Site Investigation Work Plan

Heart of the Valley Metropolitan Sewerage District

Kaukauna, Wisconsin

HOMVS 170791 | January 27, 2023

SEH

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January 27, 2023

RE: Heart of the Valley Metropolitan Sewerage District
Site Investigation Work Plan
BRRTS No. 02-45-590936
Kaukauna, Wisconsin
SEH No. HOVMS 170791 4.00

Mr. David Neste, Hydrogeologist
Wisconsin Department of Natural Resources
Oshkosh Service Center
625 E. County Rd. Y, Suite 700
Oshkosh, WI 54901-9731

Dear Mr. Neste:

On behalf of Heart of the Valley Metropolitan Sewerage District (HOVMSD), Short Elliott Hendrickson Inc. (SEH) is submitting this Site Investigation Work Plan (SIWP) for the HOVMSD property located at 801 Thilmany Road in Kaukauna, Wisconsin. On November 17, 2022, a Non-Emergency Notification for Hazardous Substance Discharge Form was submitted electronically to the Wisconsin Department of Natural Resources (WDNR) to report soil impacts detected during construction excavation for the Filter Splitter Structure. The WDNR issued a Responsible Party (RP) letter to HOVMSD on November 28, 2022. This SIWP describes proposed investigation activities for the site.

HOVMSD requests a formal written response from the WDNR, regarding this SIWP, as part of the WDNR's fee-based technical review program. The required technical review fee will be submitted to WDNR under separate cover.

Please contact me at areichling@sehinc.com or (608) 790-9091 if you have any questions related to the proposed investigation activities.

Sincerely,

Abigail M. Reichling

Abigail M. Reichling, PE
Senior Environmental Engineer
(Lic. WI)

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Site Investigation Work Plan

Heart of the Valley Metropolitan Sewerage District – Splitter Structure
Kaukauna, Wisconsin

Prepared for:
Heart of the Valley Metropolitan Sewerage District
Kaukauna, Wisconsin

Prepared by:
Short Elliott Hendrickson Inc.
10 North Bridge Street
Chippewa Falls, WI 54729-2550
715.720.6200

I, Melanie Niday, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03(1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

672-0123	January 27, 2023
PG Number	Date

Melanie Niday
Geologist

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Distribution

No. of Copies	Sent to
1	Mr. David Neste, Hydrogeologist Wisconsin Department of Natural Resources Oshkosh Service Center 625 E. County Rd. Y, Suite 700 Oshkosh, WI 54901-9731
1	Brian Helminger, District Director Heart of the Valley Metropolitan Sewerage District 801 Thilmany Rd. Kaukauna, WI 54130

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Heart of the Valley Metropolitan Sewerage District – Splitter Structure

Prepared for Heart of the Valley Metropolitan Sewerage District

1 Introduction

This Site Investigation Work Plan (SIWP) was prepared by Short Elliott Hendrickson Inc. (SEH®) on behalf of Heart of the Valley Metropolitan Sewerage District (HOVMSD) for HOVMSD's facility located at 801 Thilmany Road, Kaukauna, Outagamie County, Wisconsin ("the site"). On November 17, 2022, a Non-Emergency Notification for Hazardous Substance Discharge Form was submitted electronically to the Wisconsin Department of Natural Resources (WDNR) to report soil impacts detected during excavation activities related to the Splitter Structure construction. This SIWP describes proposed site investigation (SI) activities that will be completed at the site.

The tasks outlined in this SIWP have been selected to assess the presence and location of possible on-site and/or off-site sources, evaluate potential contamination in site media, and to identify potential receptors and environmental factors. This SIWP was prepared in general accordance with Wisconsin Administrative Code (WAC) NR 716.07 and 716.09.

1.1 Project Contacts

1. Brian Helminger, District Director
   Heart of the Valley Metropolitan Sewerage District
   801 Thilmany Road
   Kaukauna, WI 54130
   920.766.5731

2. David Neste, Hydrogeologist
   Wisconsin Department of Natural Resources
   Oshkosh Service Center
   625 E. County Road Y, Suite 700
   Oshkosh, WI 54901-9731
   920.362.2072

3. Abigail M. Reichling, P.E. (WI)
   Short Elliott Hendrickson Inc.
   329 Jay Street, Suite 301
   La Crosse, WI 54601608.790.9091

1.2 Correspondence to NR 716.07 and NR 716.09

The following table identifies where information required in NR 716.07 and NR 716.09 can be found in the SIWP.

Table 1 – Code Reference Table

Code Reference	Report Section
716.07(1)	Section 2.2
716.07(2)	Section 2.2
716.07(3)	Section 2.3
716.07(4)	Section 2.3
716.07(5)	Section 2.1 and 2.3
716.07(6)	Section 2.5
716.07(7)	Section 2.4
716.07(8)	Section 2.4
716.07(9)	Section 2.5
716.07(10)	Section 2.5
716.07(11)	Section 2.5
716.07(12)	Section 2.5
716.09(2)(a)	Section 2.1
716.09(2)(b)	Section 1.1
716.09(2)(c)	Figure 1
716.09(2)(d)	Section 2
716.09(2)(e)	Section 3
716.09(2)(f)	Section 4 and 5, Figure 3
716.09(2)(g)	Section 4.1
716.09(2)(h)	Section 7

2 Site Investigation Scoping

2.1 Site Location Description

The subject site is owned by HOVMSD, and the portion of the subject site where impacts have been identified is located in the Northwest 1/4 of the Northwest 1/4 of Section 19, Township 21, Range 19 East in the City of Kaukauna, Outagamie County, Wisconsin (Figure 1). The subject site is comprised of two parcels, totaling 6.3 acres. Property information obtained from Outagamie County Parcel Viewer (Outagamie County, WI Parcel Viewer (arcgis.com)) is summarized in the table below. The site is located on an island in the Fox River. It is bordered by the Fox River to the north and northwest and industrial properties and associated industrial operations to the southwest, south, and east. The approximate property boundary is depicted on Figure 2. The WTM Coordinates, obtained from the WDNR's RR Sites Map, for the Splitter Structure location where impacts have been identified are X: 659719 and Y: 425034.

