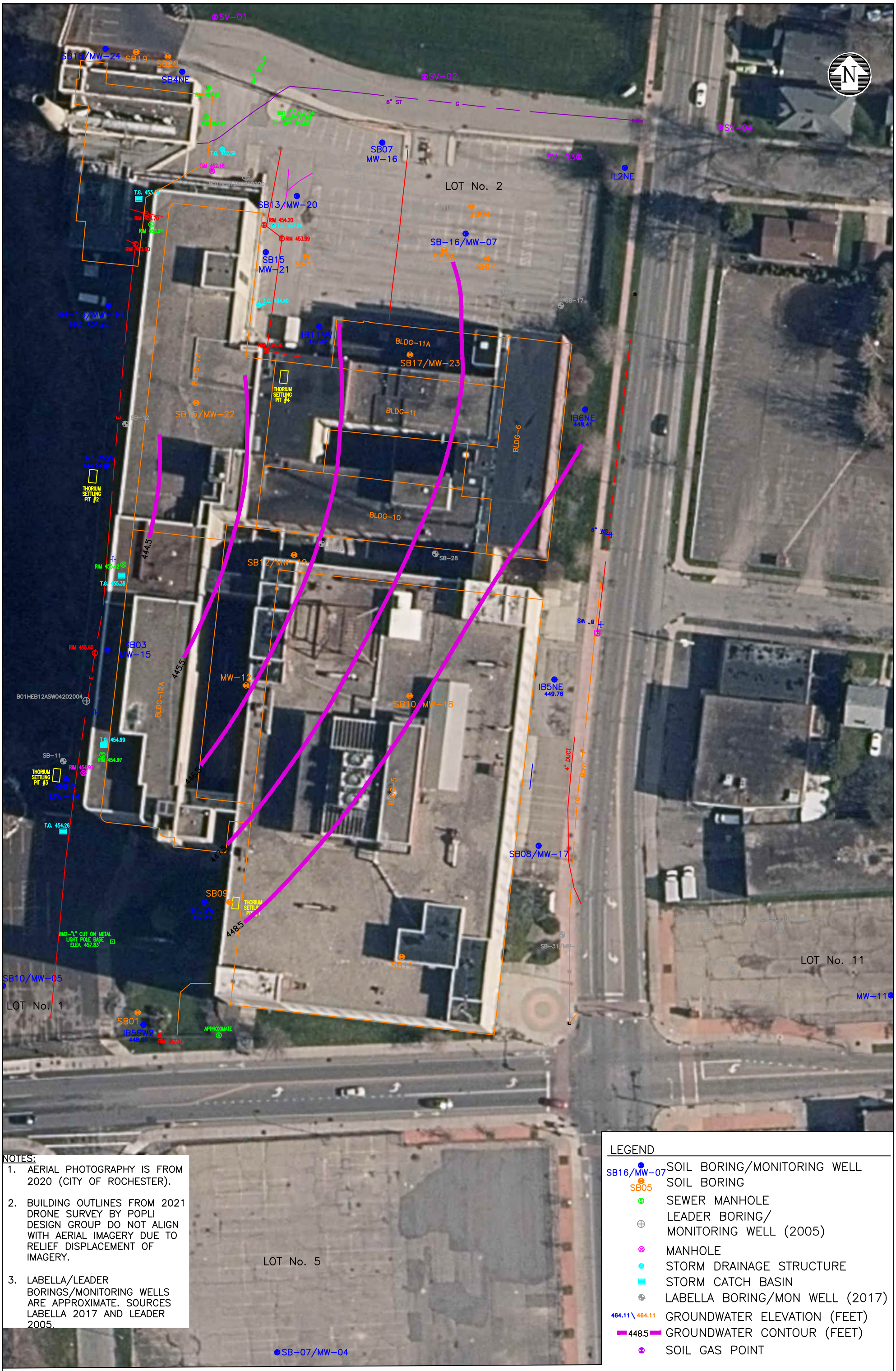
1. AERIAL PHOTOGRAPHY IS FROM 2020 (CITY OF ROCHESTER).
2. BUILDING OUTLINES FROM 2021 DRONE SURVEY BY POPLI DESIGN GROUP DO NOT ALIGN WITH AERIAL IMAGERY DUE TO RELIEF DISPLACEMENT OF IMAGERY.
3. LABELLA/LEADER BORINGS/MONITORING WELLS ARE APPROXIMATE. SOURCES LABELLA 2017 AND LEADER 2005.

LEGEND

- SB16/MW-07 — SOIL BORING/MONITORING WELL
- SB05 — SOIL BORING
- SEWER MANHOLE
- LEADER BORING/ MONITORING WELL (2005)
- MANHOLE
- STORM DRAINAGE STRUCTURE
- STORM CATCH BASIN
- LABELLA BORING/MON WELL (2017)
- SOIL GAS POINT

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

FIGURE 1 – EXISTING SITE PLAN AND SAMPLING LOCATIONS
HAWKEYE TRADE CENTER AND RESIDENCES
ROCHESTER, MONROE COUNTY, NEW YORK



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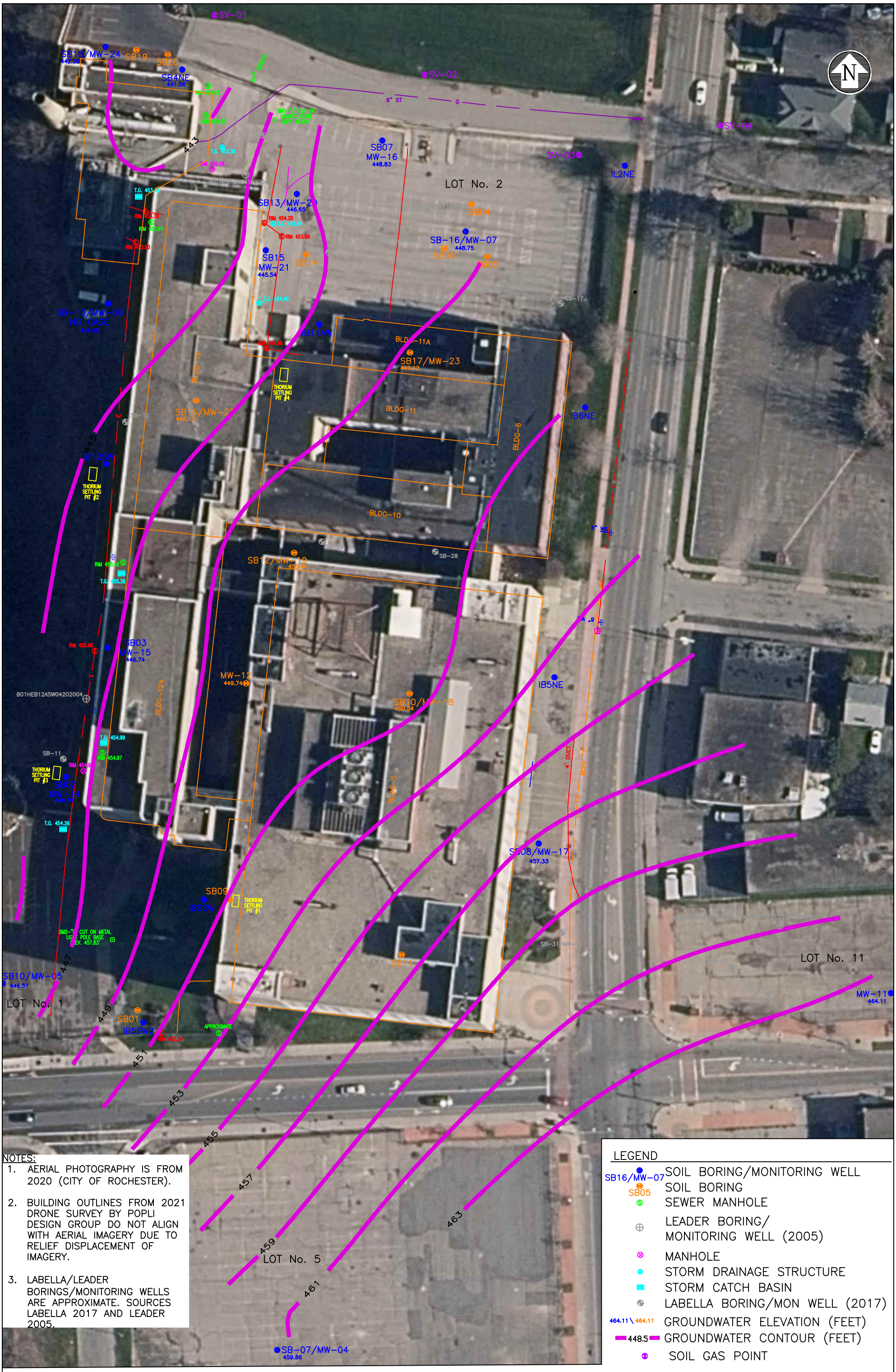
- MANHOLE
- STORM DRAINAGE STRUCTURE
- STORM CATCH BASIN
- LABELLA BORING/MON WELL (2017)
- 464.11 \ 464.11 — GROUNDWATER ELEVATION (FEET)
- 448.5 — GROUNDWATER CONTOUR (FEET)
- SOIL GAS POINT

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

FIGURE 2 – GROUNDWATER CONTOURS – INTERFACE WELLS
HAWKEYE TRADE CENTER AND RESIDENCES
ROCHESTER, MONROE COUNTY, NEW YORK



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3. LABELLA/LEADER BORINGS/MONITORING WELLS ARE APPROXIMATE. SOURCES LABELLA 2017 AND LEADER 2005.

LEGEND

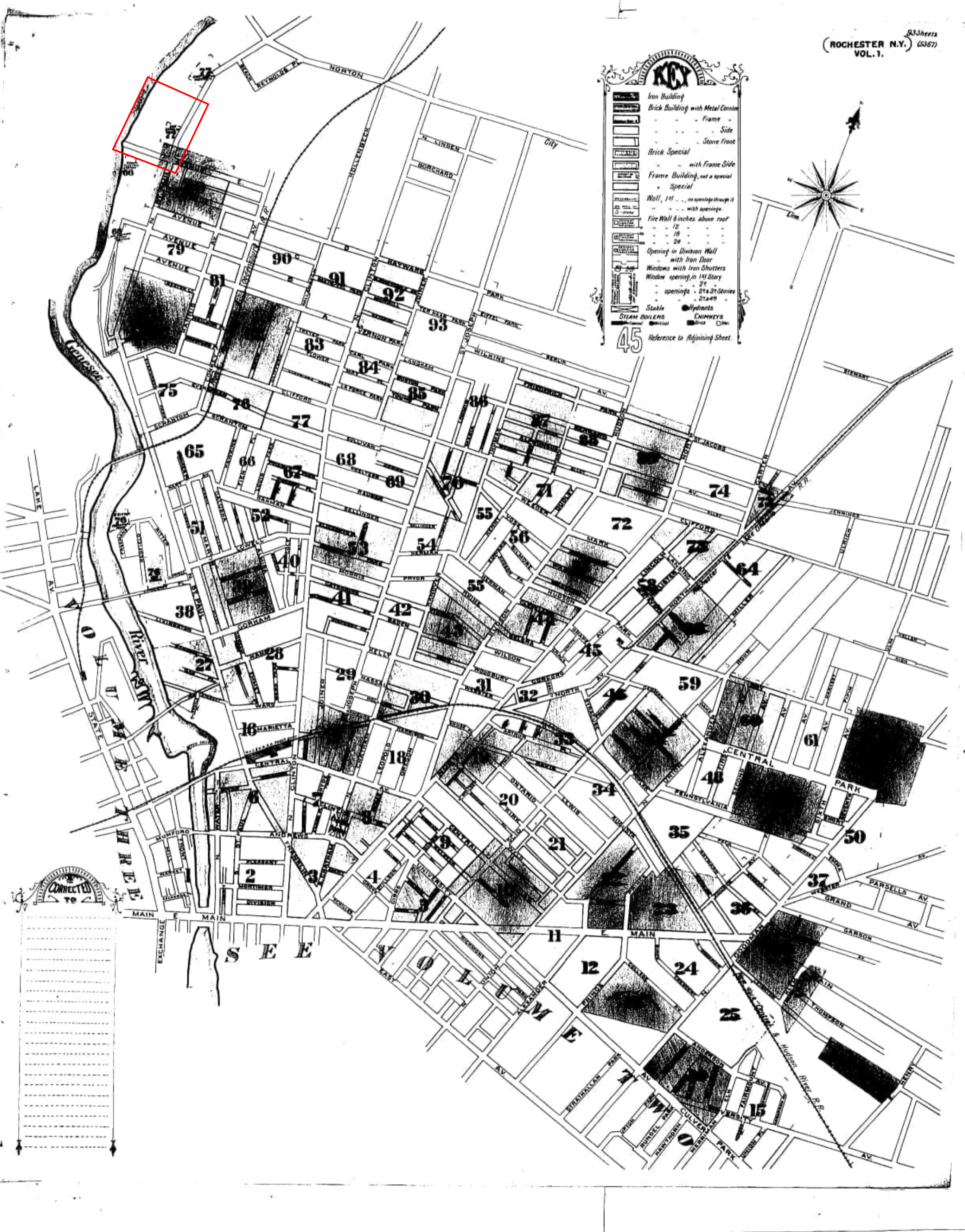
- SB16/MW-07 — SOIL BORING/MONITORING WELL
- SB05 — SOIL BORING
- SEWER MANHOLE
- LEADER BORING/ MONITORING WELL (2005)
- MANHOLE
- STORM DRAINAGE STRUCTURE
- STORM CATCH BASIN
- LABELLA BORING/MON WELL (2017)
- 464.11 \ 464.11 — GROUNDWATER ELEVATION (FEET)
- 448.5 — GROUNDWATER CONTOUR (FEET)
- SOIL GAS POINT

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

FIGURE 3 – GROUNDWATER CONTOURS – OVERBURDEN WELLS
HAWKEYE TRADE CENTER AND RESIDENCES
ROCHESTER, MONROE COUNTY, NEW YORK

A Historical Documents

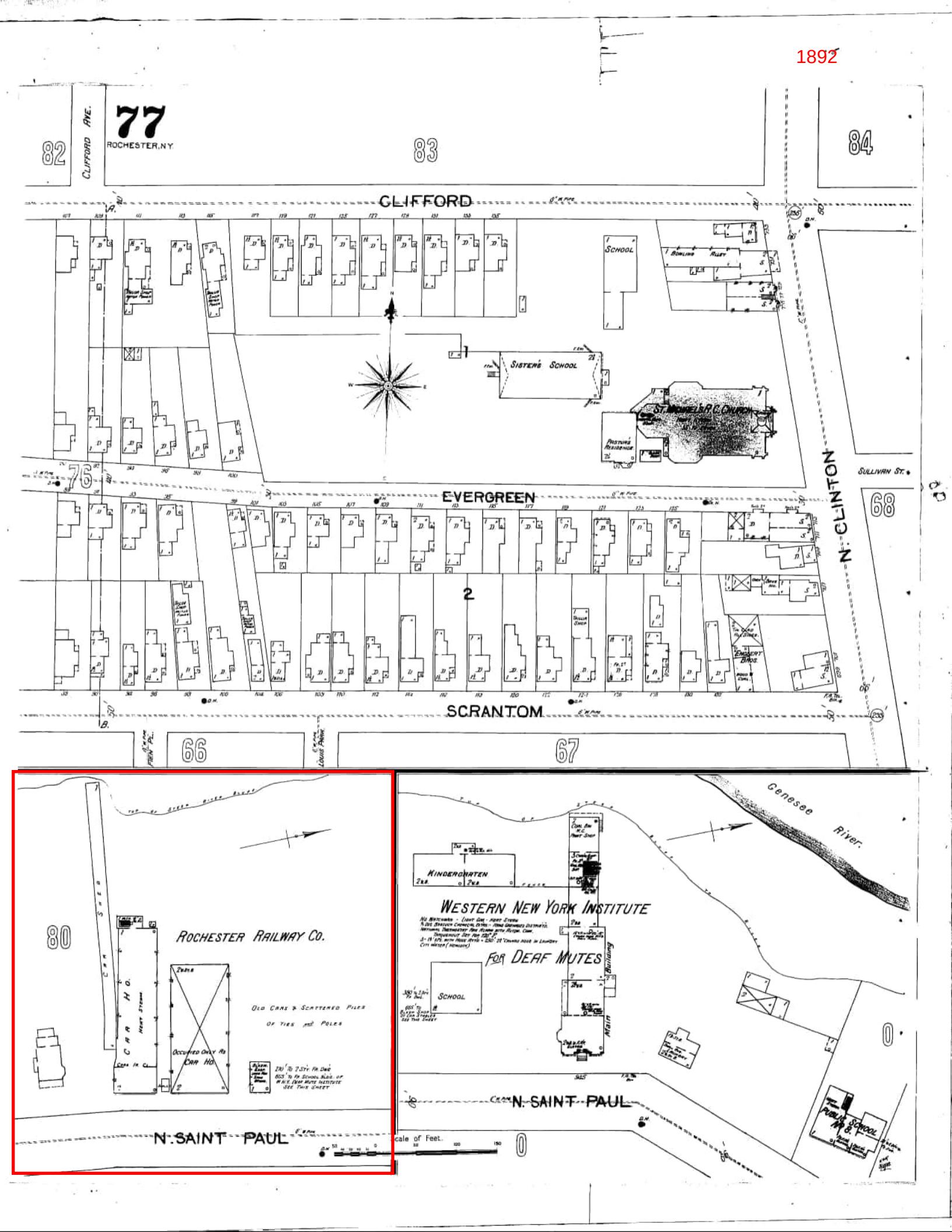
1892


93 Sheets
ROCHESTER N.Y. (5367)
VOL. 1.
KEY
Iron Building
Brick Building with Metal Cornice
Frame
Side
Stone Front
Brick Special
with Frame Side
Frame Building, not a special
Special
Wall
Fire Wall 6 inches above roof
Opening in Division Wall
with Iron Door
Windows with Iron Shutters
Window opening in 1st Story
Stable
Hydrants
Steam Boilers
Chimneys
Reference to Adjoining Sheet.
CORRECTED TO
Genesee
River
NORTON
REYNOLDS PL
LINDEN
ORCHARD
City Line
AVENUE
HAYWARD
PARK
WILKINS
BERLIN
CLIFFORD
SCRANTON
SULLIVAN
ST JACOBS
JENNINGS
STEWART
CENTRAL
PENNSYLVANIA
PARK
PARDELLA AV.
GRAND
GARSON
MAIN
E. MAIN
EXCHANGE
MUMFORD
ANDREWS
PLEASANT
DIVISION
STATE
LAKE
HUDSON
N.Y. Central & Hudson River R.R.
THOMPSON
AV.
SEE VOLUME TWO
SEE VOLUME THREE

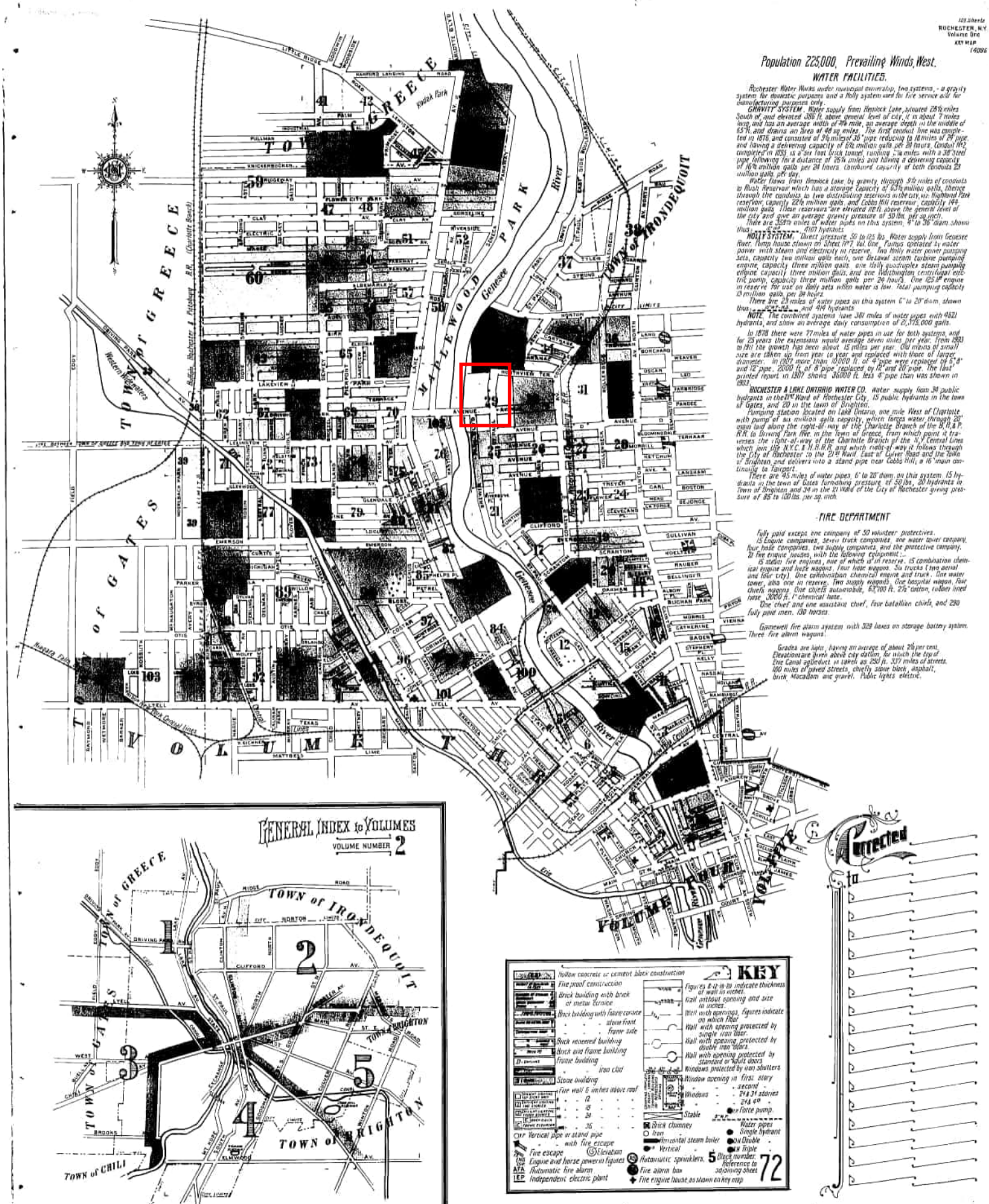
1892

77

ROCHESTER, N.Y.



1911



103 Sheets
ROCHESTER, N.Y.
Volume One
KEY MAP
14086

Population 225,000, Prevailing Winds, West.

WATER FACILITIES.