Table 2 – Parcel Information

Tax Parcel ID Number	Acres	Abbreviated Legal Description
322072700	4.43	SUBD PC #33 ASSES PLT PRT CL33 BETW US CANAL & FOX RIVER LESS SOLD THILMANY PULP & PAPER CO & ALSO INCL PARCELS #1 & 2 IN 16336M1 PRT BLK A 5.30AC M/L
322072801	1.87	PRT PC 33 BLK A DESC IN 16030M3 & #1600779

2.2 Site History, Type of Contamination, Media Affected

The site is comprised of one 4.43-acre parcel and one 1.87-acre parcel (a total of 6.3 acres). The site was developed as the City of Kaukauna Wastewater Treatment Facility in 1939, and since 1974, the site has been operated by HOVMSD for the treatment of domestic, commercial, and industrial wastewater from the City of Kaukauna, Village of Little Chute, Village of Kimberly, Village of Combined Locks, and Darboy Sanitary District.

Currently, the site is developed with an administration building, wastewater treatment structures, and various tanks, along with asphalt-paved and vegetated areas. The Solids Handling and Filtration Building is located in the northern half of the site, adjacent to two Sludge Storage Tanks located in the northernmost portion of the site. A storage shed was formerly located on the south side of the Solids Handling and Filtration Building. The storage shed appears to have been constructed between 1980 and 1992 based on historical aerial imagery (Outagamie County Maps, Historical Aerial Photography). The storage shed was historically used for dry storage of equipment, scrap metals, and waste oil drums, and the storage shed was constructed with a concrete floor without floor drains. It was demolished in Fall 2022. Also, during the Fall of 2022, the Filter Splitter Structure was constructed to the south of the Solids Handling and Filtration Building, adjacent to the Stairwell Structure as shown on Figure 3. The Filter Splitter Structure is approximately 26 feet long by 19 feet wide and consists of two filter splitter boxes. The structure is approximately 28 feet high, with a subgrade base elevation of 604.5 feet above mean sea level (amsl). The top surface of the Filter Splitter Structure is completed with grating, at an elevation of 632.5 feet amsl. The ground surface elevation is approximately 617 feet amsl in this portion of the site. The 42” influent pipe on the west side of the Filter Splitter Structure was installed in Fall 2022, and the 42” pipe to the south of the Filter Splitter Structure will connect directly to the existing chlorine contact tank and has not yet been installed. The Filter Splitter Structure and associated pipes are shown on Figure 3

During the construction of the Filter Splitter Structure, impacted soils were identified by HOVMSD’s general contractor during the excavation activities. The soil contamination was first identified based on visual and olfactory evidence, and soil sampling results for a sample collected by PSI on October 20, 2022 revealed concentrations of volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Resource Conservation and Recovery Act (RCRA) 8 Metals above applicable WAC NR 720 Residual Contaminant Levels (RCLs). Benzene was the only VOC detected at a concentration exceeding its protection of groundwater RCL. For PAHs, benzo(a)pyrene was detected at a concentration exceeding its non-industrial direct contact RCL, and chrysene was detected at a concentration exceeding its protection of groundwater RCL. Additionally, one RCRA metal, arsenic was detected at a concentration of 4.3 milligrams per kilogram (mg/kg), which exceeds its direct contact and protection of groundwater RCLs but does

not exceed its established Background Threshold Value (BTV) of 8.3 mg/kg. Groundwater sampling was not completed during the Splitter Structure excavation and construction activities.

The soil contamination was identified along the northeastern boundary of the Filter Splitter Structure excavation at a depth between 6 and 8 feet bgs. The excavation for the Filter Splitter Structure was approximately 25 feet by 20 feet by 8 feet in depth. A total of 144.04 tons of soil was excavated and disposed off-site from the excavation, of which a small portion was the impacted soils. The excavation was completed in November 2022.

HOVMSD submitted a Notification for Hazardous Substance Discharge Form to the WDNR on November 17, 2022, to report these soil impacts detected as part of the site construction activities. The WDNR issued a Responsible Party (RP) letter to HOVMSD on November 28, 2022, assigning the subject site as BRRTS No. 02-45-590936. HOVMSD has prepared this SIWP to outline proposed investigation activities related to the identified soil impacts and to evaluate if these impacts are related to previously documented releases at the site. According to the WDNR's Bureau of Remediation and Redevelopment Tracking System (BRRTS) online database, three closed activities are listed for the HOVMSD site, and these BRRTS listings are discussed in Section 2.3.

The facility's historical operations were evaluated with respect to emerging contaminants such as perfluoroalkyl and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The property has been developed as a wastewater treatment facility since 1939 and has been operated by HOVMSD since 1974. HOVMSD does not have any information to indicate that PFAS were ever used on-site or as part of its operations. The identified soil impacts within the Filter Splitter Structure excavation include VOCs, PAHs, and arsenic. The arsenic impacts to soil may be related to background soil concentrations, as the detected arsenic concentration was below its BTV of 8.3 mg/kg. Based on the detection of benzene, benzo(a)pyrene, and chrysene, it is possible that a release of petroleum-related products may have occurred on-site. It is possible that historical petroleum product use or storage associated with the wastewater treatment facility operations could be a potential source of contamination. As such, based on the historical review of the site, there is no evidence to suggest that emerging contaminants should be investigated for the site.