Rochester Water Works under municipal ownership, two systems, - a gravity system for domestic purposes and a Holly system used for fire service and for manufacturing purposes only.

GRAVITY SYSTEM. Water supply from Hemlock Lake, situated 28¼ miles South of, and elevated 386 ft. above general level of city, it is about 7 miles long, and has an average width of ¾ mile, an average depth in the middle of 65 ft. and drains an area of 48 sq. miles. The first conduit line was completed in 1876 and consisted of 3¼ miles of 36" pipe reducing to 30 miles of 24" pipe and having a delivering capacity of 6½ million galls. per 24 hours. Conduit No 2 completed in 1893 is a 6'6" six foot brick tunnel, running 2¼ miles with a 38" steel pipe following for a distance of 25¼ miles and having a delivering capacity of 16½ million galls per 24 hours. Combined capacity of both conduits 23 million galls. per day.

Water flows from Hemlock Lake, by gravity, through 9½ miles of conduits to Rush Reservoir which has a storage capacity of 63½ million galls, thence through the conduits to two distributing reservoirs in the city, viz: Highland Park reservoir, capacity 22½ million galls, and Cobbs Hill reservoir, capacity 14½ million galls. These reservoirs are elevated 118 ft. above the general level of the city and give an average gravity pressure of 50 lbs. per sq. inch.

There are 358½ miles of water pipes on this system, 4" to 36" diam. shown thus ——— and ——— 4107 hydrants.

HOLLY SYSTEM. Direct pressure, 35 to 125 lbs. Water supply from Genesee River. Pump house shown on Sheet 19, Vol. One. Pumps operated by water power with steam and electricity in reserve. Two Holly water power pumping sets, capacity two million galls each, one DeLaval steam turbine pumping engine, capacity three million galls. one Holly quadruplex steam pumping engine capacity three million galls. and one Worthington centrifugal electric pump, capacity three million galls per 24 hours. One 125 HP engine in reserve for use on Holly sets when water is low. Total pumping capacity 15 million galls. per 24 hours.

There are 23 miles of water pipes on this system 6" to 20" diam. shown thus ——— and ——— and 414 hydrants.

NOTE. The combined systems have 381 miles of water pipes with 4521 hydrants, and show an average daily consumption of 21,373,000 galls.

In 1878 there were 77 miles of water pipes in use for both systems, and for 25 years the extensions would average seven miles per year. From 1903 to 1911 the growth has been about 15 miles per year. Old mains of small size are taken up from year to year and replaced with those of larger diameter. In 1907 more than 60,000 ft. of 4" pipe were replaced by 6" and 8" and 12" pipe. 2000 ft. of 8" pipe replaced by 12" and 20" pipe. The last printed report in 1907 shows 36000 ft. less 4" pipe than was shown in 1903.

ROCHESTER & LAKE ONTARIO WATER CO. Water supply from 30 public hydrants in the 21st Ward of Rochester City, 15 public hydrants in the town of Gates, and 20 in the town of Brighton.

Pumping station located on Lake Ontario, one mile West of Charlotte, with pump of six million galls. capacity, which forces water through 20" main laid along the right-of-way of the Charlotte Branch of the B.R.& P. R.R. to Driving Park Ave. in the town of Greece, from which point it traverses the right-of-way of the Charlotte Branch of the N.Y. Central Lines which join the N.Y.C. & H.R.R.R. and which right-of-way it follows through the City of Rochester to the 21st Ward. East of Culver Road and the Town of Brighton, and delivers into a stand pipe near Cobbs Hill, a 16" main continuing to Fairport.

There are 45 miles of water pipes 6" to 20" diam. on this system. 15 hydrants in the town of Gates furnishing pressure of 50 lbs., 20 hydrants in Town of Brighton and 34 in the 21 Ward of the City of Rochester giving pressure of 85 to 100 lbs. per sq. inch.

FIRE DEPARTMENT

Fully paid except one company of 30 volunteer protectives.

15 Engine companies, seven truck companies one water tower company, four hose companies, two supply companies, and the protective company.

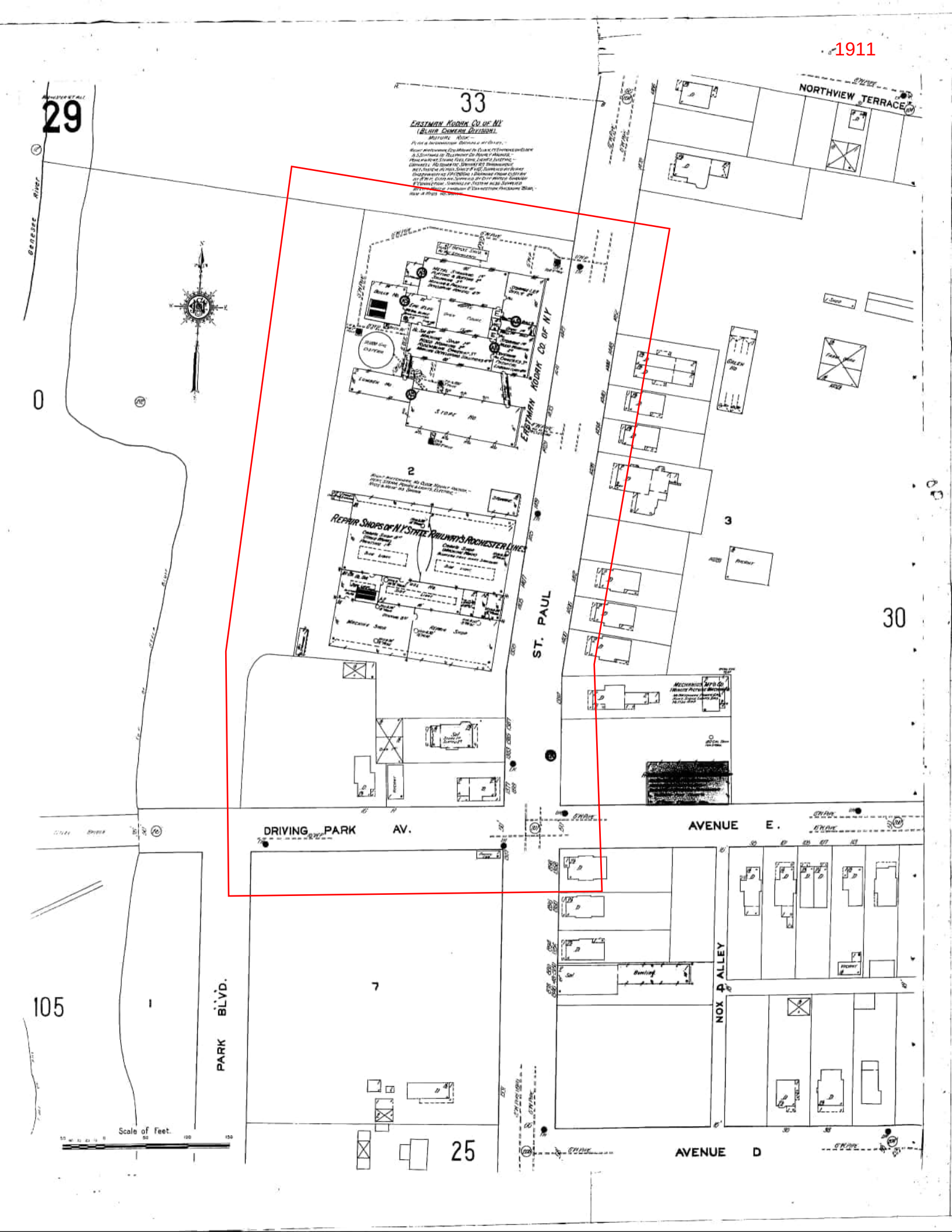
21 fire engine houses, with the following equipment:-

15 steam fire engines, one of which is in reserve. 15 combination chemical engine and hose wagons. four hose wagons. Six trucks (two aerial and four city). One carbonator chemical engine and truck. One water tower, also one in reserve. Two supply wagons. One hospital wagon. Four chiefs wagons. One chiefs automobile, 63,700 ft. 2½" cotton, rubber lined hose. 3000 ft. 1" chemical hose.

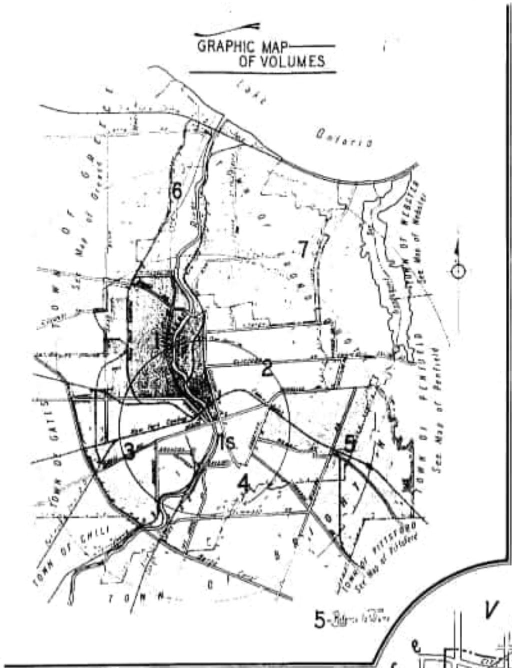
One chief and one assistant chief, four batallion chiefs, and 290 fully paid men. 130 horses.

Gamewell fire alarm system with 329 boxes on storage battery system. Three fire alarm wagons.

Grades are light, having an average of about 2% per cent. Elevations are given above city datum, for which the top of Erie Canal aqueduct in Lake is 250 ft. 337 miles of streets. 180 miles of paved streets, chiefly stone block, asphalt, brick, Macadam and gravel. Public lights electric.


1911
29
33
EASTMAN KODAK CO OF NY
(BLAIR CAMERA DIVISION)
NORTHVIEW TERRACE
GENESEE River
EASTMAN KODAK CO OF NY
REPAIR SHOPS OF N.Y. STATE RAILWAYS ROCHESTER LINES
ST. PAUL
30
3
2
DRIVING PARK AV.
AVENUE E.
PARK BLVD.
105
1
7
NOX ALLEY
25
AVENUE D
Scale of Feet.

1911 rev. 1950



(67434)
(110 Sheets)
ROCHESTER, N.Y. VOL. I
KEY
"N"
APRIL 1946

N.Y. 121

NEW REPORT, April, 1945

POPULATION:—City,		324,694
	Brighton Township,	12,397
	Greece Township,	14,878
	Irondequoit Township,	23,244
	Community:	375,213

Prevailing Winds.—West.

PAVING:—300 miles of streets. 300 miles paved.

GRADES:—Light. Elevations as shown above City Datum for which Broad Street Bridge is taken as 250'.

WATER FACILITIES:—Three Systems.

HEMLOCK SYSTEM:—Owned by City. Gravity pressure system. Supply from natural lakes, located 30 miles south of city. Hemlock Lake has watershed of 45 square miles, full line elevation at 900' and available capacity of top 14' of 8,300,000,000 gallons. Candice Lake has drainage area of 12.4 square miles, full line elevation at 1096', with available capacity of top 6' of 1,324,000,000 gallons. Candice Lake Outlet has drainage area of 1.8 square miles and is connected to Hemlock Lake by a 5' circular concrete conduit. The dependable supply developed by three lakes is estimated to be 30,000,000 gallons per day.

Three distributing reservoirs:—Rush Reservoir located 9 miles south of City Line has a capacity of 63,400,000 gallons for a depth of 16', full line elevation at 751.6'. Highland Reservoir, located in City (see Vol. 4) has a capacity of 22,500,000 gallons for a depth of 15', full line elevation at 636'. Cobbs Hill Reservoir, located in City (see Vol. 3) has a capacity of 144,000,000 gallons for a depth of 25', full line elevation 636'. Rush Reservoir filled from Hemlock Lake by 3 conduits of cast-iron and steel pipe, varying from 24" to 38" in diameter. Highland Reservoir is filled from Rush Reservoir by one 24" cast-iron conduit, one 36" cast-iron and one 38" steel pipe. Cobbs Hill Reservoir filled from Rush Reservoir by one 36" cast-iron conduit.

Supply distributed through 506.12 miles of 4" to 36" mains. 5,921 hydrants. Average pressure 52 lbs. Pressure in congested area ranges from 39 to 58 lbs.

HOLLY SYSTEM:—A separate pumping system supplying hydrants and automatic sprinkler systems in congested area for fire protection. Owned by City. 1 Pumping Station: Brown's Race Station. 2 electric DeLaval centrifugal pumps of 500 gallons per minute capacity each for service pressure, suction from well supplied from Hemlock System and may be supplied from Genesee River. For fire purposes there are 4 electric DeLaval centrifugal pumps, capacity of each 3,000,000 gallons per day.

24.92 miles of 4" to 24" cast-iron mains, supplying 444 hydrants. Constant average pressure of 65 lbs. is maintained with fire pressure up to 140 lbs. available. Holly System mains shown thus [illegible]

ROCHESTER & LAKE ONTARIO WATER SERVICE CORP'N:—Privately owned. Direct pumping system supplying 743 public hydrants in various parts of Rochester City and also 125 hydrants of City mains in part of City formerly Charlotte.

Supply from Lake Ontario pumped from station location 1 mile west of Charlotte by 3 electric pumps, combined capacity 24,000,000 gallons per day. (Steam power in reserve). Two 20" force mains extend from the pumping station by widely diverging routes of about 14.8 miles. These connect at Cobbs Hill near 2 standpipes of 8,325,000 gallons combined capacity. Including the force mains there are 39 miles of 4" to 24" cast-iron mains, 35.48 miles of which are owned by the City. Each force main is equipped with a booster pumping station. Hydrant pressure ranges from 64 to 100 lbs. Average daily consumption 8,048,000 gallons.

FIRE DEPARTMENT

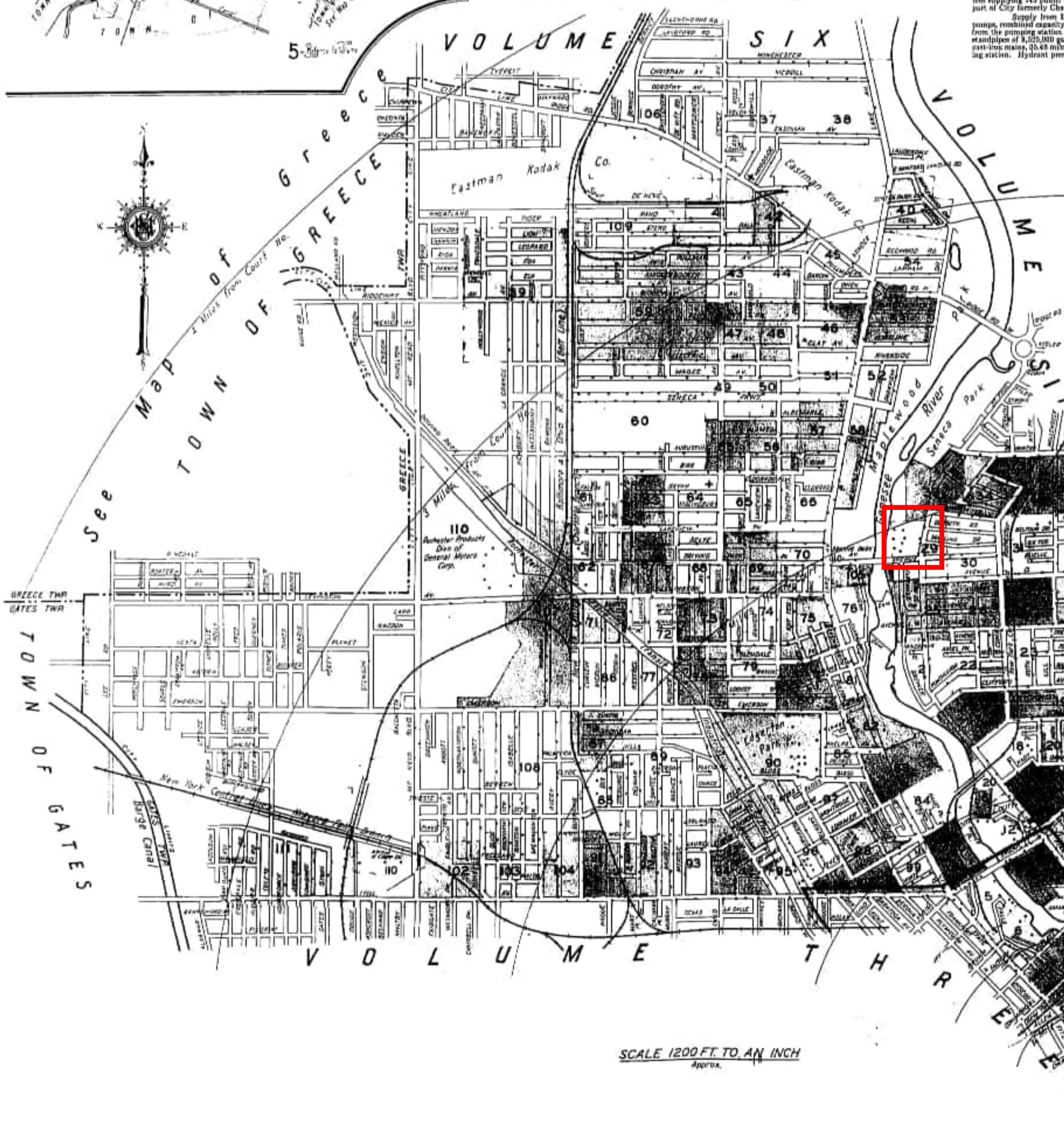
Fully paid. 1 chief, 2 deputy chiefs, 11 battalion chiefs, 36 captains, 36 lieutenants and 405 men. 23 engine companies. 10 ladder companies, 1 water tower and 1 Protective company. Protective company has 2 paid drivers and 155 volunteers. 34 stations.

Two 1,300 gallon per minute triple combination pumpers. Two 1,250 gallon per minute pumpers. Thirteen 1,000 gallons per minute triple combination pumpers. Five 750 gallons per minute triple combination pumpers. One 600 gallon per minute quadruple combination pumper. 6 aerial ladder trucks. 4 Cities Service ladder trucks. 1 salvage truck. 1 water tower truck. 5 chief's cars. 1 tow car. 1 fuel and supply truck and 4 fire alarm trucks. 2,500' 1½" hose, 100' 3½" hose. 37,000' 2½" hose and 8,100' 1" chemical hose.

Gamewell fire alarm system with headquarters in Fire and Police Telegraph Building, 315 Cumberland St. (see Sheet 121, Vol. 2). 524 public and 27 private boxes.

FIRE-RESISTIVE ROOFING ORDINANCE.

Ordinance adopted March 30, 1931, prohibits the use of wooden shingle roofs on any new building, within the Fire Limits. The use of wooden shingle roofs on new buildings outside the Fire Limits is restricted to dwellings and small private garages.



1911 rev. 1950

B Soil Boring and Monitoring Well Logs

Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB01
Drilled By: /Matt Pepe	**Drill Start Date:** 10/4/2021	**Drill End Date:** 10/4/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9	**Bore Diameter (in):**	**Ground Surface (ft-msl):**

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
0				- - - -	100	(0-2) 0.0 (2-4) 0.0 (4-6) 0.0	87 cpm		***SILT (ml)*** Yellowish-brown silt, little clay; soft to medium stiff; dry, becoming moist between 7.2 and 7.5 feet.
6				- - - -	100	(6-8) 0.0 (8-9) 0.0			
8									***POORLY-GRADED GRAVEL (gp)*** Gray shale fragment.
9									***GRAVELLY SILT (ml)*** Yellowish brown silt, some gravel; medium dense; dry.
									Bottom of boring at 9 feet. Refusal

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB02/MW-14
Drilled By: /Matt Pepe	**Drill Start Date:** 10/4/2021	**Drill End Date:** 10/4/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
2				- - - -	25	0.0	40-60 cpm		***ASPHALT***	
									POORLY-GRADED GRAVEL (gp) Black gravel; loose; dry	
									CONCRETE	
4									***POORLY-GRADED GRAVEL (gp)*** Black gravel; loose; dry	3.4
									LEAN CLAY WITH GRAVEL (cl) Yellowish-brown clay, trace gravel; soft; wet.	
6				- - - -	100	0.0	40-60 cpm		***GRAVELLY SILT WITH SAND (ml)*** Yellowish-brown silt, little gravel and coarse-grained sand; hard; dry.	
8									***WEATHERED BEDROCK*** Yellowish-brown silt; laminated; hard to very hard; dry. [weathered bedrock]	
10									*Bottom of boring at 9 feet. Refusal*	
12										
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB03/MW-15
Drilled By: /Matt Pepe	**Drill Start Date:** 10/4/2021	**Drill End Date:** 10/4/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9.8	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
2				- - - -	50	(0-2) 0.2 (2-4) 0.0	40-60 cpm		***ASPHALT***	
									CONCRETE	
									ASPHALT	
									LEAN CLAY WITH GRAVEL (cl) Strong brown clay and silt, trace sub-rounded gravel; soft; moist.	
4									***SLAG*** Black slag.	
6				- - - -	58		40-60 cpm		***GRAVELLY SILT (ml)*** Light brown silt, little clay, some angular gravel.	
8									***SHALE*** Weathered bedrock; dense; dry.	
10									*Bottom of boring at 9.8 feet. Refusal*	
12										
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	Client: NYSDEC	Location: Rochester, NY	Boring Log: SB04
Drilled By: /Matt Pepe	Drill Start Date: 10/4/2021	Drill End Date: 10/4/2021	Drill Method:
Logged By: Erik S. Reinert	Total Depth (ft): 10	Bore Diameter (in):	Ground Surface (ft-msl):

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
0									***ASPHALT***
2				- - - -	60	(0-2) 2.1 (2-4) 0.0 (4-6) 0.0	40-60 cpm		***SANDY SILT WITH GRAVEL (ml)*** Gray silt, sand and gravel, trace brick fragments and cinders. [Urban Soil]
4									***POORLY-GRADED SAND (sp)*** Reddish-brown fine-grained sand; medium dense to loose; moist, becoming wet at 6 to 8 feet.
6				- - - -	60	(6-8) 0.0 (8-10) 0.2	30-40 cpm		
8									***SILT (ml)*** Gray silt, trace gravel; hard; moist. [Till]
10									*Bottom of boring at 10 feet. Refusal*
12									
14									
16									
18									
20									

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Project Name: Hawkeye	Client: NYSDEC	Location: Rochester, NY	Boring Log: SB05
Drilled By: /Matt Pepe	Drill Start Date: 10/4/2021	Drill End Date: 10/4/2021	Drill Method:
Logged By: Erik S. Reinert	Total Depth (ft): 10	Bore Diameter (in):	Ground Surface (ft-msl):

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
0									***ASPHALT***
2				- - - -	100	(0-2) 0.1 (2-4) 0.0 (4-6) 0.0	40-60 cpm		***POORLY-GRADED SAND WITH GRAVEL (sp)*** Black and gray coarse-grained sand and gravel; trace brick fragments and cinders; loose; dry.
4									***SILT WITH GRAVEL (ml)*** Yellowish-brown silt, trace sand and gravel; stiff to hard; dry.
6				- - - -	100	(6-8) 0.0 (8-10) 0.2	40-60 cpm		
8									
10									*Bottom of boring at 10 feet. Refusal*
12									
14									
16									
18									
20									

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Project Name: Hawkeye	Client: NYSDEC	Location: Rochester, NY	Boring Log: SB06
Drilled By: /Matt Pepe	Drill Start Date: 10/4/2021	Drill End Date: 10/4/2021	Drill Method:
Logged By: Erik S. Reinert	Total Depth (ft): 9.8	Bore Diameter (in):	Ground Surface (ft-msl):

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
0				- - - -	100	(0-2) 0.6 (2-4) 0.0 (4-6) 0.0	40-70 cpm		***WELL-GRADED SAND WITH GRAVEL (sw)*** Black and gray sand and gravel, trace brick fragments and cinders; loose; dry.
4				- - - -	100	(6-8) 0.0 (8-10) 0.1	40-60 cpm		***WELL-GRADED SAND (sw)*** Brown fine to medium-grained sand; loose moist, becoming wet between 5 and 7.8 feet.
8									***WELL-GRADED GRAVEL WITH SAND (gw)*** Bluish-gray gravel and sand; very dense; dry.
10									*Bottom of boring at 9.8 feet. Refusal*

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB07/MW-16
Drilled By: /Matt Pepe	**Drill Start Date:** 10/5/2021	**Drill End Date:** 10/5/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
0									***ASPHALT***	
2				- - - -	80	(0-2) 4.2 (2-4) 4.2 (4-6) 4.4	20-40 cpm		***WELL-GRADED SAND WITH GRAVEL (sw)*** Gray to reddish-brown sand and gravel, trace to little silt, trace brick fragments and cinders; loose; dry.	
4									***POORLY-GRADED SAND (sp)*** Reddish-brown fine-grained sand; loose; moist.	
6				- - - -	40	(6-8) 2.4 (8-10) 4.0	45-80 cpm		***GRAVELLY SILT (ml)*** Yellowish-brown silt, some angular gravel, trace brick fragments and cinders; hard, soft between 7 and 8 feet; dry, becoming wet between 7 and 8 feet.	
8									***SILTY GRAVEL (gm)*** Strong brown gravel, some silt; medium dense; wet.	
10									***BEDROCK*** Gray shale fragments; loose; dry.	
12									*Bottom of boring at 9 feet. Refusal*	
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB08/MW-17
Drilled By: /Matt Pepe	**Drill Start Date:** 10/5/2021	**Drill End Date:** 10/5/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 15	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
0				- - - -	60	(0-2) 2.4 (2-4) 3.6	40-70 cpm		***CONCRETE*** and gravel sub-base (0.5)	
									SILT WITH SAND (ml) Silt, little sand and fine-grained gravel; dense; dry.	
2										
4										
6				- - - -	100	(4-6) 4.6 (6-8) 3.8 (8-10) 2.6	40-60 cpm		***SILT (ml)*** Yellowish-brown silt, trace sand and gravel; loose; dry.	
									SILTY SAND WITH GRAVEL (sm) Sand with gravel, little silt; medium dense to dense; dry.	
8										
10									***SILTY SAND (sm)*** Fine-grained sand, trace coarse-grained sand, little silt; medium dense; dry.	
				- - - -	100	(10-12) 2.4 (12-14) 4.0 (14-15) 3.4	30-70 cpm		***POORLY-GRADED SAND WITH GRAVEL (sp)*** Brown sand, little gravel, trace silt; medium dense; wet.	
12									***SANDY SILT WITH GRAVEL (ml)*** Brown very-fine-grained sand and silt, some sub-angular to sub-rounded gravel; hard; dry. [Till]	
14										
16									*Bottom of boring at 15 feet. Refusal*	
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB09
Drilled By: /Matt Pepe	**Drill Start Date:** 10/6/2021	**Drill End Date:** 10/6/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 7	**Bore Diameter (in):**	**Ground Surface (ft-msl):**

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
2				- - - -	100	(0-2) 2.7 (2-4) 2.2	35-60 C/m		
4									
6				- -	100	(4-6) 2.5	25-60 C/m		
8									
10									
12									
14									
16									
18									
20									

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB10/MW-18
Drilled By: /Matt Pepe	**Drill Start Date:** 10/6/2021	**Drill End Date:** 10/6/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 10	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
0				- - - -	100	1.3	20-50 cps		***CONCRETE***	
2									***POORLY-GRADED GRAVEL (gp)*** Black gravel; loose; dry.	
									POORLY-GRADED SAND (sp) Fine-grained sand; medium dense; dry.	
4				- - - -	100	(3-5) 1.9 (5-6) 2.3	40-70 cps		***SILTY SAND WITH GRAVEL (sm)*** Strong brown sand, little gravel, some silt; medium dense, becoming soft at 4 feet; moist, becoming wet at 4 feet.	
6				- - - -	67	1.9	40-60 cps		***SILTY GRAVEL WITH SAND (gm)*** Strong brown gravel (0.1 to 0.25-inch diameter), little fine-grained sand, little silt; loose; wet.	
8				- -	100		40-50 cps		***SILTY GRAVEL WITH SAND (gm)*** Brown gravel up to 2-inches in diameter, some silt, little clay, little fine to coarse-grained sand; very dense; dry. [Till]	
10									*Bottom of boring at 10 feet. Refusal*	
12										
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB11
Drilled By: /Matt Pepe	**Drill Start Date:** 10/6/2021	**Drill End Date:** 10/6/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 5	**Bore Diameter (in):**	**Ground Surface (ft-msl):**

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
0									***CONCRETE***
2				- - - -	100	(0-2) 4.0 (2-3) 4.4	40-55 cps		***POORLY-GRADED GRAVEL (gp)*** Black gravel; loose; dry.
									SILT WITH GRAVEL (ml) Yellowish-brown silt, few gravel, dense; dry.
4				- - - -	100	4.8	50-70 cps		***SHALE***
6									***GRAVELLY SILT (ml)*** Silt and angular gravel; dense; dry. Shale in tip of sampler.
									Bottom of boring at 5 feet. Refusal
8									
10									
12									
14									
16									
18									
20									

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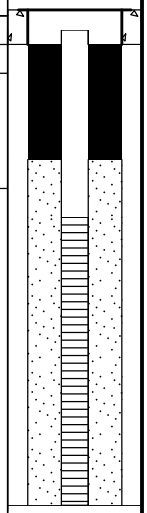
Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB12/MW-19
Drilled By: /Matt Pepe	**Drill Start Date:** 10/6/2021	**Drill End Date:** 10/6/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
2				- - - -	33	3.3	30-50 cps		***CONCRETE***	
									POORLY-GRADED SAND (sp) Brown fine-grained sand, little silt, trace gravel; loose; dry.	
									SILTY SAND WITH GRAVEL (sm) Black, tan, and brown gravelly sand, little silt, medium dense; dry. Gravel to 1-inch diameter and sub-rounded.	
4				- - - -	17	1.1	30-90 cps		***GRAVELLY ELASTIC SILT (mh)*** Olive to gray silt, some clay, little sub-rounded gravel; moist to wet, becoming dry at 8 feet; stiff, becoming hard at 8 feet. [Till]	
6										
8				- - - -	100	(6-8) 3.1 (8-9) 4.6	40-70 cps			
									Bottom of boring at 9 feet. Refusal	
10										
12										
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.



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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB13/MW-20
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
								Ground Surface	
0				- - - -	(0-2) 4.4 (2-4) 2.3 (4-6) 1.3	15-20 cps		***ASPHALT***	
2								***POORLY-GRADED SAND WITH GRAVEL (sp)*** Gray and brown sand, some gravel, trace brick fragments and cinders; loose; dry.	
4								***GRAVELLY SILT (ml)*** Brown silt and gravel, little clay, few sand; soft; wet, becoming stiff and dry at 6 feet. Shale fragment at 7 to 7.2 feet.	
6				- - - -	(6-8) 2.0 (8-9) 3.0	40-100 cps			
8								***SILTY GRAVEL (gm)*** Shale fragments and silt; wet.	
10								*Bottom of boring at 9 feet. Refusal*	
12									
14									
16									
18									
20									

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB14
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9	**Bore Diameter (in):**	**Ground Surface (ft-msl):**

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
2				- - - -	50	1.8	25-55 cps		***ASPHALT***
									POORLY-GRADED GRAVEL WITH SILT AND SAND (gp-gm) Gray to brown gravel and sand, few silt, trace brick fragments and organics; loose; dry.
4									
6				- - - -	100		20-80 cps		***POORLY-GRADED SAND (sp)*** Brown sand; medium dense; wet.
									POORLY-GRADED SAND WITH SILT AND GRAVEL (sp-sm) Yellowish-brown fine-grained sand, little silt and clay, few coarse-grained sand and fine-grained gravel; loose; wet.
8									***SILT (ml)*** Yellowish-brown silt, little to some clay; stiff; moist, some mottling.
									SILT (ml) Yellowish-brown and gray silt; stiff to hard; dry.
10									***POORLY-GRADED GRAVEL (gp)*** Gray gravel; loose; wet.
12									*Bottom of boring at 9 feet. Refusal*
14									
16									
18									
20									

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB15/MW-21
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 10.5	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
0				- - - -	80	(0-2) 3.7 (2-4) 4.2	30-55 cps		***ASPHALT*** Asphalt and sub-base	
2									***POORLY-GRADED SAND WITH GRAVEL (sp)*** Light brown sand and gravel, brick at 1.2 to 1.4 feet; loose; dry.	
4									***SILT WITH SAND (ml)*** Silt, little clay, few sand and gravel; stiff; mottled; moist, becoming dry at 5 feet.	
6				- - - -	80	(4-6) 4.7 (6-8) 2.6 (8-10) 41	30-80 cps		***SILT (ml)*** Yellowish-brown silt, little clay; stiff to hard; dry.	
8										
10				-	100	4.0	40 cps		***SILTY GRAVEL (gm)*** Dark grayish-brown grave, some silt; loose; wet.	
12									*Bottom of boring at 10.5 feet. Refusal*	
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB16/MW-22
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9.5	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
								Ground Surface	
0				100	(0-2) 2.1 (2-4) 1.7	40-80 cps		***CONCRETE***	
2								***POORLY-GRADED GRAVEL WITH SAND (gp)*** Black gravel and coarse-grained sand; loose; dry	
4				100	(4-6) 4.7 (6-8) 3.0	25-70 cps		***SILT WITH SAND (ml)*** Yellowish-brown silt and very fine-grained sand, trace gravel to 0.25-inch diameter; soft, dry.	
6								6.75	
8				50	(6-8) 1.5 (8-9) 2.0	50-75 cps		***GRAVELLY SILT (ml)*** Brown silt, little clay, little sub-rounded gravel; soft; moist.	
				100	1.9	35-60 cps		***SILT (ml)*** Yellowish-brown to gray silt; soft to stiff; dry, becoming moist at 9 feet; laminated structure: shale in tip of sampler at 9.5 feet.	
10								*Bottom of boring at 9.5 feet. Refusal*	
12									
14									
16									
18									
20									

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB17/MW-23
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 9.8	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
2				- - - -	33	2.4	35-40 cps		***CONCRETE***	
									POORLY-GRADED GRAVEL (gp) sub-base	
									POORLY-GRADED GRAVEL WITH SILT (gp-gm) Brown and gray gravel with silt; medium dense; dry.	
4				- - - -	100	2.8	50-85 cps		***POORLY-GRADED SAND (sp)*** Yellowish-brown fine to medium-grained sand, trace silt; medium dense to dense ; wet becoming moist at 5 feet.	
6									6.75	
				- - - -	50	3.5	40-65 cps		***LEAN CLAY WITH GRAVEL (cl)*** Clay, some gravel.	
8									***POORLY-GRADED SAND (sp)*** Strong brown and red fine to medium-grained sand; dense; wet.	
				-	100	1.9	40-60 cps		***SILTY GRAVEL (gm)*** Gravel, some silt; dense; wet.	
10									*Bottom of boring at 9.8 feet. Refusal*	
12										
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB18/MW-24
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 11.2	**Bore Diameter (in):**	**Ground Surface (ft-msl):**
Coordinates (X/Y): /	**Well Permit Number:**		**Top-of-Casing (ft-msl):**

Well Construction			Annulus	
Material	**Diameter (in)**	**Depth (ft)**	**Material**	**Depth (ft)**
Screen:			**Filter Pack:**	to
Riser:			**Seal:**	
Other:			**Other:**	

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description	Well
									Ground Surface	
2				- - - -	100	(0-2) 1.8 (2-4) 2.9 (4-6) 3.1	30-50 cps		***SILTY GRAVEL (gm)*** Gray gravel and silt, trace brick; medium dense; dry; faint petroleum odor.	
6				- - - -	100	(6-8) 3.1 (8-10) 1.7	50-80 cps			
10				- -	100	1.4	35-50 cps		***SILT WITH GRAVEL (ml)*** Yellowish-brown silt, some sub-angular to sub-rounded gravel to 0.5 inches in diameter, few fine to medium-grained sand; stiff, becoming soft at 10 feet, dry, becoming wet at 10 feet. [Till]	
12									*Bottom of boring at 11.2 feet. Refusal*	
14										
16										
18										
20										

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

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Project Name: Hawkeye	**Client:** NYSDEC	**Location:** Rochester, NY	**Boring Log:** SB19
Drilled By: /Matt Pepe	**Drill Start Date:** 10/7/2021	**Drill End Date:** 10/7/2021	**Drill Method:**
Logged By: Erik S. Reinert	**Total Depth (ft):** 10.1	**Bore Diameter (in):**	**Ground Surface (ft-msl):**

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
0				- - - -	100	(0-2) 1.7 (2-4) 3.6 (4-6) 4.6	30-60 cps		***WELL-GRADED GRAVEL WITH SILT AND SAND (gw-gm)*** Gray sand and gravel, some silt; medium dense; dry, wet between 7.5 and 8.5 feet; faint petroleum odor.
8				- - - -	50	10.8	25-40 cps		
10					100				***GRAVELLY SILT (ml)*** Dark gray silt, little gravel ; hard; dry; faint petroleum odor.
									SHALE Bedrock
									Bottom of boring at 10.1 feet. Refusal

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Project Name: Hawkeye	Client: NYSDEC	Location: Rochester, NY	Boring Log: SB20
Drilled By: /Matt Pepe	Drill Start Date: 10/7/2021	Drill End Date: 10/7/2021	Drill Method:
Logged By: Erik S. Reinert	Total Depth (ft): 10	Bore Diameter (in):	Ground Surface (ft-msl):

Notes: All soil classifications based on visual descriptions made during the installation of the boring.

Depth (ft)	Elevation (ft-msl)	Type	Lab Sample Interval	Blows	Recovery (%)	PID (ppm)	FID (ppm)	Graphic Log	Physical Description
									Ground Surface
2				- - - -	100	(0-2) 2.9 (2-4) 3.3 (4-6) 3.9	35-60 cps		***GRAVELLY SILT (ml)*** Gray silt and gravel; medium dense; dry, becoming wet between 8 and 9 feet; faint petroleum odor; coal at bottom of core.
4									
6				- - - -	40	2.0	30-50 cps		
8									
10									*Bottom of boring at 10 feet. Refusal*
12									
14									
16									
18									
20									

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C Groundwater Sampling Logs

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: IB5NE
E & E Project No.: EE1705007.0019
Date: 10/24/21

Initial Depth to Water: 17.61 feet TOIC
Total Well Depth: 29.18 feet TOIC
Depth to Pump: 24 feet TOIC
Initial Pump Rate: 0.16 (Lpm) gpm
adjusted to: 0.12 at 1105
adjusted to: 0.08 at 1110

Start Time: 1055
End Time: 1145
☐ Bailer ☑ Pump
Pump Type: Bladder
Well Diameter: 2 inches
1x Well Volume: 1.9 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C) °F	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1055	INT.	8.08	15.4	62.5	2.013	8.38	0	17.25
1100	0.80	7.61	16.7	77.2	2.690	1.57	2.7	17.97
1105	1.60	7.66	17.2	74.9	2.773	1.09	1.3	18.16
1110	2.20	7.76	17.1	72.4	2.703	0.73	0	18.30
1115	2.80	7.82	16.7	69.7	2.653	0.53	2.0	18.60
1120	3.00	7.75	16.7	68.4	2.738	0.48	1.6	18.63
1125	3.40	7.69	16.8	64.5	2.822	0.47	1.5	18.79
1130	3.80	7.66	17.0	59.4	2.885	0.44	0.7	18.84
1135	4.20	7.67	17.1	52.0	2.930	0.43	1.3	18.86
1140	4.60	7.61	17.0	51.1	2.989	0.38	0.91	18.92
1145 — END, PARAMETERS STABLE, COLLECT SAMPLE —								
Final Sample Data:								

Sample ID: IB5NE
Sample Time: 1145
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID:
No. of Bottles: 8

Analyses:	Methods:
☒ VOCs	☐ CLP
☒ SVOCs	☐ SW846
☒ PCBs	☐ EPA/CWA
☐ Pest.	☐ _____
☒ Metals/CN	
☐ Dioxin	

Comments:

Sampler(s): M. Hanford, E. Reinert

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: IL2NE

E & E Project No.: EE1705007.0019
Date: 10/28/2021

Initial Depth to Water: 12.02 feet TOIC
Start Time: 1530

Total Well Depth: 22.85 feet TOIC
End Time: 1620

Depth to Pump: 18.0 feet TOIC
☐ Bailer ☒ Pump

Initial Pump Rate: 0.08 (Lpm) / gpm
Pump Type: QED Bladder

adjusted to: _____ at _____
Well Diameter: 2 inches

adjusted to: _____ at _____
1x Well Volume: 1.77 gallons x 3 = 5.3

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C) / °F)	ORP (mV)	Conductivity (µS/cm / mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1530	INT.	7.87	14.4	62.4	3625	6.46	105	12.04
1535	0.40	7.57	14.7	84.1	3.765	5.14	139	12.00
1540	0.80	7.51	14.8	92.7	~~93.0~~ mS/cm 3.765	4.92	94	12.02
1545	1.20	7.46	14.9	95.7	3.778	4.79	49	12.02
1550	1.60	7.39	15.0	94.6	3.796	4.72	31	12.02
1555	2.00	7.32	15.1	92.8	3.799	4.67	18.8	12.02
1600	2.40	7.26	15.1	93.1	3.792	4.66	10.0	12.02
1605	2.80	7.20	14.9	95.1	3.797	4.64	7.6	12.02
1610	3.20	7.12	14.8	97.2	3.795	4.62	5.4	12.02
1615	3.60	7.10	14.7	98.7	3.792	4.61	4.1	12.02
-END, PARAMETERS STABILIZED, COLLECT SAMPLE @ 1620-								
Final Sample Data:								

Sample ID: IL2NE
Duplicate? ☐
Dupe Samp ID: _____

Sample Time: 1620
MS/MSD? ☐
No. of Bottles: 8

Analyses:	Methods:
☒ VOCs	☐ CLP
☒ SVOCs	☐ SW846
☒ PCBs	☐ EPA/CWA
☐ Pest.	☐ _____
☒ Metals/CN	
☐ Dioxin	

Comments: _____

Sampler(s): M. Hanford

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: IB11AW
E & E Project No.: EE1705007.0019
Date: 10/28/2021

Initial Depth to Water: 7.43 feet TOIC
Total Well Depth: 22.49 feet TOIC
Depth to Pump: 18.5 feet TOIC
Initial Pump Rate: 0.05 (lpm) / gpm
adjusted to: 0.09 at 1135
adjusted to: 0.120 at 1155

Start Time: 1120
End Time: 1255
☐ Bailer ☒ Pump
Pump Type: QED Bladder
Well Diameter: 2 inches
1x Well Volume: 2.46 gallons x 3 = 7.38 gal

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1230	7.35	6.66	14.6	7.7	2.511	0.23	152	7.86
1235	7.95	6.66	14.6	5.3	2.517	0.21	131	7.86
1240	8.55	6.66	14.7	4.7	2.523	0.18	107	7.86
1245	9.15	6.64	14.5	6.0	2.525	0.17	114	7.86
1250	9.75	6.62	14.5	7.2	2.526	0.16	112	7.86
- END, PARAMETERS STABLIZED, COLLECT SAMPLE @ 1255								
Final Sample Data:								

Sample ID: IB11AW
Sample Time: 1255
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID:
No. of Bottles: 9

Analyses:	Methods:
☒ VOCs	☐ CLP
☒ SVOCs	☐ SW846
☒ PCBs	☐ EPA/CWA
☐ Pest.	☐ _____
☒ Metals/CN	
☐ Dioxin	
☒ Thorium	

Comments:

Sampler(s): M. Hanford

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: IB11AW
E & E Project No.: EE1705007.0019
Date: 10/28/2021

Initial Depth to Water: 7.43 feet TOIC
Total Well Depth: 22.49 feet TOIC
Depth to Pump: 18.5 feet TOIC
Initial Pump Rate: 0.05 (Lpm) gpm
adjusted to: 0.09 at 1135
adjusted to: 0.120 at 1155

Start Time: 1120
End Time: 1255
☐ Bailer ☒ Pump
Pump Type: QED Bladder
Well Diameter: 2 inches
1x Well Volume: 2.46 gallons x 3 = 7.38 gal

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C) °F	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1120	INT.	8.83	11.3	1.0	0.735	7.37	>1000	7.52
1125	0.25	6.72	12.9	-82.6	2.325	0.56	>1000	7.56
1130	0.50	6.79	13.0	-80.9	2.377	0.54	>1000	7.59
1135	0.75	6.76	13.3	-70.5	2.462	0.55	>1000	7.59
1140	1.20	6.77	14.3	-65.4	2.426	0.42	>1000	7.75
1145	1.65	6.81	14.3	-64.5	2.421	0.40	>1000	7.73
1150	2.10	6.69	14.2	-20.0	2.368	0.50	>1000	7.83
1155	2.55	6.72	14.3	-24.0	2.378	0.44	741	7.80
1200	3.15	6.74	14.3	-25.0	2.427	0.30	472	7.76
1200	3.75	6.74	14.3	-24.4	2.429	0.29	335	7.82
1205	4.35	6.59	14.5	12.5	2.419	0.93	636	7.87
1210	4.95	6.67	14.6	-2.2	2.433	0.34	563	7.86
1215	5.55	6.71	14.5	-9.8	2.478	0.25	325	7.87
1220	6.15 (MS/MSD)	6.70	14.6	-8.4	2.497	0.22	192	7.86
1225	6.75	6.66	14.7	21.0	2.492	0.53	222	7.86
Final Sample Data:								