2.3 Proximity to Other Sources of Contamination

The WDNR's BRRTS online database was reviewed to evaluate the site's location with respect to other sources of contamination. There are three closed listings for the site, and several contaminated sites adjacent to the subject site.

The listings associated with the HOVMSD site include the following:

- **BRRTS No. 03-45-001926 Heart of the Valley – Metropolitan STP.** This listing is a Leaking Underground Storage Tank (LUST) site that was closed in 1999. According to the Closure Case Summary and Close Out Form completed by McMahon Associates, Inc. on October 22, 1999, three underground storage tanks (USTs) and associated piping and dispensers were assessed in September 1994 and then removed and abandoned. These USTs included a 1,000-gallon gasoline tank, 1,000-gallon diesel tank, and 20,000-gallon heating oil tank. Gasoline Range Organics (GRO) were detected in soil samples collected beneath the gasoline UST and gasoline island dispenser at concentrations of 150 mg/kg and 2,700 mg/kg, respectively. The 20,000-gallon heating oil tank was located along the western side of the Solids Handling and Filtration Building, and the 1,000-gallon diesel tank and 1,000-gallon gasoline tank were located along the

southern side of the Solids Handling and Filtration Building, to the south of the maintenance shop area. Diesel Range Organics (DRO) were detected in soil samples collected below the diesel UST (630 mg/kg) and diesel product dispenser (16,000 mg/kg). DRO was not detected in soil samples collected beneath the heating oil UST. Soil and groundwater sampling was completed by McMahon Associates, Inc. in February 1995, and in October 1996, contaminated soil removal activities were completed. Approximately 528 cubic yards of contaminated soil were excavated and disposed off-site for landspreading, while another approximately 1283 tons of contaminated soil was transported for bioremediation at Ridgeview Recycling and Disposal Facility. Contaminated soil was removed until bedrock was encountered, at a depth between 8 and 12 feet below ground surface (bgs). The case was closed with residual soil impacts based on the confirmation sidewall and excavation bottom sampling completed following the remedial excavation.

Groundwater was encountered at depths ranging from 8.01 to 17.43 feet bgs during the investigation activities. A groundwater extraction system operated from January 1997 to September 1998, utilizing a 6-inch extraction well drilled into bedrock to a depth of 26.5 feet bgs and with extracted groundwater treated via HOVMSD's wastewater treatment system. Following the shutdown of the extraction system operations, groundwater samples were collected from three monitoring wells, the extraction well, and one sump. At the extraction well EW-01, the WAC NR 140 Preventive Action Limit (PAL) was exceeded for methyl tert-butyl ether (MTBE), but there were no NR 140 Enforcement Standard (ES) exceedances detected in any of the wells. The case was closed with a NR 140 PAL exemption.

- **BRRTS No. 02-45-528936 Fox Energy Center Pump Station.** An environmental repair program (ERP) listing associated with soil contamination identified as part of the construction of a cooling water pump station is listed for the Site. This listing is associated with the FEC Raw Water Station, which is displayed on Figure 2. Soil sampling was completed in 2004, and lead and benzo(a)pyrene were detected in soil samples at concentrations exceeding their applicable or interim guidance RCLs, respectively. Based on soil sampling and XRF results, lead was detected in surface and subsurface soils, which appeared consisted with impacted fill materials. Fill soils were observed from ground surface to a depth of approximately 13 feet bgs. Approximately 1,800 tons of impacted soil were excavated from the site for the pump station and associated pipeline construction, removing elevated lead and PAH concentrations. The ERP listing was closed in October 2006 with residual soil contamination exceeding the non-industrial direct contact RCL for lead.
- **BRRTS No. 04-45-421366 Heart of the Valley Metro Sew Dist.** This listing is for a spill of unleaded and leaded gasoline at the HOVMSD site on January 28, 1984. A total of 420 gallons of gasoline was released. Based on the spill report available on BRRTS, the spill was caused by a leak in the underground storage tank. Limited additional information is available on the BRRTS database for this listing. The spill was closed by the WDNR on January 28, 1984.

The following adjacent sites were also reviewed for indications of soil and/or groundwater impacts to the subject site. The adjacent site listings are associated with the Ahlstrom Munksjo property (formerly Thilmany International Paper) located at 600 Thilmany Road in Kaukauna, WI, which is located approximately 100 feet southwest of the HOVMSD site.

- **BRRTS No. 02-45-000484 Thilmany – Solvent Tanks.** An ERP listing associated with soil and groundwater contamination is included on the BRRTS database for the Ahlstrom Munksjo property located at 600 Thilmany Road, Kaukauna, WI. Review of the available information indicates that the listing was closed with residual soil and groundwater contamination in February 2005. Available information does not indicate contamination extended to the subject site.
- **BRRTS No. 02-45-000194 Thilmany Pulp & Paper.** This listing is an ERP site that was closed in 2006 for the Ahlstrom Munksjo property located at 600 Thilmany Road, Kaukauna, WI. Data available from the BRRTS database includes the continuing obligation information. An asphalt paved surface is present over an area of contaminated groundwater and soil at the site. Groundwater contamination includes cis- and trans-1,2-dichloroethene, toluene, and vinyl chloride. The source of the contamination appears to have been a solvent release. Review of the available information indicates that the listing was closed with residual soil and groundwater contamination in November 2006. Available information does not indicate contamination extended to the subject site.
- **BRRTS No. 03-45-000175 Thilmany Plt #71.** This listing is a LUST site that was closed in 1993 for the Ahlstrom Munksjo property located at 600 Thilmany Road, Kaukauna, WI. Data available on the BRRTS database includes the site file and closure letter. Two, 10,000-gallon fuel oil USTs were removed in October/November 1989. Soil borings indicated petroleum contaminated of soils in the area of the former tanks, and the impacted soils were over-excavated and disposed off-site. Review of the available site information does not indicate contamination extended to the subject site.