Sample ID: IB11AW
Sample Time: 1255
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID:
No. of Bottles: 9

Analyses:
☒ VOCs
☒ SVOCs
☒ PCBs
☐ Pest.
☒ Metals/CN
☐ Dioxin
☒ Thorium

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments:

Sampler(s): M. Hanford

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: IB12 SW
E & E Project No.: EE1705007.0019
Date: 10/27/2021

Initial Depth to Water: 9.71 feet TOIC
Total Well Depth: 14.09 feet TOIC
Depth to Pump: 12.0 feet TOIC
Initial Pump Rate: 0.07 Lpm / gpm
adjusted to: 0.05 at 1225
adjusted to: 0.180 at 1245

Start Time: 1215
End Time:
☐ Bailer ☒ Pump
Pump Type: QED Bladder
Well Diameter: 2 inches
1x Well Volume: 0.71 gallons x 3 = 2.13 gal

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1215	INT	8.77	16.1	-71.6	1.568	3.92	41	9.89
1220	0.350	8.22	15.4	-72.3	1.517	4.21	89	10.01
1225	0.700	7.40	15.3	-78.8	1.404	4.46	133	10.12
1230	0.95	7.39	15.2	-74.3	1.361	4.63	130	10.20
1235	1.20	7.35	15.0	-54.7	1.217	5.44	114	10.25
1240	1.45	7.34	14.9	-50.3	1.196	5.50	117	10.31
1245	1.70	7.30	14.9	-43.8	1.187	5.60	118	10.44
1250	2.60	7.29	17.3	-84.2	1.454	4.44	15.5	10.59
1255	3.50	7.31	17.4	-94.3	1.477	3.07	3.6	10.92
1300	4.40	7.32	17.3	-113.6	1.526	1.73	4.5	11.00
1305	5.30	7.35	16.9	-114.4	1.523	3.44	6.6	11.21
- DRY, will sample later								
Final Sample Data:								

Sample ID: IB12 SW
Sample Time: 10/28/2021 0940
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID:
No. of Bottles: 9

Analyses: / Methods:
☒ VOCs ☐ CLP
☒ SVOCs ☐ SW846
☒ PCBs ☐ EPA/CWA
☐ Pest. ☐ _____
☒ Metals/CN
☐ Dioxin
☒ Thorium

Comments:

Sampler(s): M. Hanford

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: IB5SW
E & E Project No.: EE1705007.0019
Date: 10/27/2021

Initial Depth to Water: 4.52 feet TOIC
Total Well Depth: 14.15 feet TOIC
Depth to Pump: 10.00 feet TOIC
Initial Pump Rate: 0.09 (Lpm) gpm
adjusted to: 0.08 at 0950
adjusted to: ____ at ____

Start Time: 0935
End Time: 1030
☐ Bailer ☒ Pump
Pump Type: QED Bladder
Well Diameter: 2 inches
1x Well Volume: 1.57 gallons x 3 = 4.71 gal

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C/°F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0935	INT.	9.28	14.5	110.1	0.470	9.41	111	4.52
0940	0.450	7.71	15.6	188.7	0.463	8.57	74	4.57
0945	0.900	7.79	15.7	186.3	0.364	8.60	88	4.64
0950	(meas) 1.35	7.89	15.7	183.9	0.298	8.62	53	4.68
0955	1.75	7.93	15.5	183.4	0.290	8.64	39	4.71
1000	2.15	7.96	15.6	183.4	0.293	8.63	28	4.78
1005	2.55	7.93	15.3	183.6	0.301	8.66	23	4.80
1010	2.95	7.92	15.5	183.5	0.304	8.64	21	4.83
1015	3.35	7.92	15.6	182.8	0.307	8.64	16.8	4.90
1020	3.75	7.92	15.6	182.1	0.310	8.65	13.6	4.92
1025	4.15	7.92	15.6	180.7	0.315	8.65	11.1	5.06
-END, PARAMETERS STABILIZED, SAMPLE @ 1030								
Final Sample Data:								

Sample ID: IB5SW
Sample Time: 1030
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: ____
No. of Bottles: 9

Analyses:	Methods:
☒ VOCs	☐ CLP
☒ SVOCs	☐ SW846
☒ PCBs	☐ EPA/CWA
☐ Pest.	☐ ____
☒ Metals/CN	
☐ Dioxin	

☒ Thorium

Comments: ____

Sampler(s): MH

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-18

E & E Project No.: EE1705007.0019
Date: 10/28/21

Initial Depth to Water: 4.80 feet TOIC
Start Time: 1000

Total Well Depth: 9.65 feet TOIC
End Time: 1005

Depth to Pump: 9.15 feet TOIC
☐ Bailer ☑ Pump

Initial Pump Rate: _____ Lpm / gpm
Pump Type: peristaltic

adjusted to: _____ at _____
Well Diameter: 1 inches

adjusted to: _____ at _____
1x Well Volume: 0.2 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1000	init	5.42	13.3	242	6926	—	clear	—
1002	0.1	6.52	15.5	212	5413	—	cloudy	—
1004	0.2	7.09	15.9	208	4824	—	cloudy	—
1005	well purged dry @ 0.2 gallons. Will return							
to	sample at a later time.							
Final Sample Data:								

Sample ID: MW-18
Duplicate? ☐
Dupe Samp ID: _____

Sample Time: 1235
MS/MSD? ☐
No. of Bottles: 3

Analyses:
☑ VOCs
☐ SVOCs
☐ PCBs
☐ Pest.
☐ Metals/CN
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: VOCs only due to low volume

Sampler(s): ESR

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-19

E & E Project No.: EE1705007.0019
Date: 10/28/21

Initial Depth to Water: 4.20 feet TOIC
Start Time: 1205

Total Well Depth: 8.09 feet TOIC
End Time: 1214

Depth to Pump: 8.09 feet TOIC
☐ Bailer ☑ Pump

Initial Pump Rate: _____ Lpm / gpm
Pump Type: peri

adjusted to: _____ at _____
Well Diameter: 1 inches

adjusted to: _____ at _____
1x Well Volume: 0.15 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1205	Init	8.89	10.7	256	262.0	—	clear	—
1207	0.1	8.77	11.9	241	241.4	—	clear	—
1209	0.2	8.69	11.5	236	239.1	—	clear	—
1211	0.3	8.54	12.0	232	244.4	—	clear	—
1213	0.5	8.42	11.8	229	245.4	—	clear	—
1214	End purge.							
Final Sample Data:								

Sample ID: MW-19
Duplicate? ☐
Dupe Samp ID: _____

Sample Time: 1220
MS/MSD? ☐
No. of Bottles: 8

Analyses:	Methods:
☑ VOCs	☐ CLP
☑ SVOCs	☐ SW846
☑ PCBs	☐ EPA/CWA
☐ Pest.	☐ _____
☑ Metals/~~CN~~	
☐ Dioxin	

Comments: _____

Sampler(s): ESR

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-12
E & E Project No.: EE1705007.0019
Date: 10/28/21

Initial Depth to Water: 4.91 feet TOIC
Total Well Depth: 8.41 feet TOIC
Depth to Pump: 8.41 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: 1125
End Time: 1134
☐ Bailer ☑ Pump
Pump Type: peristaltic
Well Diameter: _____ inches
1x Well Volume: 0.14 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1125	Init	7.91	10.9	244	646.9	—	muddy	—
1126	0.1	8.31	13.9	242	350.3	—	cloudy	—
1128	0.2	8.29	13.3	231	351.9	—	clear	—
1130	0.3	8.25	13.5	230	364.4	—	clear	—
1132	0.4	8.24	14.0	230	371.5	—	clear	—
1133	0.5	8.20	14.0	229	368.1	—	clear	—
1134	End purge							
Final Sample Data:								

Sample ID: MW-12
Sample Time: 1145
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: 9

Analyses:
- ☑ VOCs
- ☑ SVOCs
- ☑ PCBs
- ☐ Pest.
- ☑ Metals/CN
- ☐ Dioxin
- ☑ Thorium

Methods:
- ☐ CLP
- ☐ SW846
- ☐ EPA/CWA
- ☐ _____

Comments: Slightly turbid

Sampler(s): ESR

3.5
0.14
0.490

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-07
E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 6.36 feet TOIC
Total Well Depth: 8.99 feet TOIC
Depth to Pump: 8.99 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: ~~1450~~ 1452 (Eth)
End Time: 1505
☐ Bailer ☑ Pump
Pump Type: peri-pump
Well Diameter: _____ inches
1x Well Volume: 0.1 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1452	Init	9.14	12.4	168	1303	—	muddy	—
1454	0.1	10.02	15.3	138	713.5	—	clearing	—
1456	0.2	10.15	15.4	128	732.2	—	clearing	—
1458	0.3	10.09	15.0	128	744.5	—	cloudy	—
1505	Collect Sample							
Final Sample Data:		10.09	15.0	128	744.5	—	cloudy	—

Sample ID: MW-07
Sample Time: 1505
Duplicate? ☐
MS/MSD? ☑
Dupe Samp ID: _____
No. of Bottles: ~~8~~ 14

Analyses:
☑ VOCs
☑ SVOCs
☑ PCBs
☐ Pest.
☑ Metals ~~/CN~~
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: VOC MS/MSD only

Sampler(s): ESR + MH

Well Purge Form.xls

2.4
.04
.096

ecology and environmental engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences

Well ID: MW-22

E & E Project No.: EE1705007.0019

Date: 10/27/21

Initial Depth to Water: 9.07 feet TOIC

Start Time: 1439

Total Well Depth: 9.46 feet TOIC

End Time: 1430

Depth to Pump: _____ feet TOIC

☐ Bailer ☐ Pump

Initial Pump Rate: _____ Lpm / gpm

Pump Type: _____

adjusted to: _____ at _____

Well Diameter: _____ inches

adjusted to: _____ at _____

1x Well Volume: 0.016 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
Failed to purge sufficient water to collect one reading. Will not sample this well.								
Final Sample Data:								

Sample ID: _____ Duplicate? ☐ Dupe Samp ID: _____

Sample Time: _____ MS/MSD? ☐ No. of Bottles: _____

Analyses:

- ☐ VOCs
- ☐ SVOCs
- ☐ PCBs
- ☐ Pest.
- ☐ Metals/CN
- ☐ Dioxin

Methods:

- ☐ CLP
- ☐ SW846
- ☐ EPA/CWA
- ☐ _____

Comments: _____

Sampler(s): _____

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engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-20

E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 6.55 feet TOIC
Start Time: 1355

Total Well Depth: 8.99 feet TOIC
End Time:

Depth to Pump: 8.99 feet TOIC
☐ Bailer ☐ Pump

Initial Pump Rate: _____ Lpm / gpm
Pump Type: _____

adjusted to: _____ at _____
Well Diameter: _____ inches

adjusted to: _____ at _____
1x Well Volume: 0.1 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1355	Init	9.26	13.7	172	3443	—	Brown	—
1357	0.1	9.22	15.0	164	4483	—	Muddy	—
1359	0.2	Well purged dry						
Final Sample Data:								

Sample ID: MW-20
Duplicate? ☐
Dupe Samp ID: _____

Sample Time: 1405
MS/MSD? ☐
No. of Bottles: _____

Analyses:
- ☑ VOCs
- ☑ SVOCs
- ☑ PCBs
- ☐ Pest.
- ☑ Metals ~~/CN~~
- ☐ Dioxin

Methods:
- ☐ CLP
- ☐ SW846
- ☐ EPA/CWA
- ☐ _____

Comments: Sample is turbid

Sampler(s): _____

2.5
.164
.100

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-16
E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 5.28 feet TOIC
Total Well Depth: 9.15 feet TOIC
Depth to Pump: 9.15 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: 1250
End Time: 1307
☐ Bailer ☑ Pump
Pump Type: Peristaltic
Well Diameter: 1 inches
1x Well Volume: .16 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1250	Init	8.69	12.6	165	2864	—	clear	—
1252	0.1	8.87	14.5	160	2281	—	brown	—
1254	0.2	8.64	14.7	165	2190	—	brown	—
1256	0.3	8.38	15.9	170	2093	—	clearing	—
1258	0.4	8.53	16.3	175	1804	—	clearing	—
1300	0.5	8.63	16.1	171	1749	—	cloudy	—
1302	0.6	8.73	16.7	167	1673	—	cloudy	—
1304	0.7	8.75	16.5	168	1660	—	cloudy	—
1306	0.9	8.78	16.5	164	1641	—	cloudy	—
1307	End purge.							
Final Sample Data:								

Sample ID: ~~tef~~ MW-16
Sample Time: 1330
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: 8

Analyses:
☑ VOCs
☑ SVOCs
☑ PCBs
☐ Pest.
☑ Metals/CN
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: Sample is visibly turbid

Sampler(s): _____

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WELL PURGE & SAMPLE RECORD

Site Name/Location: ~~Eastman Business Park~~ Hawkeye
Well ID: MW-05
E & E Project No.: ~~10C5007.0003~~
Date: 10/25/2021

Initial Depth to Water: 8.42 feet TOIC
Total Well Depth: 9.65 feet TOIC
Depth to Pump: 9.00 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: 1325
End Time: 1330
☐ Bailer ☒ Pump
Pump Type: Peristaltic
Well Diameter: 1" inches
1x Well Volume: 0.05 gallons x 3 = 0.15gal

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1325	0.150	8.00	16.5	115.3	1.404	6.03	>1000	
1328	0.320	8.16	17.7	110.4	1.193	5.54	782	
1330	DRY							
Final Sample Data:								

Sample ID: _____
Sample Time: _____
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: _____

Analyses:
☐ VOCs
☐ SVOCs
☐ PCBs
☐ Pest.
☐ Metals/CN
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: _____

Sampler(s): _____

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WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-21

E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 8.61 feet TOIC
Start Time: 1135

Total Well Depth: 9.92 feet TOIC
End Time:

Depth to Pump: _____ feet TOIC
☐ Bailer ☑ Pump

Initial Pump Rate: _____ Lpm / gpm
Pump Type: Peristaltic

adjusted to: _____ at _____
Well Diameter: 1 inches

adjusted to: _____ at _____
1x Well Volume: 0.05 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1135	Init	7.95	11.8	174	5278	—	clear	—
1137	0.25	7.87	12.6	103	5010	—	"	—
1139	0.5	7.82	12.3	56	4899	—	"	—
1141	0.75	7.72	12.4	-28	4729	—	"	—
1143	~~1.0~~ well purged dry. will allow recharge & collect sample.							
1225	Collect sample	MW-21						
Final Sample Data:								

Sample ID: MW-21
Duplicate? ☐
Dupe Samp ID: _____

Sample Time: 1225
MS/MSD? ☐
No. of Bottles: 8

Analyses:	Methods:
☑ VOCs	☐ CLP
☑ SVOCs	☐ SW846
☑ PCBs	☐ EPA/CWA
☐ Pest.	☐ _____
☑ Metals/CN	
☐ Dioxin	

Comments: Feint petroleum / VOC odor

Sampler(s): Erik Reinert

Well Purge Form.xls

1.3
+ .04
1.92

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engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-06
E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 10.39 feet TOIC
Total Well Depth: 12.08 feet TOIC
Depth to Pump: 12.08 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: 1015
End Time: 1047
☐ Bailer ☑ Pump
Pump Type: Peristaltic
Well Diameter: 1 inches
1x Well Volume: 0.07 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1015	Init	7.68	12.2	-64	1212	—	Muddy	—
1019	0.25	7.65	14.5	-29	1729	—	clear	—
1021	0.5	7.64	14.4	50	1897	—	clear	—
1023	0.75	7.64	14.2	68	1944	—	clear	—
1040	2gal	7.86	13.5	118	2090	—	clear	—
1042	2.25gal	7.79	13.4	128	2059	—	clear	—
1044	2.5	7.74	14.0	135	2091	—	clear	—
1046	2.75	7.71	13.9	137	2091	—	clear	—
1047	End purge & collect sample.							
Final Sample Data:								

Sample ID: MW-06
Sample Time: 1047
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: 9

Analyses: / Methods:
- ☑ VOCs / ☐ CLP
- ☑ SVOCs / ☐ SW846
- ☑ PCBs / ☐ EPA/CWA
- ☐ Pest. / ☐ _____
- ☑ Metals/CN
- ☐ Dioxin
- ☑ Th isotopes

Comments: _____

Sampler(s): ESR

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engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-14
E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 7.98 feet TOIC
Total Well Depth: 9.70 feet TOIC
Depth to Pump: 8.7 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: 0950
End Time: 0951
☐ Bailer ☑ Pump
Pump Type: Peristaltic
Well Diameter: 1 inches
1x Well Volume: 0.03 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0950	Init	6.61	11.8	233	946.2	—	—	—
0951	Well purged dry @ 1 L.							
Final Sample Data:								

Sample ID: MW-14
Sample Time: 1540
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: _____

Analyses:
☑ VOCs
☐ SVOCs
☐ PCBs
☐ Pest.
☐ Metals/CN
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: VOCs only due to low purge volume

Sampler(s): E. Reinert, M. Hartford

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-15
E & E Project No.: EE1705007.0019
Date: 10/27/21

Initial Depth to Water: 8.53 feet TOIC
Start Time: 0959
Total Well Depth: 9.38 feet TOIC
End Time: 1000
Depth to Pump: 9.38 feet TOIC
☐ Bailer ☑ Pump
Initial Pump Rate: _____ Lpm / gpm
Pump Type: peristaltic
adjusted to: _____ at _____
Well Diameter: 1 inches
adjusted to: _____ at _____
1x Well Volume: 0.23 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
0959	Init	8.15	11.8	214	1351	—	—	—
1000	well purged dry @			tgt	1 L			
Final Sample Data:								

Sample ID: MW-15
Duplicate? ☐
Dupe Samp ID: _____
Sample Time: 1530
MS/MSD? ☐
No. of Bottles: 3

Analyses:
☑ VOCs
☐ SVOCs
☐ PCBs
☐ Pest.
☐ Metals/CN
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: VOC sample only due to low purge volume

Sampler(s): ESR, MH

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engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: MW-23
E & E Project No.: EE1705007.0019
Date: 10/26/21

Initial Depth to Water: 5.68 feet TOIC
Total Well Depth: 9.66 feet TOIC
Depth to Pump: 9 feet TOIC
Initial Pump Rate: 0.150 Lpm / gpm
adjusted to: 0.180 at 1417
adjusted to: _____ at _____

Start Time: 1357
End Time: _____
☐ Bailer ☒ Pump
Pump Type: peristaltic
Well Diameter: _____ inches
1x Well Volume: 0.16 gallons 0.5gal=3

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C) °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1357	INT.	8.84	16.0	140.0	0.333	6.85	>1000	5.99
1402	0.750	8.88	16.1	155.1	0.330	8.06	322	6.01
1407	1.50	8.59	16.2	161.5	0.328	5.92	234	6.03
1412	2.25	8.53	16.3	185.5	0.327	5.71	95	6.03
1417	3.00	8.50	16.3	168.8	0.328	5.69	113	6.04
1422	3.90	8.48	16.3	171.8	0.325	5.65	93	6.05
1427	4.80	8.45	16.3	174.8	0.325	5.65	45.8	6.06
1432	5.70	8.45	16.3	176.5	0.325	5.54	35.14	6.07
1437	6.60	8.46	16.2	178.3	0.322	5.51	42.3	6.07
-END, PARAMETERS STABLE, COLLECT SAMPLE @ 1440-								
Final Sample Data:								

Sample ID: MW-23
Sample Time: 1440
Duplicate? ☐
MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: 9

Analyses: Methods:
☒ VOCs ☐ CLP
☒ SVOCs ☐ SW846
☒ PCBs ☐ EPA/CWA
☐ Pest. ☐ _____
☒ Metals/CN
☐ Dioxin
☒ Thorium

Comments: _____

Sampler(s): M. Hanford, E. Reinert

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engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences

Well ID: ~~IB5NE~~ IBGNE

E & E Project No.: EE1705007.0019

Date: 10/26/21 (EA)

Initial Depth to Water: ~~16.62~~ 15.88 (EA) feet TOIC

Start Time: 1015

Total Well Depth: 22.80 feet TOIC

End Time: 1125

Depth to Pump: 20 feet TOIC

☐ Bailer ☑ Pump

Initial Pump Rate: 0.070 Lpm / gpm

Pump Type: QED Bladder

adjusted to: 0.20 at 1039

Well Diameter: 2 inches

adjusted to: _____ at _____

1x Well Volume: 0.78 gallons 2.3 = 3x

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1019	Init	6.67	12.3	283.4	4.397	9.09	281	15.9
1024	0.350	7.47	12.8	251.9	4.789	5.88	315	15.94
1029	0.7	7.74	12.8	238.3	4.949	5.41	247	15.95
1034	1.05	7.78	13.1	234.9	4.975	5.25	148	15.98
1039	1.40	7.79	13.2	233.9	5.010	5.17	144	15.99
1044	2.40	7.78	14.4	233.5	5.145	4.96	165	16.17
1049	3.40	7.80	14.3	234.2	5.398	4.73	222	16.20
1054	4.40	7.74	14.3	236.8	6.316	3.99	265	16.20
1059	5.40	7.70	14.4	237.4	6.998	3.29	174	16.19
1104	6.40	7.58	14.1	248.7	7.161	3.28	172	16.15
1109	7.40	7.59	14.3	244.8	7.236	2.60	162	16.13
1114	8.40	7.62	14.1	241.4	7.236	2.37	171	16.13
1119	9.40	7.62	14.2	239.9	7.209	2.25	161	16.14
1124	10.40	7.62	14.1	238.4	7.163	2.11	155	16.13
-END, well parameters stabilized, collect sample @ 1125 -								
Final Sample Data:								

Sample ID: ~~IB5NE~~ IBGNE (EA) Duplicate? ☐ Dupe Samp ID: _____

Sample Time: 1125 (EA) MS/MSD? ☒ No. of Bottles: 27

Analyses:
- ☒ ~~VOCs~~
- ☒ ~~SVOCs~~
- ☒ PCBs
- ☐ Pest.
- ☒ Metals/CN
- ☐ Dioxin
- ☒ Thorium

Methods:
- ☐ CLP
- ☐ SW846
- ☐ EPA/CWA
- ☐ _____

Comments: Called Steve Hartmann on 10/29/21 to correct sample ID

Sampler(s): M. Hanford, E. Reinert

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences

Well ID: MW-17

E & E Project No.: EE1705007.0019

Date: 10/29/21

Initial Depth to Water: 9.63 feet TOIC

Start Time: 1048

Total Well Depth: 13.95 feet TOIC

End Time: 1051

Depth to Pump: 13.95 feet TOIC

☐ Bailer ☑ Pump

Initial Pump Rate: _____ Lpm / gpm

Pump Type: Peri

adjusted to: _____ at _____

Well Diameter: 1 inches

adjusted to: _____ at _____

1x Well Volume: 0.16 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1048	Init	6.42	13.9	198	6575	—	clear	—
1049	0.1	7.03	15.2	174	6099	—	clear	—
1050	0.2	7.77	15.8	159	5597	—	clear	—
1051	well purged dry @ ~0.4 gallons. will allow recharge and collect sample at a later time.							
Final Sample Data:								

Sample ID: MW-17

Duplicate? ☐

Dupe Samp ID: _____

Sample Time: 1150

MS/MSD? ☐

No. of Bottles: 3

Analyses:

- ☑ VOCs
- ☐ SVOCs
- ☐ PCBs
- ☐ Pest.
- ☐ Metals/CN
- ☐ Dioxin

Methods:

- ☐ CLP
- ☐ SW846
- ☐ EPA/CWA
- ☐ _____

Comments: _____

Sampler(s): ESR, MH

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: Hawkeye Trade Center and Residences
Well ID: SB4NE
E & E Project No.: EE1705007.0019
Date: 10/28/21

Initial Depth to Water: 11.65 feet TOIC
Total Well Depth: 12.80 feet TOIC
Depth to Pump: 12.80 feet TOIC
Initial Pump Rate: _____ Lpm / gpm
adjusted to: _____ at _____
adjusted to: _____ at _____

Start Time: 1545
End Time: _____
☐ Bailer ☑ Pump
Pump Type: peristaltic
Well Diameter: 2 inches
1x Well Volume: <0.2 gallons

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1545	Init	7.28	9.6	252	3754	—	brown	—
1547	0.1	7.38	14.2	238	3863	—	clear	—
1548	0.2	7.39	14.3	212	3779	—	clear	—
1549	0.3	7.45	14.2	173	3763	—	clear	—
1550	0.4	7.50	14.1	131	3742	—	clear	—
1551	0.5	7.52	13.9	101	3771	—	clear	—
1552	0.6	7.60	13.9	84	3763	—	clear	—
1553	0.7	7.54	13.2	42	3744	—	clear	—
1554	Well purged dry @ ~0.7 gal. will allow recharge + sample							
Final Sample Data:								

Sample ID: SB4NE
Sample Time: 10/29/21 1245
Duplicate? ☐ MS/MSD? ☐
Dupe Samp ID: _____
No. of Bottles: 5

Analyses:
☑ VOCs
☑ SVOCs
☐ PCBs
☐ Pest.
☐ Metals/CN
☐ Dioxin

Methods:
☐ CLP
☐ SW846
☐ EPA/CWA
☐ _____

Comments: Insufficient volume to Sample for Metals and PCBs. Sample is visibly cloudy.

Sampler(s): ESR, MH

ecology and environment
engineering and geology, p.c.

WELL PURGE & SAMPLE RECORD

Site Name/Location: ~~Eastman Business Park~~ MEW Hawkeye

E & E Project No.: ~~10C5007.0009~~ MEW

Well ID: IB5SW2

Date: 10/25/21

Initial Depth to Water: 7.94 feet TOIC

Total Well Depth: 18.75 feet TOIC

Depth to Pump: 14.0 feet TOIC

Initial Pump Rate: 0.07 (Lpm) / gpm .070 ml

adjusted to: _____ at _____

adjusted to: _____ at _____

Start Time: 1350

End Time: 1445

☐ Bailer ☒ Pump

Pump Type: Bladder - QED

Well Diameter: 2 inches

1x Well Volume: 1.76 gallons x 3 = 5.28 gal

Time	Purge Volume (gallons/liters)	pH (s.u.)	Temp. (°C / °F)	ORP (mV)	Conductivity (µS/cm mS/cm)	DO (mg/L)	Turbidity (NTU)	Water Level (feet)
1350	0.00	7.13	14.9	141.0	1.346	8.40	90.43	7.92
1355	0.35	7.06	15.2	139.5	1.418	7.01	151	8.05
1400	0.70	7.07	15.4	139.1	1.417	6.89	201	8.17
1405	1.05	7.07	15.4	139.7	1.415	6.88	189	8.29
1410	1.40	7.06	15.4	140.2	1.410	6.95	140	8.42
1415	1.75	7.09	15.5	138.5	1.379	7.24	86.3	8.61
1420	2.10	7.05	15.5	139.5	1.401	7.11	72.6	8.73
1425	2.45	7.05	15.6	136.9	1.404	7.15	49.9	8.92
1430	2.80	7.05	15.6	134.7	1.404	7.19	326	9.07
1435	3.15	7.06	15.6	132.3	1.407	7.21	27.92	9.29
1440	3.50	7.06	15.6	130.8	1.409	7.21	26.49	9.34
1445	3.85	7.07	15.7	124.0	1.415	7.18	12.53	9.62
- Parameters stable, collect sample @ 1450								
Final Sample Data:								

Sample ID: IB5SW2

Sample Time: 1450

Duplicate? ☑ (EM)

MS/MSD? ☐

Dupe Samp ID: ~~IB5SW2~~ IB5SW2(DUP)

No. of Bottles: _____

Analyses:

- ☒ ~~X~~ VOCs
- ☒ ~~X~~ SVOCs
- ☒ ~~X~~ PCBs
- ☐ Pest.
- ☒ ~~X~~ Metals/CN
- ☒ ~~X~~ Dioxin
- ☒ Thorium
- ☒ PCBs

Methods:

- ☐ CLP
- ☐ SW846
- ☐ EPA/CWA
- ☐ _____

Comments: _____

Sampler(s): M. Hanford, E. Reinert

D Laboratory Reports

Laboratory reports are provided separately.

E Data Usability Summary Reports

Data Usability Summary Report	Project: Hawkeye Trade Ctr & Residences
Date Completed: March 24, 2022	Completed by: Tunde Komuves-Sandor and Michael Shadle

The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness based on applicable sections of the following guidelines:

- NYSDEC Division of Environmental Remediation Guidance for Data Deliverables and the Development of Data Usability Summary Reports (in DER-10, May 2010)
- EPA Region 2 Data Validation SOPs

Specific criteria for QC limits were obtained from the master QAPP. Compliance with the project QA program is indicated in the checklist and tables below. Any major or minor concerns affecting data usability are listed below. The checklist and tables also indicate whether data qualification is required and/or the type of qualifier assigned.

Reference:

Sampling Company	Sample Delivery Group	Task Code
Eurofins TestAmerica; Buffalo Eurofins TestAmerica; St Louis	480-190423-1 480-190471-1 480-190565-1 480-190620-1 480-190721-1	Site Characterization EE1705007.0019.01

Table 1: Sample List

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Lab QC	ID Corrections
480-190423-1	SO	SB03-Z05-07	480-190423-1	10/04/21 13:00		
480-190423-1	SO	SB02-Z07-09	480-190423-2	10/04/21 11:55		
480-190423-1	SO	SB01-Z06-08	480-190423-3	10/04/21 10:26		
480-190423-1	SO	SB06-Z08-10	480-190423-4	10/04/21 15:55		
480-190423-1	SO	SB06-Z00-02	480-190423-5	10/04/21 15:45		
480-190423-1	SO	SB05-Z00-02	480-190423-6	10/04/21 15:15		
480-190423-1	SO	SB04-Z00-02	480-190423-7	10/04/21 14:35		
480-190471-1	SO	SB07-Z00-02	480-190471-1	10/05/21 10:06		
480-190471-1	SO	SB08-Z00-04	480-190471-2	10/05/21 11:41		
480-190471-1	SO	SB08-Z06-08	480-190471-3	10/05/21 12:00		
480-190471-1	SO	SB08-Z06-08(DUP)	480-190471-4	10/05/21 12:00	Field Duplicate	
480-190471-1	Water	RB-100521	480-190471-5	10/05/21 13:00	Rinsate blank	
480-190471-1	Water	TB-100521	480-190471-6	10/05/21 00:00	Trip blank	
480-190565-1	SO	SB09-Z05-06	480-190565-1	10/06/21 10:55		
480-190565-1	SO	SB10-Z01-03	480-190565-2	10/06/21 11:57		
480-190565-1	Water	RB-100621	480-190565-3	10/06/21 13:00	Rinsate blank	
480-190565-1	Water	TB-100621	480-190565-4	10/06/21 00:00	Trip blank	
480-190565-1	SO	SB11-Z01-3	480-190565-5	10/06/21 13:30		
480-190620-1	SO	SB13-Z02-04	480-190620-1	10/07/2021 09:10		
480-190620-1	SO	SB14-Z02-04	480-190620-2	10/07/2021 09:40		
480-190620-1	SO	SB15-Z03-05	480-190620-3	10/07/2021 10:10		
480-190620-1	SO	SB15-Z08-10	480-190620-4	10/07/2021 10:30		
480-190620-1	SO	SB16-Z07-09	480-190620-5	10/07/2021 11:00		

Data Usability Summary Report	Project: Hawkeye Trade Ctr & Residences
Date Completed: March 24, 2022	Completed by: Tunde Komuves-Sandor and Michael Shadle

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Lab QC	ID Corrections
480-190620-1	SO	SB18-Z03-05	480-190620-6	10/07/2021 13:00		
480-190620-1	SO	SB19-Z03-05	480-190620-7	10/07/2021 13:25		
480-190620-1	SO	SB19-Z08-10	480-190620-8	10/07/2021 13:30		
480-190620-1	SO	SB20-Z03-05	480-190620-9	10/07/2021 14:00		
480-190620-1	Water	RB-100721	480-190620-10	10/07/2021 12:00	Rinsate blank	
480-190721-1	SO	EMH1-SED	480-190721-1	10/08/21 13:40		
480-190721-1	Water	TB100821	480-190721-2	10/08/21 00:00	Trip blank	

Table 1A: Sample Test Summary

SDG	Matrix	Test Method	Method Name	# of Samples	Sample Type
480-190423-1 480-190471-1 480-190565-1 480-190620-1	SO	SW6010C	Metals (ICP)	44 19	N
480-190721-1	SE	SW6010C	Metals (ICP)	1	N
480-190471-1	SO	SW6010C	Metals (ICP)	1	FD
480-190471-1 480-190565-1 480-190620-1	AQ	SW6010C	Metals (ICP)	3	FB
480-190741-1 480-190565-1 480-190620-1 480-190423-1	SO	SW7471B	Mercury (CVAA)	20 19	N
480-190721-1	SE	SW7471B	Mercury (CVAA)	1	N
480-190741-1	SO	SW7471B	Mercury (CVAA)	1	FD
480-190471-1 480-190565-1 480-190620-1	AQ	7470A	Mercury (CVAA)	17 3	FB
480-190423-1 480-190471-1 480-190565-1 480-190620-1	SO	SW8082A	Polychlorinated Biphenyls (PCBs) by GC	45 19	N
480-190721-1	SE	SW8082A	Polychlorinated Biphenyls (PCBs) by GC	1	N
480-190471-1	SO	SW8082A	Polychlorinated Biphenyls (PCBs) by GC	1	FD
480-190565-1 480-190620-1	AQ	SW8082A	PCBs	3	FB
480-190423-1 480-190471-1 480-190565-1 480-190620-1	SO	SW8260C	Volatile Organic Compounds by GC/MS	63 24	N
480-190721-1	SE	SW8260C	Volatile Organic Compounds by GC/MS	1	N
480-190471-1 480-190565-1 480-190620-1	AQ	SW8260C	VOCs	3	FB

SDG	Matrix	Test Method	Method Name	# of Samples	Sample Type
480-190471-1 480-190721-1 480-190565-1	AQ	SW8260C	VOCs	3	TB
480-190423-1 480-190471-1 480-190565-1 480-190620-1	SO	SW8270D	Semivolatile Organic Compounds (GC/MS)	49 24	N
480-190721-1	SE	SW8270D	Semivolatile Organic Compounds (GC/MS)	1	N
480-190471-1	SO	SW8270D	Semivolatile Organic Compounds (GC/MS)	1	FD
480-190471-1 480-190565-1 480-190620-1	AQ	SW8270D	SVOCs	3	FB
480-190620-1	AQ	SW8270D SIM	SVOCs	1	RB
480-190620-1	SO	E537M	Perfluorinated Compounds	4 1	N
480-190620-1	AQ	E537M	Perfluorinated Compounds	1	RB
480-190423-1 480-190471-1 480-190565-1 480-190620-1	SO	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	24 8	N
480-190721-1	SE	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	1	N
480-190471-1	SO	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	1	FD
480-190471-1	AQ	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	1	FB

Data Usability Summary Report	Project: Hawkeye Trade Ctr & Residences
Date Completed: March 24, 2022	Completed by: Tunde Komuves-Sandor and Michael Shadle

General Sample Information	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	See bullets below for 480-190423-1
Frequency of Field QC Samples Correct? Field Duplicate - 1/20 samples Trip Blank - Every cooler with VOCs waters only Equipment Blank - 1/ set of samples per day?	Yes.
Case narrative present and complete?	Yes.
Any holding time violations?	No.

- Lab SDG 480-190423-1 Temperature of the cooler at receipt was 6.1°C, however samples were properly preserved, and evidence of cooling was noted, and cooler temperature is acceptable.
- In SDG 480-190423-1, several samples were preserved via freezing on 10/05/2021 11:00.
- In SDG 480-190471-1, several samples were preserved via freezing on 10/06/2021 10:00.
- In SDG 480-190565-1, several samples were preserved via freezing on 10/07/2021 11:00.
- In SDG 480-190565-1, several samples were preserved via freezing on 10/08/2021 10:30.
- In SDG 480-191598-1, samples MW-20, MW-07, MW-05, and MW-05 DUP were collected in VOA vials with proper preservative; however, the pH of the samples was > 2 upon laboratory verification. The samples were analyzed within the recommended holding time of 7 days for unpreserved samples.

The following tables are presented at the end of this DUSR and provide summaries of results outside QC criteria:

- Method Blanks Results (Table 2)
- MS/MSD and RPDs Outside Limits (Table 3)
- Surrogates Outside Limits (Table 4)
- LCS and CCV Outside Limits (Table 5)
- Serial Dilutions Outside Limits (Table 6)
- Reanalysis Results (Table 7)
- Field Duplicate Results (Table 8)

Go to Tables List

Volatile/Semivolatile Organic Compounds by GC/MS – Method 8260C/8270D	
Description	**Notes and Qualifiers**
Any compounds present in method, trip, or, field blanks (see Table 2)?	For method blanks see table 2. No compounds present in trip or field blanks.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data. Qualification also applies to TICs.	
Are surrogates for method blanks and LCS within limits (see Table 4)?	Yes.
Are surrogates for samples and MS/MSD within	No.

Volatile/Semivolatile Organic Compounds by GC/MS – Method 8260C/8270D	
Description	**Notes and Qualifiers**
limits (see Table 4)? If not, were all samples reanalyzed for VOCs? Matrix effects should be established.	
Is Laboratory QC frequency at least one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Is MS/MSD within QC criteria (see Table 3)? If out and LCS is compliant, then "J" flag positive data in original sample due to matrix.	No.
Is LCS within QC criteria (see Table 5a)? If out, and the recovery is high with no positive values, then no data qualification is required.	No.
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Yes.
Is initial calibration for target compounds <20 %RSD or curve fit (see Table 5b)?	Not applicable.
Is %D in the continuing calibration for target compounds less than method specifications (see Table 5b)?	190423: Methylene chloride %D
Were any samples reanalyzed or diluted (see Table 7)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Yes.
For TICs are there any system related compounds that should not be reported?	No.
Do field duplicate results show good precision for all compounds (see Table 8)?	Yes.

Pesticides and PCBs by GC – Method 8081B/8082A	
Description	**Notes and Qualifiers**
Are any compounds present in method and field blanks as noted on Table 2?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	Results <5x qualified U
Are surrogates for method blanks and LCS within limits (see Table 4)?	Yes.
Are surrogates for samples and MS/MSD within limits (see Table 4)? Matrix effects should be established.	No.
Is laboratory QC frequency one blank and LCS with each batch and one MS/MSD per 20 samples?	Yes.
Are MS/MSD within QC criteria (see Table 3)? If out and LCS is compliant, then J flag positive data in original sample due to matrix.	No.
Is LCS within QC criteria (see Table 5a)? If out, and the recovery high with no positive values, then no data qualification is required.	
Is initial calibration for target compounds <15 %RSD or curve fit? Is initial calibration verification <25%D (see Table 5b)?	Not applicable.
Is continuing calibration for target compounds <	Not applicable.

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Pesticides and PCBs by GC – Method 8081B/8082A	
Description	**Notes and Qualifiers**
20%D (see Table 5b)?	
Were any samples re-analyzed or diluted (see Table 7)? For any sample re-analysis and dilutions is only one reportable result by flagged?	Yes.
Spot check retention time windows and second column confirmations as complete.	No issues identified.
Do field duplicate results show good precision for all compounds (see Table 8)?	Not applicable.

Metals & Mercury by ICP/AES – Method 6010C/7471B	
Description	**Notes and Qualifiers**
Are any compounds present in method and field blanks as noted on Table 2?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	
Is laboratory QC frequency one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Are MS/MSD within QC criteria (see Table 3)? QC limits are not applicable to sample results greater than 4 times spike amount. All N flagged data for MS are flagged J as estimated.	No.
Were elements recovered ≤30%? If so, "R" flag associated NDs.	Yes.
Is LCS within QC criteria (see Table 5a)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes.
Is there one serial dilution per 20 samples? Flag all data reported with an "E" as "J".	No.
Spot check ICS recoveries 80-120%. Contact lab if unacceptable. (See table 5b).	Not applicable.
Spot check ICV 90-110% (ICVL 70-130%). For Mercury ICV 85-115%. Contact lab if unacceptable. (See table 5b).	Not applicable.
Spot check CCV 90-110% (CCVL 70-130%). For Mercury CCV 85-115%. Contact lab if unacceptable. (See table 5b).	Not applicable.
Were any samples re-analyzed or diluted (see Table 7)? For any sample re-analysis and dilutions is only one reportable result by flagged?	No.
Do field duplicate results show good precision for all compounds (see Table 8)?	Yes.

Perfluorinated Compounds – Method E537-LL	
Description	**Notes and Qualifiers**
Any compounds present in method, trip, or field blanks (see Table 2)?	Yes.
For samples, if results are < 5 times the blank contaminants, then "U" flag data.	

Data Usability Summary Report	Project: Hawkeye Trade Ctr & Residences
Date Completed: March 24, 2022	Completed by: Tunde Komuves-Sandor and Michael Shadle

Perfluorinated Compounds – Method E537-LL	
Description	**Notes and Qualifiers**
Are surrogates for method blanks and LCS within limits?	Yes.
Are surrogates for samples and MS/MSD within limits? (See Table 3).	Yes.
Are surrogates for Isotope Dilution within limits? (See Table 3b).	Yes.
Is Laboratory QC frequency at least one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Is MS/MSD within QC criteria (see Table 4)? If out and LCS is compliant, then "J" flag positive data in original sample due to matrix.	Yes.
Is LCS within QC criteria (see Table 5)? If out, and the recovery is high with no positive values, then no data qualification is required.	Yes.
Do internal standards areas and retention time meet criteria?	Yes.
Is initial calibration for compounds by isotope dilution <35 %RSD or curve fit; and compounds quantitated by isotope dilution analytes (IDA) <50% RSD? Is the initial calibration verification within or equal to 60-140% for all natives quantitated by isotope dilution or 50-150% for natives quantitated by IDA.	Not applicable
Is continuing calibration for compounds by isotope dilution equal to or within 60-140% for all natives quantitated by isotope dilution or 50-150% for natives quantitated by IDA.	Not applicable
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Do field duplicate results show good precision for all compounds (see Table 7)?	Yes.

Isotopic Thorium by Alpha Spectrometry	
Description	**Notes and Qualifiers**
Are any compounds present in method and field blanks as noted on Table 2? Method blank results should be less than ½ PQL, <MDC, and less than the uncertainty.	No.
For samples, if results are < 5 times the blank contaminants, then "U" flag data.	N/A
LCS within QC criteria 70-130% recovery (see Table 5)? Reject data with recovery <50% or greater than 150%.	Yes.
Are MS/MSD within QC criteria (70-130% recovery, RPD ± 35)? See Table 4	N/A: MS/MSD not required for alpha spectroscopy
Is matrix duplicate within QC criteria (RPD ± 35, NAD < 1.96) ? MD must be performed on site samples to use results for qualification. If out, apply the Normalized Absolute Difference <1.96 test in USACE Guidance.	Yes.

Isotopic Thorium by Alpha Spectrometry	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds?	Yes.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Were background and continuing calibration checks (pulsers) performed daily?	Yes.
Were instrument checks marked as failed and if so, were checks performed more than twice to bring into compliance?	No.
Spot check the raw data, were any anomalies found in spectra?	No.
Were tracer yields within limits? If recoveries were outside laboratory derived limits, but within default limits of 20-150%, flag associated results as estimated (J) after corrective actions, otherwise R. If recoveries are <20%: flag as rejected (R) and >150% rejected (R).	No.
If recoveries were outside control limits, were adequate quantities of tracers used and were calculations correct?	N/A: All recoveries were within limits.
Were the relationships between results, uncertainties, and MDCs in compliance?	Yes.

Summary of Potential Impacts on Data Usability

Concerns

- Samples SB03-Z05-07, SB02-Z07-09, SB01-Z06-08, SB06-Z08-10, SB06-Z00-02, SB05-Z00-02, SB04-Z00-02 “U” qualified as non-detect for methylene chloride due to method blank detection.
- Sample SB16-Z07-09 “U” qualified as non-detect for PFOS due to method blank detection.
- Samples SB06-Z00-02, SB05-Z00-02, and SB08-Z00-04 “U” qualified as non-detect for selenium due to method blank detection.
- Sample EMH1-SED “J” qualified as estimated for acetone, barium, and copper due to MS and/or MSD % recovery.
- Samples SB08-Z00-04, SB09-Z05-06 and EMH1-SED “J+” qualified as estimated, high biased for aluminum due to MS/MSD % recovery.
- Sample SB08-Z00-04 “J-” qualified as estimated, low biased for calcium, magnesium, manganese, and arsenic due to MS/MSD % recovery.
- Samples SB08-Z00-04 and SB09-Z05-06 “UJ” qualified as estimated, non-detect for antimony due to MS/MSD % recovery.
- Samples SB08-Z00-04 and SB09-Z05-06 “J+” qualified as estimated, high biased for barium and potassium due to MS and/or MSD % recovery.
- Sample SB09-Z05-06 “J” qualified as estimated for calcium due to MS/MSD % recovery.
- Sample EMH1-SED “J+” qualified as estimated, high biased for lead and potassium due to MS and/or MSD % recovery.
- Sample SB09-Z05-06 “J+” qualified as estimated, high biased for magnesium and manganese due to MS/MSD % recovery.
- Samples SB09-Z05-06 and EMH1-SED “J-” qualified as estimated, low biased for zinc due to MS/MSD % recovery.
- Sample SB13-Z02-04 was “R” qualified as rejected for 2,4,6-tribromophenol due to surrogate % recovery.