2.4 Potential or Known Impacts to Receptors

Potential or known impacts to receptors were evaluated. Based on the observations made by HOVMSD's construction contractor, C.D. Smith, soil impacts were identified at a depth of approximately 6 to 8 feet bgs on the east side of the excavation. The location of the impacted soils corresponds to the southwest corner of the stairwell structure of the existing building. The site investigation activities proposed in Section 4 are intended to evaluate the potential extent of soil contamination at the site.

The City of Kaukauna provides drinking water to its residents via its public water supply system, with groundwater as its source. A search of the Wisconsin Well Construction Information System database indicates that there are no public or private water supply wells located within 1,200-feet of the site.

At this time, it is not anticipated that impacts to sensitive species, habitats, or ecosystems, wetlands, or outstanding resource waters have occurred. As there are no occupied structures in the immediate vicinity of the identified soil impacts, no receptors of vapors are expected based on the current site configuration.

2.5 Other Considerations

At this time, no immediate or interim remedial actions are planned for the site. As described in Section 2.2, soil excavation activities were completed in November 2022 during the Filter Splitter Structure construction, with a total of 144.04 tons of soil excavated and disposed off-site. It is noted, however, that the contaminated soils were only a small portion of that total quantity of excavated soils. No access issues are anticipated as the property is currently owned by HOVMSD. Should SI activities indicate the need to investigate adjacent properties, permission

from adjacent property owners to access their property will be obtained at that time. The need to gather data to determine hydraulic conductivity of materials will be evaluated pending the findings of SI activities described in Section 4.

3 Physiographical and Geological Setting

3.1 Topography

The elevation at and around the site is approximately 617 feet above mean sea level (MSL) based on site construction plans. Site topography is relatively flat, with topography generally sloping southwest towards Thilmany Road. Surface drainage from the site appears to flow to the south/southwest.

3.2 Soils

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, surficial soils in the northern portion of the site consist of Udorthents (Uo), with 0 to 6 percent slopes and somewhat excessively drained.

3.3 Geology and Hydrogeology

Information from previous BRRTS listings indicates that the site surface is generally completed with a layer of asphalt, with silty sand and silty clay extending to a depth of 8 to 12 feet bgs (McMahon Associates, Inc., 1999). Dolomite bedrock is present at 8 to 12 feet bgs. The bedrock geology consists of Sinnipee Group dolomite with some limestone and shale (Mudrey et al, 1982). Given the site's proximity as an island within the Fox River, the silty sand and silty clay is anticipated to be fine to coarse alluvium associated with river deposition. The long history of construction associated with site development would also indicate the presence of fill would occur due to site grading.

Water level data was also available from previous groundwater investigation activities at the Site. The depth to groundwater has historically been between 8 and 17 feet bgs at the Site, with typical groundwater depths between 12 and 14 feet bgs. Given the site's proximity as an island within the Fox River, this would indicate groundwater flow is likely controlled by the river with a primary groundwater flow direction toward the northeast, paralleling flow within the river.

4 Proposed Site Investigation Activities

The following sections describe the SI activities that are proposed for the HOVMSD site to assess the nature and extent of soil and groundwater impacts in the vicinity of the Filter Splitter Structure.

The proposed SI activities will be conducted in general accordance with SEH's Standard Operating Procedures (SOPs) and Quality Assurance/Quality Control (QA/QC) Program which are found in Appendix A, "Standard Operating Procedures" and Appendix B, "Documentation and Quality Assurance/Quality Control."

4.1 Pre-Investigation Activities

Prior to mobilizing to the property, SEH will contact Digger's Hotline for the locating and marking of public utilities. A private utility locator will also be subcontracted by SEH to locate and mark

private utilities prior to the commencement of subsurface investigation activities. A site-specific health and safety plan (SHSP) will be prepared and utilized by SEH personnel while working on the site. Subcontractors will be required to prepare and utilize their SHSPs during the site activities.

Field sampling equipment will be decontaminated prior to mobilizing to the site. Where disposable sampling equipment is not used, sampling equipment will be decontaminated as necessary between sampling locations.

As part of these SI activities, no site management controls will be established. The property boundary is secured with chain-link perimeter fencing.

4.2 Soil Investigation

Six Geoprobe® soil borings are proposed to be advanced at the site. The approximate locations of the proposed soil borings are shown on Figure 3. The exact locations will be determined in the field based on observations and to provide clearance from subsurface obstructions. Soil borings GP-1 through GP-6 are proposed in the area surrounding the location of soil contamination identified during the excavation for the Filter Splitter Structure. The location of soil borings GP-1 and GP-2 will be approximately 10 feet from the identified soil contamination, and the locations of soil borings GP-3 through GP-6 will be approximately 20 feet from the identified soil contamination. The soil boring locations will be documented using a handheld global positioning system (GPS) unit and/or measured from fixed locations on the site.