- Sample SB-07-Z00-02 was J+ qualified as estimated, high biased for thorium-229 due to trace recovery exceedance.

Table 2 – List of Positive Results for Blank Samples

Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	J	ug/kg	2.3	5.0
SW6010C	RB-100521 (480-190471-5)	Water	Barium	0.0014	J	mg/L	0.00070	0.0020
SW6010C	RB-100521 (480-190471-5)	Water	Calcium	0.26	J	mg/L	0.10	0.50
SW6010C	RB-100521 (480-190471-5)	Water	Copper	0.0050	J	mg/L	0.0016	0.010
SW6010C	RB-100521 (480-190471-5)	Water	Iron	0.083	--	mg/L	0.019	0.050
SW6010C	RB-100521 (480-190471-5)	Water	Magnesium	0.083	J	mg/L	0.043	0.20
SW6010C	RB-100521 (480-190471-5)	Water	Manganese	0.0085	J	mg/L	0.00040	0.0030
SW6010C	RB-100521 (480-190471-5)	Water	Zinc	0.0036	J	mg/L	0.010	0.0015
SW6010C	RB-100621 (480-190565	Water	Aluminum	0.69		mg/L	0.060	0.20
SW6010C	RB-100621 (480-190565	Water	Barium	0.0046		mg/L	0.00070	0.0020
SW6010C	RB-100621 (480-190565	Water	Calcium	2.1		mg/L	0.10	0.50
SW6010C	RB-100621 (480-190565	Water	Chromium, total	0.0020	J	mg/L	0.0010	0.0040
SW6010C	RB-100621 (480-190565	Water	Copper	0.0019	J	mg/L	0.0016	0.010
SW6010C	RB-100621 (480-190565	Water	Iron	0.72	T	mg/L	0.019	0.050
SW6010C	RB-100621 (480-190565	Water	Magnesium	0.49		mg/L	0.043	0.20
SW6010C	RB-100621 (480-190565	Water	Manganese	0.036		mg/L	0.00040	0.0030
SW6010C	RB-100621 (480-190565	Water	Nickel	0.0013	J	mg/L	0.0013	0.010

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Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
SW6010C	RB-100621 (480-190565	Water	Potassium	0.23	J	mg/L	0.10	0.50
SW6010C	RB-100621 (480-190565	Water	Zinc	0.0044	J	mg/L	0.0015	0.010
SW8260C	RB-100621 (480-190565	Water	Methylene chloride	2.4		mg/L	0.44	1.0
SW8260C	RB-100721 (480-190620-10)	Water	Methylene Chloride	4.9	--	ug/L	0.44	1.0
E537M	RB-100721 (480-190620-10)	Water	Perfluorooctanesulfonic acid (PFOS)	0.35	J B	ng/L	0.28	1.9
E537M	RB-100721 (480-190620-10)	Water	Perfluorodecanesulfonic acid (PFDS)	0.49	J	ng/L	0.29	1.9
SW6010C	RB-100721 (480-190620-10)	Water	Chromium	0.0019	J	mg/L	0.0010	0.0040
SW6010C	RB-100721 (480-190620-10)	Water	Iron	0.067	--	mg/L	0.019	0.050
SW6010C	RB-100721 (480-190620-10)	Water	Manganese	0.0011	J	mg/L	0.00040	0.0030
SW8260C	RB-102521 (480-191411-3)	Water	Acetone	3.2	J	ug/L	3.0	10
SW8260C	RB-102521 (480-191411-3)	Water	Methylene Chloride	3.7	--	ug/L	0.44	1.0
SW6010C	RB-102521 (480-191411-3)	Water	Manganese	0.0010	J B	mg/L	0.00040	0.0030
SW6010C	RB-102521 (480-191411-3)	Water	Zinc	0.0019	B	mg/L	0.0015	0.010
SW8260C	RB102621 (480-191462-3)	Water	Methylene Chloride	8.2	--	ug/L	0.44	1.0
SW8260C	RB102621(480-191462-3)	Water	Barium	0.0070	--	mg/L	0.00070	0.0020
SW8260C	RB102621(480-191462-3)	Water	Calcium	0.32	J	mg/L	0.10	0.50
SW8260C	RB102621(480-191462-3)	Water	Copper	0.32	--	mg/L	0.0016	0.010
SW8260C	RB102621(480-191462-3)	Water	Iron	0.020	J	mg/L	0.019	0.050

Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
SW8260C	RB102621(480-191462-3)	Water	Lead	0.0051	J	mg/L	0.0030	0.010
SW8260C	RB102621(480-191462-3)	Water	Manganese	0.0016	J B	mg/L	0.00040	0.0030
SW8260C	RB102621(480-191462-3)	Water	Sodium	0.73	J	mg/L	0.32	1.0
SW8260C	RB102621(480-191462-3)	Water	Zinc	0.010	B	mg/L	0.0015	0.010
SW6010C	RB102721 (480-191596-7)	Water	Aluminum	0.11	J B	mg/L	0.060	0.20
SW6010C	RB102721 (480-191596-7)	Water	Manganese	0.0014	J	mg/L	0.00040	0.0030
SW6010C	RB102721 (480-191596-7)	Water	Zinc	0.0023	J B	mg/L	0.0015	0.010
SW8260C	RB102921 (480-191671-4)	Water	Methylene Chloride	6.1	--	ug/L	0.44	1.0
SW6010C	RB102921 (480-191671-4)	Water	Manganese	0.00094	J	mg/L	0.00040	0.0030
SW6010C	RB102921 (480-191671-4)	Water	Zinc	0.0057	J B	mg/L	0.0015	0.010
SW6010C	MB 480-599308/1-A	SO	Calcium	3.62	J	mg/kg	3.3	49.9
SW6010C	MB 480-599308/1-A	SO	Selenium	0.448	J	mg/kg	0.40	4.0
SW6010C	MB 480-599625/1-A	SO	Arsenic	0.0121	J	mg/kg	0.0056	0.015
SW6010C	MB 480-600000/1-A	SO	Aluminum	5.41	J	mg/kg	4.5	10.3
SW6010C	MB 480-600000/1-A	SO	Calcium	3.99	J	mg/kg	3.4	51.6
SW6010C	MB 480-600000/1-A	SO	Manganese	0.0423	J	mg/kg	0.033	0.21
SW6010C	MB 480-600000/1-A	SO	Zinc	0.831	J	mg/kg	0.66	2.1
E537M	MB 200-172453/1-A	SO	Perfuorooctanesulfonic acid (PFOS)	0.0357	J	ug/kg	0.016	0.20

Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
E537M	MB 200-172453/1-A	SO	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.0602	J	ug/kg	0.037	2.0
E537M	MB 200-172453/1-A	SO	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.0603	J	ug/kg	0.046	2.0
E537M	MB 200-172453/1-A	SO	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	0.0168	J	ug/kg	0.016	2.0
E537M	MB 200-172570/1-A	Water	Perfluorooctanesulfonic acid (PFOS)	0.298	J	ug/kg	0.29	2.0
SW6010C	MB 480-599733/1-A	Water	Potassium	0.129	J	mg/L	0.10	0.50
SW6010C	MB 480-599998/1-A	SO	Aluminum	5.07	J	mg/kg	4.5	10.2
SW6010C	MB 480-599998/1-A	SO	Calcium	4.93	J	mg/kg	3.4	50.9
SW6010C	MB 480-599998/1-A	SO	Manganese	0.0397	J	mg/kg	0.033	0.2

Table 2a – List of Samples Qualified for Method Blank Contamination

Method	Method Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qual.	PQL	Affected Samples	Sample Flag
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	96.1	^+B	0.20	MW-20 (480-191598-1)	--
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	44.2	^+B	0.20	MW-16 (480-191598-2)	--
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	0.22	--	0.20	MW-21 (480-191598-3)	--
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	0.31	--	0.20	MW-06 (480-191598-4)	--
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	0.82	--	0.20	IB5SW (480-191598-5)	--
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	11.2	^+B	0.20	MW-07 (480-191598-6)	--
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	9.2	B	5.0	SB03-Z05-07 (480-190423-1)	U
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	9.2	B	5.0	SB02-Z07-09 (480-190423-2)	U
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	5.3	B	5.0	SB01-Z06-08 (480-190423-3)	U
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	8.4	B	5.0	SB06-Z08-10 (480-190423-4)	U
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	6.5	B	5.0	SB06-Z00-02 (480-190423-5)	U
SW6010C	MB 480-599308/1A	SO	Selenium	0.448	1.8	J B	4.3	SB06-Z00-02 (480-190423-5)	U
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	7.2	B	4.9	SB05-Z00-02 (480-190423-6)	U
SW6010C	MB 480-599308/1A	SO	Selenium	0.448	0.58	J B	4.7	SB05-Z00-02 (480-190423-6)	U

Method	Method Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qual.	PQL	Affected Samples	Sample Flag
SW8260C	MB 480-599148/2A	SO	Methylene Chloride	3.44	8.5	B	5.5	SB04-Z00-02 (480-190423-7)	U
SW6010C	MB 480-599308/1-A	SO	Selenium	0.448	1.2	J B	4.8	SB08-Z00-04 (480-190471-2)	U
E537M	MB 200-172453/1-A	SO	Perfluorooctane Sulfonic Acid	0.0357	0.053	BJ		SB16-Z07-09 (480-190620-)	U

Table 2b – List of Samples Qualified for Field Blank Contamination
None.

Table 3 – List of MS/MSD Recoveries outside Control Limits

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW8260C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	1,1,2,2-Tetrachloroethane	ND	41.7/45.4	72	81	80	120	--
SW8260C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	2-Butanone (MEK)	ND	208/277	68	71	70	134	--
SW8260C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	4-Methyl-2-pentanone (MIBK)	ND	208/277	64	66	65	133	--
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Aluminum	6860	2260/2450	255	315	75	125	J+
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Antimony	ND	45.1/49.0	66	63	75	125	UJ
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Arsenic	12.3	45.1/49.0	71	71	75	125	J-
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Barium	38.8	45.1/49.0	120	140	75	125	J+
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Calcium	65400	2250/2450	-2162	-1996	75	125	--
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Iron	13300	2250/2450	61	102	75	125	--
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Magnesium	4300	2250/2450	52	64	75	125	J-
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Manganese	609	45.1/49.0	-519	-275	75	125	--
SW6010C	480-190471-2 MS/MSD (SB08-Z00-04)	SO	Potassium	1460	2260/2450	173	193	75	125	J+

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Antimony	ND	49.2/50.6	64	65	75	125	UJ
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Barium	25.1	49.2/50.6	165	155	75	125	J+
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Potassium	5630	2460/2530	300	273	75	125	J+
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Zinc	45.8	49.2/50.6	31	60	75	125	J-
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Aluminum	10500	2460/2530	605	552	75	125	--
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Iron	11400	2460/2530	126	118	75	125	--
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Magnesium	24200	2460/2530	263	274	75	125	--
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Manganese	395	49.2/50.6	127	140	75	125	--
SW6010C	480-190565-1 MS/MSD (SB09-Z05-06)	SO	Calcium	116000	2460/2530	794	791	75	125	--
SW8270D	480-190620-4 MS/MSD (SB15-Z08-10)	SO	Diethyl phthalate	ND	2040/2050	121	109	66	120	--
A-01-R	EMH1-SED MS	SO	Thorium-230	ND	3.99/3.98	118	110	82	114	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,1,1-Trichloroethane	ND	49.6/79.7	68	71	77	121	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,1,2,2-Tetrachloroethane	ND	49.6/79.7	69	67	80	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,1,2-Trichloroethane	ND	49.6/79.7	70	72	78	122	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,1,2-Trichloro-1,2,2-trifluoroethane	ND	49.6/79.7	48	45	60	140	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,1-Dichloroethane	ND	49.6/79.7	71	72	73	126	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,2,4-Trichlorobenzene	ND	49.6/79.7	19	24	64	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,2-Dibromo-3-Chloropropane	ND	49.6/79.7	53	54	63	124	--

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,2-Dichlorobenzene	ND	49.6/79.7	45	49	75	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,2-Dichloroethane	ND	49.6/79.7	64	65	77	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,2-Dichloropropane	ND	49.6/79.7	66	68	75	124	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,3-Dichlorobenzene	ND	49.6/79.7	44	46	74	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,4-Dichlorobenzene	ND	49.6/79.7	46	49	73	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	2-Butanone (MEK)	ND	248/399	52	52	70	134	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	4-Methyl-2-pentanone (MIBK)	ND	248/399	64	64	65	133	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Acetone	26	248/399	45	46	61	137	J
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Benzene	ND	49.6/79.7	68	70	79	127	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Bromoform	ND	49.6/79.7	58	62	68	126	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Carbon tetrachloride	ND	49.6/79.7	65	72	75	135	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Chlorobenzene	ND	49.6/79.7	63	66	76	124	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Dibromochloromethane	ND	49.6/79.7	68	70	76	125	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Chloroform	ND	49.6/79.7	70	72	80	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	cis-1,2-Dichloroethene	ND	49.6/79.7	71	73	80	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	cis-1,3-Dichloropropene	ND	49.6/79.7	65	69	80	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Cyclohexane	ND	49.6/79.7	35	39	65	120	--

Data Usability Summary Report	Project: Hawkeye Trade Ctr & Residences
Date Completed: March 24, 2022	Completed by: Tunde Komuves-Sandor and Michael Shadle

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Ethylbenzene	ND	49.6/79.7	55	60	80	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	1,2-Dibromoethane	ND	49.6/79.7	67	68	78	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Isopropylbenzene	ND	49.6/79.7	47	50	72	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Methylcyclohexane	ND	49.6/79.7	23	24	60	140	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Styrene	ND	49.6/79.7	60	64	80	120	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Tetrachloroethene	ND	49.6/79.7	49	53	74	122	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Toluene	ND	49.6/79.7	69	72	74	128	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	trans-1,2-Dichloroethene	ND	49.6/79.7	71	72	78	126	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Trans-1,3-Dichloropropene	ND	49.6/79.7	72	73	73	123	--
SW8260C	480-190721-1 MS/MSD (EMH1-SED)	SO	Trichloroethene	ND	49.6/79.7	62	65	77	129	--
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Aluminum	9020	2750/2660	143	182	75	125	J+
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Barium	72.9	54.9/53.2	88	403	75	125	J
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Calcium	86100	2750/2660	8	1024	75	125	--
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Copper	198	54.9/53.2	81	-21	75	125	J
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Iron	56800	2750/2660	783	-368	75	125	--
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Lead	79.0	54.9/53.2	113	126	75	125	J+
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Manganese	733	54.9/53.2	424	1511	75	125	--

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Potassium	1560	2750/2660	127	154	75	125	J+
SW6010C	480-190721-1 MS/MSD (EMH1-SED)	SO	Zinc	189	54.9/53.2	-86	-56	75	125	J-

Table 3a – List of RPDs outside Control Limits

Method	Sample ID	Analyte	RPD	RPD Limit	Sample Qualifier
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,1,1-Trichloroethane	51	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,1,2,2-Tetrachloroethane	44	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,1,2-Trichloroethane	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,1,2-Trichloro-1,2,2-trifluoroethane	41	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,1-Dichloroethane	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,1-Dichloroethene	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,2,4-Trichlorobenzene	68	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,2-Dibromo-3-Chloropropane	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,2-Dichlorobenzene	54	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,2-Dichloroethane	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,2-Dichloropropane	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,3-Dichlorobenzene	52	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,4-Dichlorobenzene	52	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	2-Butanone (MEK)	46	30	--

Method	Sample ID	Analyte	RPD	RPD Limit	Sample Qualifier
SW8260C	EMH1-SED MS/MSD (480-190721-1)	2-Hexanone	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	4-Methyl-2-pentanone (MIBK)	46	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Acetone	42	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Benzene	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Bromodichloromethane	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Bromoform	54	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Bromomethane	45	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Carbon disulfide	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Carbon tetrachloride	56	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Chlorobenzene	50	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Dibromochloromethane	50	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Chloroethane	46	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Chloroform	50	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Chloromethane	47	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	cis-1,2-Dichloroethene	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	cis-1,3-Dichloropropene	52	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Cyclohexane	56	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Dichlorodifluoromethane	48	30	--

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Method	Sample ID	Analyte	RPD	RPD Limit	Sample Qualifier
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Ethylbenzene	54	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	1,2-Dibromoethane	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Isopropylbenzene	51	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Methyl acetate	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Methyl tert-butyl ether	47	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Methylcyclohexane	53	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Methylene Chloride	49	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Styrene	53	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Tetrachloroethene	54	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Toluene	50	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	trans-1,2-Dichloroethene	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Trans-1,3-Dichloropropene	48	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Trichloroethene	51	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Trichlorofluoromethane	51	30	--
SW8260C	EMH1-SED MS/MSD (480-190721-1)	Vinyl chloride	46	30	--
SW6010C	EMH1-SED MS/MSD (480-190721-1)	Barium	81	20	--
SW6010C	EMH1-SED MS/MSD (480-190721-1)	Calcium	27	20	--
SW6010C	EMH1-SED MS/MSD (480-190721-1)	Copper	26	20	--

Method	Sample ID	Analyte	RPD	RPD Limit	Sample Qualifier
SW6010C	EMH1-SED MS/MSD (480-190721-1)	Iron	50	20	--
SW6010C	EMH1-SED MS/MSD (480-190721-1)	Manganese	46	20	--

Table 3b – List of Samples with Isotope Dilution Recovery outside Control Limits
None.

Table 4 – List of Samples with Surrogates outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec. %	Low Limit	High Limit	Dil. Fac.	Sample Qualifier
SW8270D	SB06-Z00-02 (480-190423-5)	SO	2,4,6-Tribromophenol	51	54	120	10	--
SW8270D	SB04-Z00-02 (480-190423-7)	SO	2,4,6-Tribromophenol	39	54	120	10	--
SW8270D	SB06-Z08-10 (480-190423-4)	SO	2,4,6-Tribromophenol	30	54	120	1	--
SW2082A	SB09-Z05-06 (480-190565-1)	SO	DCB Decachlorobiphenyl	176	65	174	1	--
SW2082A	SB10-Z01-03 (480-190565-2)	SO	DCB Decachlorobiphenyl	183	65	174	1	--
SW8270D	480-190620-4 MS	SO	2,4,6-Tribromophenol	126	54	120	1	--
SW8270D	SB13-Z02-04 (480-190620-1)	SO	2,4,6-Tribromophenol	0	54	120	5	R
SW8270D	SB15-Z03-05 (480-190620-3)	SO	2,4,6-Tribromophenol	29	54	120	1	--
SW8270D	SB15-Z03-05 (480-190620-3)	SO	2-Fluorophenol	33	52	120	1	--

Table 5a – List of LCS and Recoveries outside Control Limits

Method	Sample ID	Analyte	LCS Rec.	Low Limit	High Limit	Sample Qualifier
SW8270D	LCS 480-599109/2A	Pentachlorophenol	138	51	120	--
SW8270D	LCS 480-599295/2A	Pentachlorophenol	174	29	136	--
SW8270D	LCSD 480-599295/3-A	Pentachlorophenol	170	29	136	--
SW8270D	LCS 480-599300/2-A	Pentachlorophenol	137	51	120	--
SW8270D	LCS 480-599491/2-A	Pentachlorophenol	134	41	120	--
SW8260C	LCS 480-600086/1-A	Dibromochloromethane	121	64	120	--
SW8270D	LCS 480-599668/2-A	2,4-Dinitrotoluene	123	63	120	--
SW8270D	LCS 480-599668/2-A	4,6-Dinitro-2-methylphenol	128	49	122	--
SW8270D	LCS 480-599668/2-A	4-Nitroaniline	126	56	120	--
SW8270D	LCS 480-599668/2-A	Pentachlorophenol	147	51	120	--

Table 5b – List of CCV Recoveries outside Control Limits

Method	Calibration ID	Matrix	Analyte	Associated Samples	%D Result	%D Limit	Sample Flag
SW8260D	CCVIS 480-599155/3	SO	Methylene chloride	SB01-Z06-08-20211004 SB02-Z07-09-20211004 SB03-Z05-07-20211004 SB04-Z00-02-20211004 SB05-Z00-02-20211004 SB06-Z00-02-20211004 SB06-Z08-10-20211004	23.8	20	--

Table 6 – List of Serial Dilution outside Control Limits
None.

Table 7 – Samples that were Re-analyzed

Sample ID	Lab ID	Method	Sample Type	Action
SB15-Z03-05	480-190620-3	SW8260C	SO	Sample was diluted to bring concentration of target analytes within calibration range and re-analyzed.

Table 8 – Summary of Field Duplicate Results

Method	Analyte	Unit	Matrix	PQL	SB08-Z06-08-20211005	SB08-Z06-08 (DUP)-20211005	RPD	RPD Rating	Sample Qual
A-01-R	Thorium	pci/g	SO	1	0.34	0.276	20.8%	Good	None
A-01-R	Thorium-228	pci/g	SO	1	0.369	0.357	3.3%	Good	None
A-01-R	Thorium-230	pci/g	SO	1	0.386	0.239	47.0%	Good	None
SW6010C	Aluminum	mg/kg	SO	11	6080	5010	19.3%	Good	None
SW6010C	Arsenic	mg/kg	SO	2.2	2.4	2.7	11.8%	Good	None
SW6010C	Barium	mg/kg	SO	0.55	31.4	27.7	12.5%	Good	None
SW6010C	Beryllium	mg/kg	SO	0.22	0.29	0.24	18.9%	Good	None
SW6010C	Cadmium	mg/kg	SO	0.22	0.078	0.074	5.3%	Good	None
SW6010C	Calcium	mg/kg	SO	54.8	36700	29300	22.4%	Good	None
SW6010C	Chromium, Total	mg/kg	SO	0.55	8.8	7.2	20.0%	Good	None
SW6010C	Cobalt	mg/kg	SO	0.55	5.2	5.2	0.0%	Good	None
SW6010C	Copper	mg/kg	SO	1.1	6.7	7.6	12.6%	Good	None
SW6010C	Iron	mg/kg	SO	11	12400	9960	21.8%	Good	None
SW6010C	Lead	mg/kg	SO	1.1	2.9	3	3.4%	Good	None
SW6010C	Magnesium	mg/kg	SO	21.9	6210	6020	3.1%	Good	None
SW6010C	Manganese	mg/kg	SO	0.22	366	357	2.5%	Good	None
SW6010C	Nickel	mg/kg	SO	5.5	11.5	11.1	3.5%	Good	None
SW6010C	Potassium	mg/kg	SO	32.9	1510	1020	38.7%	Good	None
SW6010C	Sodium	mg/kg	SO	153	415	405	2.4%	Good	None
SW6010C	Vanadium	mg/kg	SO	0.55	15.8	11.7	29.8%	Good	None
SW6010C	Zinc	mg/kg	SO	2.2	21.9	21.3	2.8%	Good	None
SW8260C	Trichloroethylene (TCE)	ug/kg	SO	4	1.7	1.6	6.1%	Good	None
SW7471B	Mercury	mg/kg	SO	0.019	ND	0.0097	NC	--	None < 2x PQL

Table 9 – List of Samples with Tracer Recovery outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec. %	Low Limit	High Limit	Dil. Fac.	Sample Qualifier
A-01-R	SB07-Z00-02	SO	Thorium-229	115	30	110	1	J+

Acronym List and Table Key:
COC = chain of custody

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Acronym List and Table Key:

DUSR	=	data usability summary report
FD	=	Field duplicate
LCS	=	laboratory control sample
LR	=	Laboratory replicate
MB	=	method blank
MS	=	matrix spike
MSS	=	matrix spike soluble
MSD	=	matrix spike duplicate
N	=	Normal sample
ND	=	not detected
NYSDEC	=	New York State Department of Environmental Conservation
PDS	=	Post-digestion spike
PQL	=	practical quantitation limit
QA	=	quality assurance
QAPP	=	quality assurance project plan
QC	=	quality control
RB	=	Rinsate blank
RPD	=	relative percent difference
SDG	=	sample delivery group

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The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness based on applicable sections of the following guidelines:

- NYSDEC Division of Environmental Remediation Guidance for Data Deliverables and the Development of Data Usability Summary Reports (in DER-10, May 2010)
- EPA Region 2 Data Validation SOPs

Specific criteria for QC limits were obtained from the master QAPP. Compliance with the project QA program is indicated in the checklist and tables below. Any major or minor concerns affecting data usability are listed below. The checklist and tables also indicate whether data qualification is required and/or the type of qualifier assigned.

Reference:

Sampling Company	Sample Delivery Group	Task Code
Eurofins TestAmerica; Buffalo Eurofins TestAmerica; St Louis	480-191411-1 480-191462-1 480-191596-1 480-191598-1 480-191671-1	Site Characterization EE1705007.0019.01

Table 1: Sample List

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Lab QC	ID Corrections
480-191411-1	Water	IB5SW2	480-191411-1	10/25/21 14:50		
480-191411-1	Water	IB5SW2-DUP	480-191411-2	10/25/21 14:50	Field Dup	
480-191411-1	Water	RB-102S21	480-191411-3	10/25/21 16:15	Rinsate blank	RB-102521
480-191411-1	Water	TB-102521	480-191411-4	10/25/21 00:00	Trip blank	
480-191462-1	Water	IB6NE	480-191462-1	10/26/21 11:25		
480-191462-1	Water	MW-23	480-191462-2	10/26/21 14:40		
480-191462-1	Water	RB102621	480-191462-3	10/26/21 14:45	Rinsate blank	
480-191462-1	Water	TRIP BLANK 102621	480-191462-4	10/26/21 00:00	Trip blank	
480-191596-1	Water	MW-18	480-191596-1	10/28/21 12:35		
480-191596-1	Water	MW-19	480-191596-2	10/28/21 12:20		
480-191596-1	Water	MW-12	480-191596-3	10/28/21 11:45		
480-191596-1	Water	RB 102821	480-191596-4	10/28/21 14:50	Rinsate blank	
480-191596-1	Water	IB 11AW	480-191596-5	10/28/21 12:55		
480-191596-1	Water	IB 12SW	480-191596-6	10/28/21 09:40		
480-191596-1	Water	RB 102721	480-191596-7	10/28/21 10:35	Rinsate blank	
480-191596-1	Water	IL2NE	480-191596-8	10/28/21 16:20		
480-191596-1	Water	TRIP BLANK 102821	480-191596-9	10/28/21 00:00	Trip blank	
480-191598-1	Water	MW-20	480-191598-1	10/27/21 14:05		
480-191598-1	Water	MW-16	480-191598-2	10/27/21 13:30		
480-191598-1	Water	MW-21	480-191598-3	10/27/21 12:25		
480-191598-1	Water	MW-06	480-191598-4	10/27/21 10:47		
480-191598-1	Water	IB5SW	480-191598-5	10/27/21 10:30		
480-191598-1	Water	MW-07	480-191598-6	10/27/21 15:05		

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Lab QC	ID Corrections
480-191598-1	Water	MW-15	480-191598-7	10/27/21 15:30		
480-191598-1	Water	MW-14	480-191598-8	10/27/21 15:40		
480-191598-1	Water	MW-05	480-191598-9	10/27/21 15:50		
480-191598-1	Water	MW-05 (DUP)	480-191598-10	10/27/21 15:50	Field duplicate	
480-191598-1	Water	TRIP BLANK 102721	480-191598-11	10/27/21 00:00	Trip blank	
480-191671-1	Water	IB5NE	480-191671-1	10/29/21 11:45		
480-191671-1	Water	SB4NE	480-191671-2	10/29/21 12:45		
480-191671-1	Water	MW-17	480-191671-3	10/29/21 11:50		
480-191671-1	Water	RB 102921	480-191671-4	10/29/21 12:10	Rinsate blank	
480-191671-1	Water	TB 102921	480-191671-5	10/29/21 00:00	Trip blank	

Table 1A: Sample Test Summary

SDG	Matrix	Test Method	Method Name	# of Samples	Sample Type
480-191411-1 480-191462-1 480-191596-1 480-191598-1 480-191671-1	SW	SW6010C	Metals (ICP)	15	N
480-191411-1	SW	SW6010C	Metals (ICP)	1	FD
480-191411-1 480-191462-1 480-191596-1 480-191671-1	AQ	SW6010C	Metals (ICP)	5	FB
480-191411-1	SW	SW7470A	Mercury (CVAA)	1	FD
480-191411-1 480-191462-1 480-191596-1 480-191598-1	SW	7470A	Mercury (CVAA)	15	N
480-191411-1 480-191462-1 480-191596-1 480-191598-1	WQ	SW7470A	Mercury (CVAA)	5	FB
480-191411-1 480-191462-1 480-191596-1 480-191598-1 480-191671-1	SW	SW8082A	Polychlorinated Biphenyls (PCBs) by GC	15	N
480-191411-1	SW	SW8082A	Polychlorinated Biphenyls (PCBs) by GC	1	FD
480-191411-1 480-191462-1 480-191596-1 480-191671-1	AQ	SW8082A	PCBs	5	FB

SDG	Matrix	Test Method	Method Name	# of Samples	Sample Type
480-191411-1480-191462-1 480-191596-1480-191598-1480-191671-1	SW	SW8260C	Volatile Organic Compounds by GC/MS	21	N
480-191598-1	WQ	SW8260C	VOCs	1	MS/MSD
480-191411-1 480-191598-1	SW	SW8260C	Volatile Organic Compounds by GC/MS	2	FD
480-191411-1 480-191462-1 480-191462-1 480-191671-1	AQ	SW8260C	VOCs	5	FB
480-191411-1 480-191462-1 480-191462-1 480-191598-1 480-191671-1	AQ	SW8260C	VOCs	5	TB
480-191411-1 480-191462-1 480-191596-1 480-191598-1 480-191671-1	SW	SW8270D	Semivolatile Organic Compounds (GC/MS)	16	N
480-191411-1	SW	SW8270D	Semivolatile Organic Compounds (GC/MS)	1	FD
480-191411-1 480-191462-1 480-191596-1 480-191671-1	AQ	SW8270D	SVOCs	5	FB
480-191411-1	SO	SW8270DSIM	Semivolatile Organic Compounds (GC/MS SIM/Isotope Dilution)	3	N
480-190620-1	AQ	SW8270D SIM	SVOCs	1	RB
480-191411-1	SW	E537M	Perfluorinated Compounds	1	N
480-191411-1	AQ	E537M	Perfluorinated Compounds	1	RB
480-191411-1 480-191462-1 480-191596-1 480-191598-1	SW	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	8	N
480-191411-1 480-191462-1	SW	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	1	FD
480-191411-1 480-191462-1 480-191596-1	AQ	DOE A-01-R	Isotopic Thorium (Alpha Spectrometry)	4	FB

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General Sample Information	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	See bullet below for 480-191411-1, 480-191462-1, 480-191596-1 and 480-191598-1
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	See bullets below for 480-190423-1
Frequency of Field QC Samples Correct? Field Duplicate - 1/20 samples Trip Blank - Every cooler with VOCs waters only Equipment Blank - 1/ set of samples per day?	Yes.
Case narrative present and complete?	Yes.
Any holding time violations?	No.

- Lab SDG 480-191411-1 sample RB-102521 was logged in by laboratory as RB-102S21
- Lab SDG 480-191462-1, 480-191596-1 and 480-191598-1 Received Trip Blanks but they were not listed on COC.
- In SDG 480-191598-1, samples MW-20, MW-07, MW-05, and MW-05 DUP were collected in VOA vials with proper preservative; however, the pH of the samples was > 2 upon laboratory verification. The samples were analyzed within the recommended holding time of 7 days for unpreserved samples.

The following tables are presented at the end of this DUSR and provide summaries of results outside QC criteria:

- Method Blanks Results (Table 2)
- MS/MSD and RPDs Outside Limits (Table 3)
- Surrogates Outside Limits (Table 4)
- LCS and CCV Outside Limits (Table 5)
- Serial Dilutions Outside Limits (Table 6)
- Reanalysis Results (Table 7)
- Field Duplicate Results (Table 8)

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Volatile/Semivolatile Organic Compounds by GC/MS – Method 8260C/8270D	
Description	**Notes and Qualifiers**
Any compounds present in method, trip, or, field blanks (see Table 2)?	For method blanks see table 2. No compounds present in trip or field blanks.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data. Qualification also applies to TICs.	Yes.
Are surrogates for method blanks and LCS within limits (see Table 4)?	Yes.
Are surrogates for samples and MS/MSD within limits (see Table 4)? If not, were all samples reanalyzed for VOCs? Matrix effects should be established.	No.
Is Laboratory QC frequency at least one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Is MS/MSD within QC criteria (see Table 3)? If out and LCS is compliant, then “J” flag positive	No.

Volatile/Semivolatile Organic Compounds by GC/MS – Method 8260C/8270D	
Description	**Notes and Qualifiers**
data in original sample due to matrix.	
Is LCS within QC criteria (see Table 5a)? If out, and the recovery is high with no positive values, then no data qualification is required.	No.
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Yes.
Is initial calibration for target compounds <20 %RSD or curve fit (see Table 5b)?	Yes
Is %D in the continuing calibration for target compounds less than method specifications (see Table 5b)?	No.
Were any samples reanalyzed or diluted (see Table 7)? For any sample reanalysis or dilutions, is only one reportable result flagged?	Yes.
For TICs are there any system related compounds that should not be reported?	No.
Do field duplicate results show good precision for all compounds (see Table 8)?	Yes.

Pesticides and PCBs by GC – Method 8081B/8082A	
Description	**Notes and Qualifiers**
Are any compounds present in method and field blanks as noted on Table 2?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	Results <5x qualified U
Are surrogates for method blanks and LCS within limits (see Table 4)?	Yes.
Are surrogates for samples and MS/MSD within limits (see Table 4)? Matrix effects should be established.	No.
Is laboratory QC frequency one blank and LCS with each batch and one MS/MSD per 20 samples?	Yes.
Are MS/MSD within QC criteria (see Table 3)? If out and LCS is compliant, then J flag positive data in original sample due to matrix.	No.
Is LCS within QC criteria (see Table 5a)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes.
Is initial calibration for target compounds <15 %RSD or curve fit? Is initial calibration verification <25%D (see Table 5b)?	Not applicable.
Is continuing calibration for target compounds < 20%D (see Table 5b)?	Not applicable.
Were any samples re-analyzed or diluted (see Table 7)? For any sample re-analysis and dilutions is only one reportable result by flagged?	Yes.
Spot check retention time windows and second column confirmations as complete.	No issues identified.
Do field duplicate results show good precision for all compounds (see Table 8)?	Not applicable.

Metals & Mercury by ICP/AES – Method 6010C/7471B	
Description	**Notes and Qualifiers**
Are any compounds present in method and field blanks as noted on Table 2?	Yes.
For samples, if results are < 5 times the blank then "U" flag data.	Yes.
Is laboratory QC frequency one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Are MS/MSD within QC criteria (see Table 3)? QC limits are not applicable to sample results greater than 4 times spike amount. All N flagged data for MS are flagged J as estimated.	No.
Were elements recovered ≤30%? If so, “R” flag associated NDs.	Yes.
Is LCS within QC criteria (see Table 5a)? If out, and the recovery high with no positive values, then no data qualification is required.	Yes.
Is there one serial dilution per 20 samples? Flag all data reported with an “E” as “J”.	No.

Metals & Mercury by ICP/AES – Method 6010C/7471B	
Description	**Notes and Qualifiers**
Spot check ICS recoveries 80-120%. Contact lab if unacceptable. (See table 5b).	Not applicable.
Spot check ICV 90-110% (ICVL 70-130%). For Mercury ICV 85-115%. Contact lab if unacceptable. (See table 5b).	Not applicable.
Spot check CCV 90-110% (CCVL 70-130%). For Mercury CCV 85-115%. Contact lab if unacceptable. (See table 5b).	Not applicable.
Were any samples re-analyzed or diluted (see Table 7)? For any sample re-analysis and dilutions is only one reportable result by flagged?	No.
Do field duplicate results show good precision for all compounds (see Table 8)?	Yes.

Perfluorinated Compounds – Method E537-LL	
Description	**Notes and Qualifiers**
Any compounds present in method, trip, or field blanks (see Table 2)?	Yes.
For samples, if results are < 5 times the blank contaminants, then "U" flag data.	
Are surrogates for method blanks and LCS within limits?	Yes.
Are surrogates for samples and MS/MSD within limits? (See Table 3).	Yes.
Are surrogates for Isotope Dilution within limits? (See Table 3b).	Yes.
Is Laboratory QC frequency at least one blank and LCS with each batch and one set of MS/MSD per 20 samples?	Yes.
Is MS/MSD within QC criteria (see Table 4)? If out and LCS is compliant, then “J” flag positive data in original sample due to matrix.	Yes.
Is LCS within QC criteria (see Table 5)? If out, and the recovery is high with no positive values, then no data qualification is required.	Yes.
Do internal standards areas and retention time meet criteria?	Yes.
Is initial calibration for compounds by isotope dilution <35 %RSD or curve fit; and compounds quantitated by isotope dilution analytes (IDA) <50% RSD? Is the initial calibration verification within or equal to 60-140% for all natives quantitated by isotope dilution or 50-150% for natives quantitated by IDA.	Not applicable
Is continuing calibration for compounds by isotope dilution equal to or within 60-140% for all natives quantitated by isotope dilution or 50-150% for natives quantitated by IDA.	Not applicable
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.

Perfluorinated Compounds – Method E537-LL	
Description	**Notes and Qualifiers**
Do field duplicate results show good precision for all compounds (see Table 7)?	Not applicable

Isotopic Thorium by Alpha Spectrometry	
Description	**Notes and Qualifiers**
Are any compounds present in method and field blanks as noted on Table 2? Method blank results should be less than ½ PQL, <MDC, and less than the uncertainty.	Yes.
For samples, if results are < 5 times the blank contaminants, then "U" flag data.	Results <5x qualified U
LCS within QC criteria 70-130% recovery (see Table 5)? Reject data with recovery <50% or greater than 150%.	Yes.
Are MS/MSD within QC criteria (70-130% recovery, RPD ± 35)? See Table 4	N/A: MS/MSD not required for alpha spectroscopy
Is matrix duplicate within QC criteria (RPD ± 35, NAD < 1.96) ? MD must be performed on site samples to use results for qualification. If out, apply the Normalized Absolute Difference <1.96 test in USACE Guidance.	Yes.
Do field duplicate results show good precision for all compounds?	Yes.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
Were background and continuing calibration checks (pulsers) performed daily?	Yes.
Were instrument checks marked as failed and if so were checks performed more than twice to bring into compliance?	No.
Spot check the raw data, were any anomalies found in spectra?	No.
Were tracer yields within limits? If recoveries were outside laboratory derived limits, but within default limits of 20-150%, flag associated results as estimated (J) after corrective actions; otherwise R. If recoveries are <20%: flag as rejected (R) and >150% rejected (R).	Yes.
If recoveries were outside control limits, were adequate quantities of tracers used and were calculations correct?	N/A: All recoveries were within limits.
Were the relationships between results, uncertainties, and MDCs in compliance?	Yes.

Summary of Potential Impacts on Data Usability
Concerns
• Samples IB 12SW, MW-12, and MW-06 “R” qualified as rejected for thorium-230 due to method blank detection. • Samples MW-19, RB 102821, IB 12SW, RB 102721, IL2NE, MW-06-20211027, MW-21-

20211027, IB5NE, and RB 102921 “U” qualified as non-detect for aluminum due to method blank detection.

- Samples IB5SW2 and IB5SW2-DUP “U” qualified as non-detect for chromium due to method blank detection.
- Samples IB5SW2, IB5SW2-DUP, MW-12, MW-19, IB 11AW, IL2NE, and IB5NE “U” qualified as non-detect for copper due to method blank detection.
- Samples IB5SW2, IB5SW2-DUP, RB-102S21, and RB102621 “U” qualified as non-detect for manganese due to method blank detection.
- Samples IB5SW2, IB5SW2-DUP, RB-102S21, RB102621, IB 12SW, RB 102721, IL2NE, MW-21, IB5SW, IB5NE, RB 102921, and RB 102921 “U” qualified as non-detect for zinc due to method blank detection.
- Samples IB5SW2 and IB5SW2-DUP “U” qualified as non-detect for manganese due to field blank detection.
- Samples IB6NE and MW-23 “U” qualified as non-detect for copper due to field blank detection.
- Sample MW-23 “U” qualified as non-detect for lead and zinc due to field blank detection.
- Samples IB 12SW, IL2NE, and MW-19 “U” qualified as non-detect for aluminum due to field blank detection.
- Sample IB6NE “R” qualified as rejected for atrazine due to MSD % recovery.
- Sample IB6NE “J-” qualified as estimated, low biased for calcium due to MS/MSD % recovery.

Table 2 – List of Positive Results for Blank Samples

Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
SW8260C	RB-102521 (480-191411-3)	Water	Acetone	3.2	J	ug/L	3.0	10
SW8260C	RB-102521 (480-191411-3)	Water	Methylene Chloride	3.7	--	ug/L	0.44	1.0
SW6010C	RB-102521 (480-191411-3)	Water	Manganese	0.0010	J B	mg/L	0.00040	0.0030
SW6010C	RB-102521 (480-191411-3)	Water	Zinc	0.0019	B	mg/L	0.0015	0.010
SW8260C	RB102621 (480-191462-3)	Water	Methylene Chloride	8.2	--	ug/L	0.44	1.0
SW8260C	RB102621 (480-191462-3)	Water	Barium	0.0070	--	mg/L	0.00070	0.0020
SW8260C	RB102621 (480-191462-3)	Water	Calcium	0.32	J	mg/L	0.10	0.50
SW8260C	RB102621 (480-191462-3)	Water	Copper	0.32	--	mg/L	0.0016	0.010
SW8260C	RB102621 (480-191462-3)	Water	Iron	0.020	J	mg/L	0.019	0.050
SW8260C	RB102621 (480-191462-3)	Water	Lead	0.0051	J	mg/L	0.0030	0.010
SW8260C	RB102621 (480-191462-3)	Water	Manganese	0.0016	J B	mg/L	0.00040	0.0030
SW8260C	RB102621 (480-191462-3)	Water	Sodium	0.73	J	mg/L	0.32	1.0
SW8260C	RB102621 (480-191462-3)	Water	Zinc	0.010	B	mg/L	0.0015	0.010
SW6010C	RB102721 (480-191596-7)	Water	Aluminum	0.11	J B	mg/L	0.060	0.20
SW6010C	RB102721 (480-191596-7)	Water	Manganese	0.0014	J	mg/L	0.00040	0.0030
SW6010C	RB102721 (480-191596-7)	Water	Zinc	0.0023	J B	mg/L	0.0015	0.010
SW8260C	RB102921 (480-191671-4)	Water	Methylene Chloride	6.1	--	ug/L	0.44	1.0

Data Usability Summary Report	Project: Hawkeye Trade Ctr & Residences
Date Completed: March 24, 2022	Completed by: Tunde Komuves-Sandor and Michael Shadle

Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
SW6010C	RB102921 (480-191671-4)	Water	Manganese	0.00094	J	mg/L	0.00040	0.0030
SW6010C	RB102921 (480-191671-4)	Water	Zinc	0.0057	J B	mg/L	0.0015	0.010
SW6010C	MB 480-599308/1-A	SO	Calcium	3.62	J	mg/kg	3.3	49.9
SW6010C	MB 480-599308/1-A	SO	Selenium	0.448	J	mg/kg	0.40	4.0
SW6010C	MB 480-599625/1-A	SO	Arsenic	0.0121	J	mg/kg	0.0056	0.015
SW6010C	MB 480-600000/1-A	SO	Aluminum	5.41	J	mg/kg	4.5	10.3
SW6010C	MB 480-600000/1-A	SO	Calcium	3.99	J	mg/kg	3.4	51.6
SW6010C	MB 480-600000/1-A	SO	Manganese	0.0423	J	mg/kg	0.033	0.21
SW6010C	MB 480-600000/1-A	SO	Zinc	0.831	J	mg/kg	0.66	2.1
E537M	MB 200-172453/1-A	SO	Perfuorooctanesulfonic acid (PFOS)	0.0357	J	ug/kg	0.016	0.20
E537M	MB 200-172453/1-A	SO	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.0602	J	ug/kg	0.037	2.0
E537M	MB 200-172453/1-A	SO	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.0603	J	ug/kg	0.046	2.0
E537M	MB 200-172453/1-A	SO	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	0.0168	J	ug/kg	0.016	2.0
E537M	MB 200-172570/1-A	Water	Perfluorooctanesulfonic acid (PFOS)	0.298	J	ug/kg	0.29	2.0
SW6010C	MB 480-599733/1-A	Water	Potassium	0.129	J	mg/L	0.10	0.50
SW6010C	MB 480-599998/1-A	SO	Aluminum	5.07	J	mg/kg	4.5	10.2
SW6010C	MB 480-599998/1-A	SO	Calcium	4.93	J	mg/kg	3.4	50.9
SW6010C	MB 480-599998/1-A	SO	Manganese	0.0397	J	mg/kg	0.033	0.2
SW6010C	MB 480-602179/1-A	Water	Aluminum	0.0771	J	mg/L	0.060	0.20
SW6010C	MB 480-602179/1-A	Water	Cadmium	0.000650	J	mg/L	0.00050	0.002
SW6010C	MB 480-602179/1-A	Water	Chromium	0.0011	J	mg/L	0.0010	0.0040
SW6010C	MB 480-602179/1-A	Water	Copper	0.00645	J	mg/L	0.0016	0.01
SW6010C	MB 480-602179/1-A	Water	Manganese	0.00172	J	mg/L	0.00040	0.0030
SW6010C	MB 480-602179/1-A	Water	Nickel	0.00328	J	mg/L	0.0013	0.01
SW6010C	MB 480-602179/1-A	Water	Zinc	0.00519	J	mg/L	0.0015	0.01
SW6010C	MB 480-602365/1-A	Water	Aluminum	0.111	J	mg/L	0.060	0.20
SW6010C	MB 480-602365/1-A	Water	Manganese	0.00115	J	mg/L	0.00040	0.0030
SW6010C	MB 480-602365/1-A	Water	Potassium	0.267	J	mg/L	0.10	0.50