The soil borings will be advanced to terminal depths of 12 feet bgs or bedrock, whichever is encountered first. The soils will be continuously screened for the purpose of soil classification and field screening for VOCs. A 10.6 electron Volt (eV) photoionization detector (PID) will be used for field screening of soils. Two soil samples will be collected at each boring location, with one shallow soil sample collected in the 0 to4 feet bgs interval and one deeper soil sample collected in the 6 to 8 feet bgs interval and above the water table.

If visual or olfactory evidence of impacts is noted or detected by the PID, a soil sample will be collected from the interval where impacts were detected, and an additional soil sample will be collected below the identified impacts, but above the water table. If no evidence of impacts is noted or detected by the PID, soil samples will be collected according to the sampling strategy outlined in the preceding paragraph.

Soil samples selected for laboratory analysis will be placed in sampling containers furnished by the laboratory and placed on ice. The samples will be shipped via overnight courier to a Wisconsin certified analytical laboratory. Standard Chain-of-Custody documentation will be maintained throughout sample collection and shipment. The laboratory analyses to be completed for the samples are discussed further in Section 5.

Soil samples collected from borings GP-1, GP-2, and GP-3 will be analyzed by the laboratory upon receipt. Soil samples collected from borings GP-4, GP-5, and GP-6 will be placed on hold with the laboratory and will only be analyzed by the laboratory if exceedances of the WAC NR 720 RCLs and/or BTVs are detected in the samples collected from the other borings.

Following the completion of soil sampling, each soil boring will be abandoned in accordance with WAC NR 141. If groundwater is encountered in up to three locations, those soil borings will be completed as temporary monitoring wells (see Section 4.3). Soil boring logs (WDNR Soil Boring

Log Form 4400-122) and borehole abandonment forms (WDNR Form 3300-005) will be completed for each soil boring.

4.3 Groundwater Investigation

Following the completion of soil sampling, up to three soil borings will be converted to temporary monitoring wells if groundwater is encountered. The locations of the temporary monitoring wells will be determined in the field based on where groundwater is encountered and field screening of soils. The temporary monitoring wells will be constructed using 5-foot-long, 1-inch diameter schedule 40 polyvinyl chloride (PVC) 0.0010-inch slot size well screen, with an appropriate length of schedule 40 PVC riser pipe, and sand filter pack. The temporary monitoring wells will be purged dry or four casing volumes will be removed (whichever occurs first) and allowed to naturally recharge. Monitoring well construction and development forms will be completed for each temporary well.

Prior to groundwater sampling, the depth to groundwater will be measured using an electronic water level sensor. Groundwater monitoring will be completed using low-flow groundwater sampling methods, utilizing a peristaltic pump and disposable polyethylene tubing. A groundwater sample will be collected from each temporary well, and one duplicate sample will also be collected for QA/QC purposes. Groundwater samples will be handled in accordance with the same procedures outlined in the previous section (Section 4.2), and the laboratory analyses to be completed for the samples are discussed further in Section 5. The temporary monitoring wells will be abandoned in accordance with WAC NR 141 following groundwater sampling.

4.4 Decontamination and Investigative Waste Management

Soil and groundwater generated during SI activities will be properly managed and disposed in accordance with applicable WDNR regulations. Soil cuttings and purge water will be containerized in 5-gallon buckets or 55-gallon drums and staged in a secure location on-site, pending receipt of laboratory analytical results. Disposable equipment (i.e., personal protective equipment, disposable sampling tools, etc.) will be placed in plastic waste bags and disposed as general refuse.

5 Laboratory Methods

Samples collected during the SI will be analyzed at a Wisconsin certified laboratory. Laboratory methodologies for sample analysis will follow the latest accepted WDNR protocols. The following analyses proposed below were selected for the listed sampling locations based on the prior analytical sampling results.

Table 3 – Analytical Sampling Results

Analyte	Media	Sampling Locations	Method Reference	Bottle Requirements	Bottle Preservation
VOCs	Soil	GP-1 through GP-6	EPA Method 8260C	Terra Core Sampler (1) 40 mL vial	Methanol
PAHs	Soil	GP-1 through GP-6	EPA Method 8270SIM	4 oz Glass Jar	None
Arsenic	Soil	GP-1 through GP-6	EPA Method 6010	4 oz Glass Jar	None
VOCs	Groundwater	Up to three temporary wells	EPA Method 8260C	(3) 40 mL vials	HCl

6 Report

SEH will prepare an SI report for the site and submit the report to the WDNR following completion of field activities and laboratory analyses. The report will describe impacts encountered, if any, in soil and groundwater, environmental factors, site geology and hydrogeology, potential receptors of contamination, the potential for vapor migration, and other results of the site investigation. The results of the SI as well as potential recommendations for no further action or closure, additional investigation, and/or remedial action, if necessary, will be included in the report.

7 Estimated Work Schedule

The schedule for implementing the proposed SI activities is shown in the table below. The availability of subcontractors and potential weather delays may alter the schedule. HOVMSD requests a written response from WDNR on this SIWP, as noted in the table below.

Table 4 – Proposed SI Activities

Activity	Estimated Schedule
Submittal of SI Work Plan	January 27, 2023
WDNR Technical Review of SI Work Plan	March 27, 2023
Site investigation field activities	April/May 2023
Site investigation report preparation and submittal	June/July 2023

8 References

McMahon Associates, Inc. 1999. Closure Case Summary and Close Out Form. October 2022.