Method	Sample ID	Sample Type	Analyte	Result	Qualifier	Units	MDL	PQL
SW6010C	MB 480-602365/1-A	Water	Zinc	0.00253	J	mg/L	0.0015	0.010
SW8270D	MB 480-602779/1-A	Water	Di-n-butyl phthalate	0.347	J	ug/L	0.31	5.0
A-01-R	MB 160-534804/1-A	Water	Thorium-230	0.4792 ± 0.184		pCi/L		1.0
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	J	mg/L	0.060	0.20
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	J	mg/L	0.0016	0.01
SW6010C	MB 480-602997/1-A	Water	Zinc	0.00235	J	mg/L	0.0015	0.010
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	J	mg/L	0.060	0.20
SW6010C	MB 480-602690/1-A	Water	Zinc	0.0223	J	mg/L	0.0015	0.010
SW6010C	MB 480-603675/1-A	Water	Zinc	0.00235	J	mg/L	0.0015	0.010
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	J	mg/L	0.060	0.20
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	J	mg/L	0.0016	0.010

Table 2a – List of Samples Qualified for Method Blank Contamination

Method	Method Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qual.	PQL	Affected Samples	Sample Flag
SW6010C	MB 480-602179/1-A	Water	Chromium	0.0011	0.0017	J B	0.0040	IB5SW2 (480-191411-1)	U
SW6010C	MB 480-602179/1-A	Water	Copper	0.00645	0.0037	J B	0.010	IB5SW2 (480-191411-1)	U
SW6010C	MB 480-602179/1-A	Water	Manganese	0.00172	0.0021	J B	0.0030	IB5SW2 (480-191411-1)	U
SW6010C	MB 480-602179/1-A	Water	Zinc	0.00519	0.016	B	0.010	IB5SW2 (480-191411-1)	U
SW6010C	MB 480-602179/1-A	Water	Chromium	0.0011	0.0016	J B	0.0040	IB5SW2-DUP (480-191411-2)	U
SW6010C	MB 480-602179/1-A	Water	Copper	0.00645	0.0045	J B	0.010	IB5SW2-DUP (480-191411-2)	U
SW6010C	MB 480-602179/1-A	Water	Manganese	0.00172	0.0023	J B	0.0030	IB5SW2-DUP (480-191411-2)	U
SW6010C	MB 480-602179/1-A	Water	Zinc	0.00519	0.017	B	0.010	IB5SW2-DUP (480-191411-2)	U
SW6010C	MB 480-602179/1-A	Water	Manganese	0.00172	0.0010	J B	0.0030	RB-102S21 (480-191411-3)	U
SW6010C	MB 480-602179/1-A	Water	Zinc	0.00519	0.0019	B	0.010	RB-102S21 (480-191411-3)	U
SW6010C	MB 480-602365/1-A	Water	Manganese	0.00115	0.0016	J B	0.0030	RB102621 (480-191462-3)	U
SW6010C	MB 480-602365/1-A	Water	Zinc	0.00253	0.010	B	0.010	RB102621 (480-191462-3)	U
A-01-R	MB 160-534104/1-A	Water	Thorium	0.4792 ± 0.184	0135 ± 0.121		1	IB 12SW (48-191596-6)	R
A-01-R	MB 160-534104/1-A	Water	Thorium	0.4792 ± 0.184	0.368 ± 0.220		1	MW-12 (480-191596-3)	R
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	0.0089	J B	0.010	MW-12 (480-191596-3)	U
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.14	J B	0.20	MW-19 (480-191596-2)	U
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	0.0091	J B	0.010	MW-19 (480-191596-2)	U

Method	Method Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qual.	PQL	Affected Samples	Sample Flag
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.13	J B	0.20	RB 102821 (480-191596-4)	U
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	0.0055	J B	0.010	IB 11AW (480-191596-5)	U
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.17	J B	0.20	IB 12SW (480-191596-6)	U
SW6010C	MB 480-602997/1-A	Water	Zinc	0.00235	0.0040	J B	0.010	IB 12SW (480-191596-6)	U
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.11	J B	0.20	RB 102721 (480-191596-7)	U
SW6010C	MB 480-602997/1-A	Water	Zinc	0.00235	0.00235	J B	0.010	RB 102721 (480-191596-7)	U
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.36	J B	0.20	IL2NE (480-191596-8)	U
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	0.0020	J B	0.010	IL2NE (480-191596-8)	U
SW6010C	MB 480-602997/1-A	Water	Zinc	0.00235	0.0031	J B	0.010	IL2NE (480-191596-8)	U
A-01-R	MB 160-534104/1-A	Water	Thorium	0.4792 ± 0.184	0.334 ± 0.176		1	MW-06 (480-191598-2)	R
SW6010C	MB 480-603675/1-A	Water	Zinc	0.00235	0.0087	J B	0.010	MW-21 (480-191598-3)	U
SW6010C	MB 480-603675/1-A	Water	Zinc	0.00235	0.0095	J B	0.010	IB5SW (480-191598-5)	U
SW6010C	MB 480-603675/1-A	Water	Zinc	0.00235	0.0066	J B	0.010	IB5NE (480-191671-1)	U
SW6010C	MB 480-603675/1-A	Water	Zinc	0.00235	0.0057	J B	0.010	RB 102921 (480-191671-4)	U
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	0.31		0.2	MW-06-20211027	U
SW6010C	MB 480-602690/1-A	Water	Aluminum	0.116	0.22		0.2	MW-21-20211027	U
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.35	B	0.20	IB5NE (480-191671-1)	U
SW6010C	MB 480-602997/1-A	Water	Aluminum	0.170	0.090	J B	0.20	RB 102921 (480-191671-4)	U
SW6010C	MB 480-602997/1-A	Water	Copper	0.00255	0.0035	J B	0.010	IB5NE (480-191671-1)	U
SW6010C	MB 480-603675/1-A	Water	Zinc	0.00235	0.0057	J B	0.010	RB 102921 (480-191671-4)	U

Table 2b – List of Samples Qualified for Field Blank Contamination

Method	Field Blank	Matrix	Analyte	Blank Result	Sample Result	Lab Qual.	PQL	Affected Samples	Sample Flag
SW6010C	RB-102S21-20211025	Water	Manganese	0.0010	0.0023	BJ	0.0300	IB5SW2- DUP	U
SW6010C	RB-102S21-20211025	Water	Manganese	0.0010	0.0021	BJ	0.0300	IB5SW2	U
SW6010C	RB102621-20211026	Water	Copper	0.033	0.0072	J	0.010	IB6NE (480-191462-1)	U
SW6010C	RB102721	Water	Aluminum	0.11	0.17	BJ	0.20	IB 12SW (480-191596-2)	U
SW6010C	RB 102821	Water	Aluminum	0.13	0.36	B	0.20	IL2NE (480-191596-3)	U

Table 3 – List of MS/MSD Recoveries outside Control Limits

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	1,1,1-Trichloroethane	ND	25.0/25.0	137	138	73	126	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	1,2-Dichloroethane	ND	25.0/25.0	140	136	75	120	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	2-Butanone (MEK)	ND	125/125	143	133	57	140	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	2-Hexanone	ND	125/125	129	128	65	127	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Bromodichloromethane	ND	25.0/25.0	138	134	80	122	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Carbon tetrachloride	ND	25.0/25.0	141	143	72	134	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Chlorobenzene	ND	25.0/25.0	123	123	80	120	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Dibromochloromethane	ND	25.0/25.0	125	128	75	125	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Chloroform	ND	25.0/25.0	128	132	73	127	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Chloromethane	ND	25.0/25.0	132	133	68	124	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Dichlorodifluoromethane	ND	25.0/25.0	161	158	59	135	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Tetrachloroethene	ND	25.0/25.0	130	129	74	122	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Trichloroethene	ND	25.0/25.0	133	130	74	123	--
SW8260C	480-191462-1 MS/MSD (IB6NE)	Water	Trichlorofluoromethane	ND	25.0/25.0	163	166	62	150	--
SW8270D	480-191462-1 MS/MSD (IB6NE)	Water	Atrazine	ND	64.0/64.0	113	0	50	150	R
SW6010C	480-191462-1 MS/MSD (IB6NE)	Water	Calcium	262	10.0/10.0	57	57	75	125	--
SW6010C	480-191462-1 MS/MSD (IB6NE)	Water	Magnesium	120	10.0/10.0	70	90	75	125	--

Method	Sample ID	Sample Type	Analyte	Orig. Result	Spike Amount	MS	MSD	Low Limit	High Limit	Sample Qualifier
SW6010C	480-191462-1 MS/MSD (IB6NE)	Water	Manganese	2.0	0.200/	-73	75	75	125	--
SW6010C	480-191462-1 MS/MSD (IB6NE)	Water	Sodium	967	10.0/10.0	120	222	75	125	--

Table 3a – List of RPDs outside Control Limits

Method	Sample ID	Analyte	RPD	RPD Limit	Sample Qualifier
SW8260C	IB6NE MS/MSD (480-191462-1)	Bromomethane	18	15	--
SW8260C	IB6NE MS/MSD (480-191462-1)	Chloroethane	32	15	--
SW8270D	IB6NE MS/MSD (480-191462-1)	Benzo[a]pyrene	22	15	--
SW8270D	IB6NE MS/MSD (480-191462-1)	Benzo[g,h,i]perylene	21	15	--
SW8270D	IB6NE MS/MSD (480-191462-1)	Dibenz(a,h)anthracene	19	15	--
SW8270D	IB6NE MS/MSD (480-191462-1)	Indeno[1,2,3-cd]pyrene	19	15	--
SW8270D	LCSD 480-602984/3-4	Phenanthrene	22	15	--
SW6010C	480-190565-1 (SB09-Z05-06)	Zinc	22	20	--
SW8270D	SB15-Z08-10 MSD (480-190620-4)	2,4,5-Trichlorophenol	19	18	--
SW6010C	SB08-Z00-04 MSD (480-190471-2)	Manganese	23	20	--

Table 3b – List of Samples with Isotope Dilution Recovery outside Control Limits
None.

Table 4 – List of Samples with Surrogates outside Control Limits

Method	Sample ID	Sample Type	Analyte	Rec. %	Low Limit	High Limit	Dil. Fac.	Sample Qualifier
SW8270D	IB5SW2-DUP (480-191411-2)	Water	2,4,6-Tribromophenol	131	41	120	1	--
SW8270D	MW-23 (480-191462-2)	Water	2-Fluorophenol	131	48	120	1	--

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Table 5a – List of LCS and Recoveries outside Control Limits

Method	Sample ID	Analyte	LCS Rec.	Low Limit	High Limit	Sample Qualifier
SW8260C	LCS 480-602639/6	2-Butanone (MEK)	181	57	140	--
SW8260C	LCS 480-603557/5	1,2-Dichloroethane	123	75	123	--
SW8260C	LCS 480-603557/5	Bromodichloromethane	123	80	122	--
SW8260C	LCS 480-603557/5	Dibromochloromethane	149	59	135	--
SW8260C	LCS 480-603006/7	Difluorodichloromethane	137	59	135	--
SW8270D	LCS 480-602984/2-A	4-Nitroaniline	124	65	120	--
SW8270D	LCSD 480-602984/3-A	2,4-Dinitrotoluene	122	49	120	--
SW8270D	LCSD 480-602984/3-A	Atrazine	134	71	130	--

Table 5b – List of CCV Recoveries outside Control Limits
None.

Table 6 – List of Serial Dilution outside Control Limits
None.

Table 7 – Samples that were Re-analyzed
None.

Table 8 – Summary of Field Duplicate Results

Method	Analyte	Unit	Matrix	PQL	IB5SW2-20211025	IB5SW2-DUP-20211025	RPD	RPD Rating	Sample Qual
SW6010C	Aluminum	mg/l	WG	0.2	0.41	0.47	13.6%	Good	None
SW6010C	Barium	mg/l	WG	0.002	0.042	0.042	0.0%	Good	None
SW6010C	Calcium	mg/l	WG	0.5	46.9	45.8	2.4%	Good	None
SW6010C	Chromium, Total	mg/l	WG	0.004	0.0017	0.0016	6.1%	Good	None
SW6010C	Copper	mg/l	WG	0.01	0.0037	0.0045	19.5%	Good	None
SW6010C	Iron	mg/l	WG	0.05	0.17	0.18	5.7%	Good	None
SW6010C	Magnesium	mg/l	WG	0.2	9.4	9.2	2.2%	Good	None
SW6010C	Manganese	mg/l	WG	0.003	0.0021	0.0023	9.1%	Good	None
SW6010C	Potassium	mg/l	WG	0.5	2.9	2.9	0.0%	Good	None
SW6010C	Sodium	mg/l	WG	1	279	272	2.5%	Good	None

SW6010C	Zinc	mg/l	WG	0.01	0.016	0.017	6.1%	Good	None
SW8260C	Trichloroethylene (TCE)	ug/l	WG	1	0.83	0.83	0.0%	Good	None

Method	Analyte	Unit	Matrix	PQL	MW-05-20211027	MW-05 (DUP)-20211027	RPD	RPD Rating	Sample Qual
SW8260C	Cyclohexane	ug/l	WG	1	ND	0.29	NC	--	None <2x PQL
SW8260C	Methylcyclohexane	ug/l	WG	1	ND	0.37	NC	--	None <2x PQL
SW8260C	Toluene	ug/l	WG	1	ND	0.56	NC	--	None <2x PQL

Table 9 – List of Samples with Tracer Recovery outside Control Limits
None.

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Acronym List and Table Key:

COC	=	chain of custody
DUSR	=	data usability summary report
FD	=	Field duplicate
LCS	=	laboratory control sample
LR	=	Laboratory replicate
MB	=	method blank
MS	=	matrix spike
MSS	=	matrix spike soluble
MSD	=	matrix spike duplicate
N	=	Normal sample
ND	=	not detected
NYSDEC	=	New York State Department of Environmental Conservation
PDS	=	Post-digestion spike
PQL	=	practical quantitation limit
QA	=	quality assurance
QAPP	=	quality assurance project plan
QC	=	quality control
RB	=	Rinsate blank
RPD	=	relative percent difference
SDG	=	sample delivery group

Data Usability Summary Report	Project: Hawkeye Trade Center
Date Completed: February 17, 2023	Completed by: Devon Richards; Eridania Marte

The analytical data provided by the laboratory were reviewed for precision, accuracy, and completeness based on applicable sections of the following guidelines.

- NYSDEC Division of Environmental Remediation Guidance for Data Deliverables and the Development of Data Usability Summary Reports (in DER-10, May 2010)
- Determination of Volatile Organic Compounds [VOCs] in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry [GC/MS] (EPA Method TO-15, 1999).
- EPA Region 2 Data Validation SOP HW-31 Revision 6.

Specific criteria for QC limits were obtained from the master QAPP. Compliance with the project QA program is indicated in the checklist and tables below. Any concerns affecting data usability are listed below. The checklist and tables also indicate whether data qualification is required and/or the type of qualifier assigned.

Reference:

Project ID	Lab Work Order	Laboratory Report
EE1705007.019	22K2103	Con-test, A Pace Analytical Laboratory

Work Order	Matrix	Sample ID	Lab ID	Sample Date	Lab QC	ID Corrections
22K2103	GS	SV-01-110822	22K2103-05	2022/11/08 14:13:00		
22K2103	GS	SV-02-110822	22K2103-04	2022/11/08 14:03:00		
22K2103	GS	SV-03-110822	22K2103-03	2022/11/08 13:42:00		
22K2103	GS	SV-04-110822	22K2103-01	2022/11/08 12:52:00		
22K2103	GS	SV-99-110822	22K2103-02	2022/11/08 12:52:00	FD	

Work Orders	Matrix	Test Method	Method Name	Number of Samples	Sample Type
22K2103	GS	EPA TO-15	VOCs In Ambient Air By GC/MS	4	N
22K2103	GS	EPA TO-15	VOCs In Ambient Air By GC/MS	1	FD

General Sample Information	
Do Samples and Analyses on COC check against Lab Sample Tracking Form?	Yes.
Did coolers arrive at lab between 2 and 6°C and in good condition as indicated on COC and Cooler Receipt Form?	Yes. Thermal preservation is not required for air canisters.
Frequency of Field QC Samples Correct? Field Duplicate - 1/20 samples Trip Blank - Every cooler with VOCs waters only Equipment Blank - 1/ set of samples per day?	Yes. Trip blank not required. Field Duplicate 1 per 5 Samples MS/MSD not applicable to Method TO-15. No equipment blank required – The individual canisters were cleaned and checked prior to use. The data was recorded in the laboratory reports.
Case narrative present and complete?	Yes.
Any holding time violations (See table below)?	No.

The following tables are presented at the end of this DUSR and provide summaries of results outside QC criteria:

- Method Blanks Results (Table 2)
- Surrogates Outside Limits (Table 3)
- MS/MSD Outside Limits (Table 4)
- LCS Outside Limits (Table 5)
- Reanalysis Results (Table 6)
- Field Duplicate Results (Table 7)

Go to Tables List

Data Usability Summary Report	Project: Hawkeye Trade Center
Date Completed: February 17, 2023	Completed by: Devon Richards; Eridania Marte

Volatile Organic Compounds by Method TO-15	
Description	**Notes and Qualifiers**
Any compounds present in method, trip, or, field blanks (see Table 2)?	No.
For samples, if results are < 5 times the blank or < 10 times the blank for common laboratory contaminants, then "U" flag data. Qualification also applies to TICs.	Not applicable.
Are surrogates for method blanks and LCS within limits?	Yes.
Are surrogates for samples within limits? (See Table 3). If not, were all samples reanalyzed for VOCs? Matrix effects should be established.	Yes.
Is Laboratory QC frequency at least one blank and LCS with each batch?	Yes.
Is MS/MSD within QC criteria (see Table 4)? If out and LCS is compliant, then "J" flag positive data in original sample due to matrix.	A MS/MSD is not applicable to the TO-15 method; however, all surrogate recoveries were acceptable indicating no matrix interferences.
Is LCS within QC criteria (see Table 5)? If out, and the recovery is high with no positive values, then no data qualification is required.	Yes.
Do internal standards areas and retention time meet criteria? If not was sample re-analyzed to establish matrix (see Table 6)?	Yes.
Is initial calibration for target compounds <30 %RSD or curve fit?	Level II report provided; therefore, unable to determine.
Is the initial calibration verification for target compounds between laboratory limits or 70-130%?	Level II report provided; therefore, unable to determine.
Is continuing calibration for target compounds <30 %D?	Yes.
Were any samples reanalyzed or diluted (see Table 6)? For any sample reanalysis or dilutions, is only one reportable result flagged?	No.
For TICs are there any system related compounds that should not be reported?	No TICs reported.
Do field duplicate results show good precision for all compounds except TICs (see Table 7)?	Analyte 2-Hexanone was detected in the field duplicate sample and not the parent sample and the RPD value was not able to be calculated. Sample results were <2x the PQL and were not qualified as a result.

Summary of Findings
• None.

Table 2 - List of Positive Results for Blank Samples
None.

Table 2A – List of Samples Qualified for Method Blank Contamination
None.

Table 2B - List of Samples Qualified for Field Blank Contamination
None.

Table 3 - List of Samples with Surrogates outside Control Limits
None.

Table 4 – List of MS/MSD Recoveries and RPDs outside Control Limits
None.

Table 5 - List of LCS/CCV Recoveries outside Control Limits
None.

Table 6 –Samples that were Reanalyzed
None.

Table 7 – Summary of Field Duplicate Results

Method	Analyte	Unit	Matrix	PQL	SV-04-110822	SV-99-110822	RPD	RPD Rating	Sample Qual
TO15	1,3-Butadiene	ppbv	SG	0.2	2.2	2.1	4.7%	Good	None
TO15	2-Hexanone	ppbv	SG	0.2	ND	0.30	NC	-	None < 2x PQL
TO15	Acetone	ppbv	SG	8	26	28	7.4%	Good	None
TO15	Benzene	ppbv	SG	0.2	1.9	1.9	0.0%	Good	None
TO15	Carbon Disulfide	ppbv	SG	2	2.7	2.8	3.6%	Good	None
TO15	Cyclohexane	ppbv	SG	0.2	0.86	1.3	40.7%	Good	None
TO15	Dichlorodifluoromethane	ppbv	SG	0.2	0.40	0.42	4.9%	Good	None
TO15	Ethylbenzene	ppbv	SG	0.2	0.26	0.27	3.8%	Good	None
TO15	m,p-Xylene	ppbv	SG	0.4	0.78	0.79	1.3%	Good	None
TO15	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	ppbv	SG	0.2	0.50	0.58	14.8%	Good	None
TO15	N-Heptane	ppbv	SG	0.2	1.3	1.3	0.0%	Good	None
TO15	O-Xylene (1,2-Dimethylbenzene)	ppbv	SG	0.2	0.27	0.29	7.1%	Good	None
TO15	Propylene	ppbv	SG	8	25	25	0.0%	Good	None

Data Usability Summary Report	Project: Hawkeye Trade Center
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Method	Analyte	Unit	Matrix	PQL	SV-04-110822	SV-99-110822	RPD	RPD Rating	Sample Qual
TO15	Toluene	ppbv	SG	0.2	4.2	4.2	0.0%	Good	None

Acronym List and Table Key:

SG = soil gas
CCV = continuing calibration verification
COC = chain of custody
%D = percent difference
DUSR = data usability summary report
GC/MS = gas chromatography / mass spectrometry
LCS = laboratory control sample
MB = method blank
MS = matrix spike
MSD = matrix spike duplicate
NYSDEC = New York State Department of Environmental Conservation
PQL = practical quantitation limit
QA = quality assurance
QAPP = quality assurance project plan
QC = quality control
RPD = relative percent difference
SDG = sample delivery group
TIC = tentatively identified compound
VOC = volatile organic compound