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Figures

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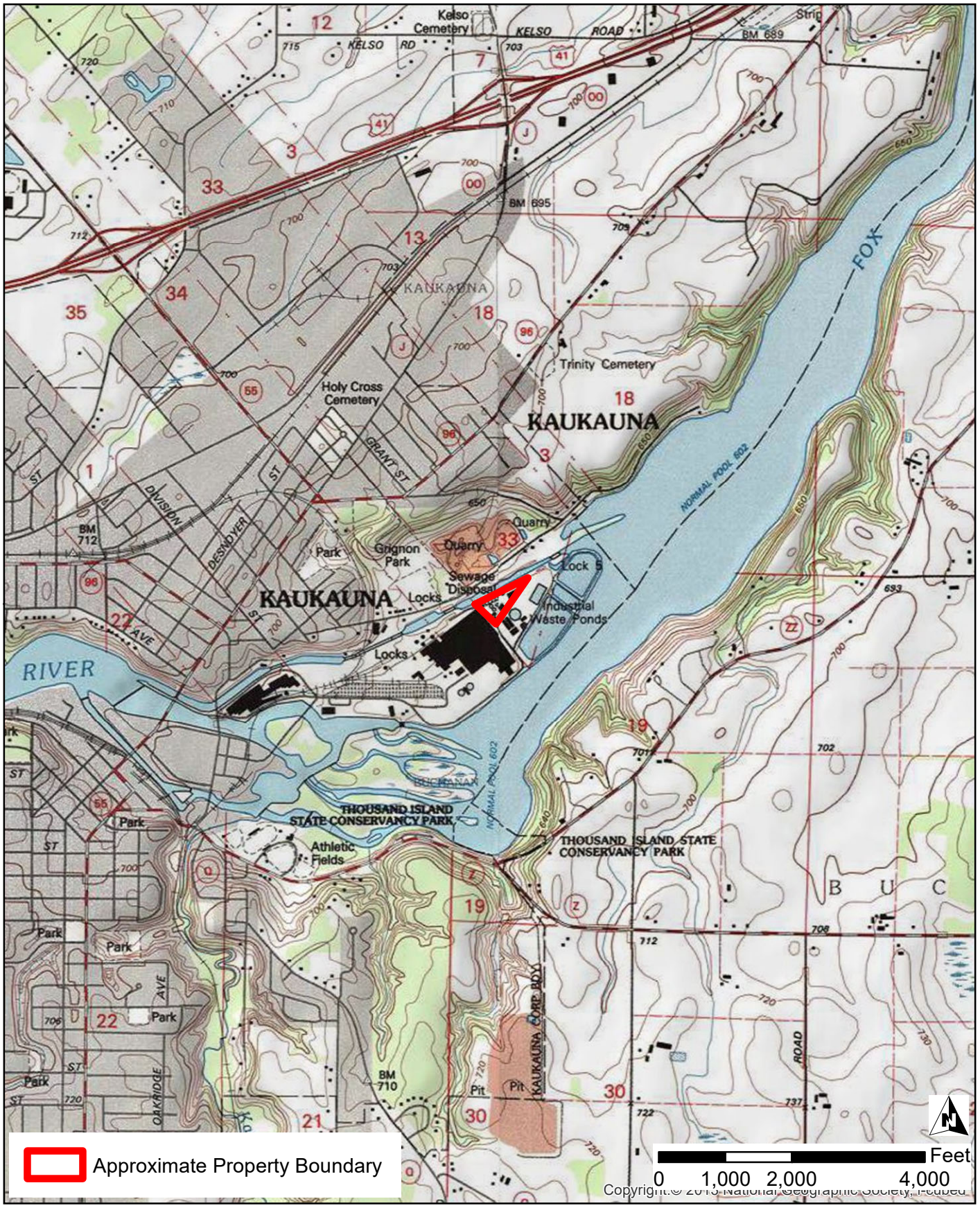

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SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

Project: HOVMS 170791
Print Date: 1/9/2023

Map by: aknorr
Projection: NAD 1983 HARN WISCRS Calumet County Feet
Source: ESRI, SEH

SITE LOCATION MAP

Heart of the Valley Metropolitan Sewerage District
801 Thilmany Road, Kaukauna, Wisconsin

Figure 1

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Sludge Storage Tank
Biosolids Storage Pump Building
Sludge Storage Tank
Proposed Addition
Chemical Storage Room
ATAD
Solids Handling and Filtration Building
FEC Raw Water Station
Peak Flow Chlorine Contact
Peak Flow Chlorine Contact
Electrical/ Blower Building
Chlorine Contact Tank
Peak Flow Wetwell
Biofilter Odor Control
Biostyr Building
Gravity Thickener
Peak Flow Pump Building
Biofilter Odor Control
Headworks Building
Spent Backwash Tank
Actflow Building
Biostyr Blower Building
Waste Receiving Storage
Post ATAD Reactor 2
Post ATAD Reactor 1
Administration Building

N

0 37.5 75 150 Feet

Legend

- Filter Splitter Structure
- Location of Former Storage Shed
- Building
- Perimeter Fencing

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SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

Project: HOVMS 170791
Print Date: 1/12/2023

User Name: aknorr
Projection: NAD 1983 HARN WISCRS Calumet County Feet
Source: ESRI, SEH

SITE LAYOUT

Heart of the Valley Metropolitan Sewerage District
801 Thilmany Road, Kaukauna, Wisconsin

Figure 2

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SEH
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ST. PAUL, MN 55110
PHONE: (651) 490-2000
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PROPOSED SITE INVESTIGATION SAMPLING LOCATIONS

Heart of the Valley Metropolitan Sewerage District
801 Thilmany Road, Kaukauna, Wisconsin

Figure 3

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Appendix A

Standard Operation Procedure

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Soil Vapor Monitoring – Mini RAE 3000 PID

Soil vapor (headspace) measurements are made on soil samples collected during soil boring and excavation activities. The field instrument used is a portable Mini RAE 3000 photoionization detector (PID). The Mini RAE 3000 is verified in the field with 98 ppm isobutylene prior to conducting soil vapor monitoring. This instrument has the following standard specifications:

Accuracy	*(Isobutylene)* 0 – 2000 ppm: ± 2 ppm or 10% of reading > 2000 ppm: ± 20% of reading
Range, Resolution, and Response Time	(Isobutylene) 0 – 99 ppm 0.1 ppm 2 seconds 100 – 1,999 ppm 1.0 ppm 2 seconds 2000 – 10,000 ppm 1.0 ppm 2 seconds
Data logging	15,000 points with time stamp, serial number, user ID, site ID, etc.
Sample Flow Rate	450 to 550 ml/min.
PID Lamp Life	Greater than 2,000 hours for 10.6 eV lamp, with normal cleaning
Battery Life	Up to 10 hours continuous operation
Normal Operating Temperature	0° C to 45° C (32° F to 113° F)

The following procedure is used in determining headspace gas concentrations in each soil sample:

1. Quart size plastic Ziploc bags are used for soil headspace containers. Soil samples are placed in bags using disposable spatulas or decontaminated stainless steel spatulas. The containers are filled half way with soil from specific sample locations then quickly sealed and labeled to record sample number and depth from which the sample was taken.
2. Headspace is allowed to develop for 10 minutes. The Ziploc bag is vigorously shaken for 15 seconds both at the beginning and end of the headspace development period. Clods of cohesive soil are broken to facilitate development of vapors in the headspace. Where ambient temperatures are below 32° F, headspace development is conducted within a heated vehicle or building so samples can warm to approximately 70° F.
3. After headspace development, the plastic bag is punctured with the instrument sampling probe to a point about one-half of the headspace depth. Care is exercised to avoid intake of water droplets or soil particles into the sample probe.
4. Following probe insertion through the plastic bag, the highest meter response is recorded as the headspace concentration.

Soil samples are also examined visually by an environmental professional for staining or other signs of contamination.

Protocol for Geoprobe Sampling

SEH will subcontract a drilling company for subsurface sampling. The following Standard Operating Procedure will be used as guidance for subsurface sampling. Soil sampling conducted during the subsurface investigation will follow SOP C-1 of this report. Field Screening of soils will follow SOP C-6. The hydraulic probe is a truck mounted device used to collect screening groundwater, soil, and soil gas samples at relatively shallow depths. The probe is mounted on the back of a small truck or van and is operated hydraulically used the vehicle's engine. Small diameter hardened steel probes are driven to depths of up to 40 feet or more, depending on soil conditions. Soil gas samples can then be collected using a vacuum pump. Soil or water samples can also be collected using a small-diameter Shelby tube of slotted well point and foot valve pump.

A peristaltic pump is a suction lift pump consisting of a rotor with ball-bearing rollers. Dedicated polyethylene tubing is threaded around the rotor. Additional lengths of dedicated polyethylene tubing are attached to both ends of the rotor tubing: one end is inserted into the well; the other end is a discharge tube. The sample makes contact with the tubing only, not with the pump. The tubing should be equipped with a foot valve to avoid having aerated water from the tubing fall back into the well. A peristaltic pump is suitable for sampling small diameter wells (e.g., 2 inches). Cross-contamination is not of concern because dedicated tubing is used and the sample does not come into contact with the pump or other equipment. The peristaltic pump has a depth limitation of 25 feet and its use can result in a potential loss of the volatile fraction due to sample

Protocol for Hand Auger Sampling of Shallow Surface Soils

Surface soil sampling is performed using a stainless steel soil auger with stainless steel extension handles. As samples are collected, they are visually observed for soil type and the presence of staining potentially indicative of contamination. Similarly, soils are screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID).

The PID is also used to monitor ambient air concentrations at the borehole and within the work zone during the hand auger sampling, in accordance with SEH's Site Health and Safety Plan. Personal protective equipment is utilized by sampling personnel, as specified in the Site Health and Safety Plan.

To avoid cross-contamination, the auger bucket extensions, and handles are decontaminated prior to initial use at the site and between sampling locations. This procedure includes a soap and water or trisodium phosphate (TSP) wash, followed by a triple distilled or deionized water rinse. During sampling the hand auger bucket is retracted slowly from the boring to prevent soil sloughing. Soil samples are normally collected over the following intervals in hand-augered borings; 0.5 foot intervals above 6 feet bgs and at 2 foot intervals typically below 6 feet as necessary. Samples are transferred from the bottom of the bucket auger using stainless steel sampling equipment to laboratory clean, glass sample jars. The jars are then labeled with the sample designation, location, date, time, and sampler. Stainless steel sampling equipment used to collect the soil sample from the bucket is decontaminated between samples using a soap and water wash followed by a distilled water rinse. Sample collection and preservation will follow the latest WDNR protocol. Collected samples are preserved on ice and shipped to the contracted analytical laboratory. SEH standard chain of custody procedures are followed regarding the shipment and receipt of samples.

Contaminated soils generated during the boring and sampling procedures are stockpiled on plastic sheeting at the location for later treatment/disposal. After sampling is completed, borings are abandoned with a clean soil/bentonite mixture and documented on WDNR borehole abandonment forms.

Soil Sampling – Scoop or Trowel

Sampling methods. Sampling instructions for the most common techniques of collecting solids samples from containers are as follows.

Scoop or trowel. Method Reference: ASTM D 5633.

Applicability. Stainless steel/plastic disposable trowels can be used for sampling soil/solids drum materials and granular or powdered materials in bins or other shallow containers. The laboratory scoop, however, is a superior choice because it is usually made of materials resistant to corrosion or chemical reactions, thus lessening the probability of sample contamination.

Method summary and equipment. The trowel or scoop can be used to collect shallow samples in a variety of containers.

Sampling procedure.

- Insert scoop or trowel into material and remove sample.
- Begin sampling with the acquisition of any grab volatile organic compound (VOC) samples, conducting the sampling with as little disturbances as possible to the media. Transfer sample into an appropriate sample bottle with a stainless steel spoon or equivalent.
- Check that a PTFE liner is present in the cap. Secure the cap tightly.
- Label the sample bottle with the appropriate sample label. Be sure to complete the label carefully and clearly, addressing all the categories or parameters.
- Complete all chain-of-custody documents, drum log sheets, and/or records in field logbooks. Prepare samples for shipment.
- Decontaminate sampling equipment after use and between sampling locations.

Groundwater Sampling Procedures

Monitoring Wells

Groundwater samples are collected from monitoring wells after initial well development following WDNR Guidelines contained in PUBL-WR-16887, “Groundwater Sampling Procedures.”

Wells That Can Be Purged Dry

1. Pump or bail the well dry.
2. Allow the well to recover after purging.
3. Purge the well a second time (if time permits).
4. Collect the water sample as soon as there is a sufficient volume of water for the intended analysis.

Wells That Cannot Be Purged Dry

1. Remove four well volumes.
2. Purge wells by bailing as near the water surface as possible.
3. Disposable bailers are used to purge and collect water samples. Bailer rope is kept as clean as possible during purging and sampling activities. Water samples are collected from the bottom of the bailer and poured into laboratory provided glass containers. Sample bottles are filled until a positive meniscus is formed at the brim of the container. Agitation and turbulence are avoided while filling the sample bottles. Disposable nitrile gloves are worn while collecting samples. Sample bottles are tightly sealed after filling, placed on ice in a cooler, repacked in the office, and sent to the laboratory following chain of custody protocol.

Private Water Supplies

Water samples are collected prior to entering any treatment system and from a tap as close as possible to the well. The tap is opened and water allowed to run at least five minutes before sampling. Sample collection procedures follow those previously described in the previous section.

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Appendix B

Documentation and Quality Assurance/Quality Control

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Documentation and Quality Assurance/Quality Control (QA/QC)

Specific documentation and QA/QC procedures will be followed during the investigative activities at the site to ensure that accurate and representative data is collected. This section describes the procedures to be followed during field activities only. Additional information regarding site activities is contained in Appendix A, “Standard Operating Procedures.” The laboratory QA/QC procedures will be performed in accordance with specific method requirements and laboratory standard operating procedures.

A written log will be used to document field procedures and conditions. The written log will be kept in a bound field book with pre-numbered pages. Field notes will be entered with an indelible ink pen at the time information is obtained. Field notes will be entered daily when activities occur. The field notes will include at least the following information:

- Date
- Field personnel (including owner, consultants, subcontractors, regulatory agency)
- Weather (temperature, cloud cover, wind, precipitation)
- Equipment (including screening, sampling, subcontractor equipment)
- Calibrations performed, calibration curves or standards
- Results and techniques used for field screening
- Sampling locations (this requires an accurate map)
- Methods and/or devices used in sampling
- Decontamination procedures used
- Time and date of sample collection
- Type of sample (soil, groundwater, surface water, etc.)
- Field preservation performed
- Field QC data associated with the sample
- Sample ID (must clearly correlate to sample locations shown on a map)
- Any deviations from work plan, SOP, or special conditions

In addition to the written log, a photographic log may also be prepared documenting pertinent field conditions and sampling procedures. The photographs will be labeled to indicate the subject, date, time, direction, and other relevant information. Upon completion of the field activities, the photographs will be assembled and placed in the project file.

For this project, quality assurance is the overall program for assuring reliability of field and analytical data. Quality control is the routine application of procedures for obtaining prescribed standards of performance during the field activities.

All sampling equipment will be stainless steel and decontaminated prior to use in the field, or disposable and dedicated to a single sample. When field equipment will be reused in the field (i.e., collect samples at different depths or locations), the non-disposable equipment will be decontaminated prior to reuse. The decontamination method involves a detergent or trisodium phosphate (TSP) wash, and a triple rinse with deionized water. The sampling equipment for the project will include a stainless steel split spoon, stainless steel, or disposable bailers, and stainless steel spatulas. Samples will be transferred directly into laboratory clean glass bottles with Teflon caps.

Individual labels describing the sample, number, location, sampler’s name, date, preservatives, and other relevant information will be attached to the bottles upon collection. All samples will be tracked using strict chain of custody procedures. Sample bottles will be tracked from the laboratory to the field and back to the analytical laboratory. The chain of custody will also document relevant sampling and preservation.

Field QA samples will include the following:

Duplicate samples are discrete samples obtained from the same location and time. These samples are generally formed by splitting a larger sample into two subsamples.

Temperature blanks are additional water samples collected in the same manner as samples, used to determine the temperature of samples on receipt by the lab.

Field blanks are water samples processed through the same sampling and filtering equipment, used as a check on decontamination procedures (not collected when sampling with disposable bailers).

Trip blanks are reagent water samples analyzed before leaving the lab and on their return as a check on contamination from sources outside samples (unless otherwise specified).

Field QA samples will be handled and stored in an identical manner as actual samples. Results of the analysis of duplicates, temperature, field, and trip blanks will be included in the SI report.

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