WENCK File #2606-0016
June 2020

Additional Supplemental Remedial Investigation Work Plan

Water Gremlin Company
4400 Otter Lake Road
White Bear Lake Township
MPCA Site ID SR0001534

Prepared for:

Water Gremlin

4400 Otter Lake Road,
White Bear Township, MN 55110

WENCK
Responsive partner.
Exceptional outcomes.

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1.0 Purpose and Scope

Wenck Associates, Inc. (Wenck) has prepared this Additional Supplemental Remedial Investigation (SRI) Work Plan for the Water Gremlin Company (Water Gremlin) facility located at 4400 Otter Lake Road, White Bear Lake Township, Ramsey County, Minnesota (the Site). This Work Plan is being submitted on behalf of Water Gremlin to the Minnesota Pollution Control Agency (MPCA) for approval for completion of Additional Supplemental Remedial Investigation activities at the Site.

The purpose of this phase of additional investigation activities is to further evaluate the extent and magnitude of soil, groundwater, sediment and surface water impacts at the Site previously identified at the Site during completion of the RI and SRI. The first phase of the RI completed in June 2019 identified volatile organic compounds (VOCs), including TCE and vinyl chloride (VC), in the shallow groundwater on the property; the VOCs tetrachloroethene (PCE) and TCE in Site soils, and lead in soil, sediment and surface water samples on the Site, some of which were above applicable MPCA risk-screening criteria.

The most recent phase of the SRI completed between August and December 2019 identified lead concentrations above regulatory screening criteria in the unconsolidated materials beneath the building and in sediment and surface water samples collected along Lambert Creek on the eastern portion of the property. Groundwater sampling completed during the SRI identified the VOCs 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethene (1,2-DCE), toluene, trans-1,2-dichloroethene (trans-1,2-DCE), TCE and VC semi-volatile compound 1,4-dioxane at concentrations exceeding their respective HRLs in shallow groundwater at the Site.

This Additional SRI Work Plan (Work Plan) also took into consideration the comments made by the MPCA in its Supplemental Remedial Investigation Summary letter dated March 9, 2020 related to the review of the Wenck Supplemental Remedial Investigation Report, dated February 2020.

Following approval of the Work Plan by the MPCA and the implementation of the additional SRI activities, an Additional SRI Summary Report will be prepared and submitted documenting the additional investigation activities. The Additional SRI Summary Report will provide an updated site conceptual model and risk assessment for the Site to determine if additional investigation or response actions are appropriate.

2.0 Site Location and General Description

The Site is located in a commercial and residential area at 4400 Otter Lake Road White Bear Lake Township, Ramsey County, Minnesota. Additional addresses of the Site include: 0, 1596 and 1610 Whitaker Street; 4316, 4336, 4350 and 4370 Otter Lake Road. The Site is located in the East ½ of the Southwest ¼ of the Northeast ¼ of Section 22, Township 30 North, Range 22 West.

The Site consists of seven parcels occupied by two manufacturing buildings (the North Campus building and the South Campus building) with paved parking lots and drive areas, support structures, storage areas and landscaped areas along the western portion of the property. The eastern half of the Site primarily consists of undeveloped wetlands. County Ditch 14 (Lambert Creek) bisects the center of the Site in an approximate east-west configuration. A pedestrian bridge is located along Otter Lake Road providing access to the two buildings. The site is approximately 61.44-acres in size and is associated with the following parcel numbers:

- 1596 Whitaker Street: 22-30-22-13-0024 (2.77-acres)
- 1596 Whitaker Street: 22-30-22-14-0009 (0.69-acres)
- 4400 Otter Lake Road: 22-30-22-13-0022 (10.77-acres)
- 4316 Otter Lake Road: 22-30-22-22-42-0013 (6.9-acres)
- 4336 Otter Lake Road: 22-30-22-13-0007 (0.64-acres)
- 4370 Otter Lake Road: 22-30-22-13-0023 (4.62-acres)
- 0 Whitaker Street: 22-30-22-14-0008 (35.05-acres)

Areas investigated as part of the previous RI and SRI include the North Campus building and approximately 13-acres of the northeastern portion of the Site (portions of the 1596, 4400 and 4370 parcels). The Site location, with parcel boundaries, is shown in **Figure 1**.

3.0 Project Background

Between 1995 and 2004 Water Gremlin was enrolled in the MPCA Voluntary Investigation and Cleanup (VIC) program as VP5540 and RCRA Remediation as MND006167720. Previous subsurface investigations completed in the vicinity of the North Campus building at the Site identified lead soil impacts which were remediated by excavation conducted in September and November 1996. On June 20, 1997, a No Further Action (NFA) Letter related to soil was issued by the MPCA; however, additional assessment of groundwater was required before a site wide NFA letter could be issued.

Beginning in 1997, a series of soil and groundwater investigations were conducted in the vicinity of the Water Gremlin North Campus building. Multiple soil borings were advanced through the concrete floor inside the building as well as outside the building and six groundwater monitoring wells were completed at the Site.

Soil borings and monitoring wells completed under the North Campus building and along the south side of the North Campus building showed elevated concentrations of the chlorinated solvents TCE and 1,1,1-trichloroethane (1,1,1-TCA), which were used as solvents in the coating process at the time. Annual groundwater monitoring completed between 2000 and 2004 identified a southerly flow direction across the Site. Subsurface investigations identified a contiguous silty-clay to clay confining unit across the Site that impeded vertical groundwater flow and confined known groundwater impacts to the water table aquifer at the Site.

Changes in the concentrations of chlorinated VOC concentrations in groundwater between 1997 and 2004 showed that natural biodegradation of these chemicals was occurring. Concentrations of VOCs in the groundwater at the Site had generally decreased and were below their respective, current at the time, Minnesota Department of Health (MDH) Health Risk Limits (HRLs) during the last groundwater sampling event completed in April 2004. On May 14, 2004, the MPCA VIC staff issued a NFA letter to Water Gremlin for the identified release of VOCs to groundwater at the Site.

Water Gremlin is currently working with the MPCA to complete on-Site environmental investigation in accordance with a March 1, 2019 stipulation agreement (STIP).

The following previous environmental reports prepared for the Water Gremlin facility were reviewed prior to implementation of the 2019 STIP environmental investigations:

- *Environmental Soils Evaluation Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; November 28, 1994. (1994 Soil Investigation Report)
- *Phase I Environmental Site Assessment, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota.* Prepared for Water Gremlin Company. Braun Intertec Corporation; April 10, 1995. (1995 Braun Phase I Report)
- *Soil Excavation Observations and Documentation Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota.* Prepared for Water Gremlin Company. Braun Intertec Corporation; September 26, 1995. (1995 Soil Excavation Report)

- *Phase II Environmental Site Assessment, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota.* Prepared for Water Gremlin Company. Braun Intertec Corporation; March 26, 1996. (1996 Braun Phase II Report)
- *Response Action Plan, Water Gremlin Company, 1610 Whitaker, White Bear Lake, Minnesota*. Prepared for Minnesota Pollution Control Agency. Braun Intertec Corporation; September 12, 1996. (1996 Response Action Plan)
- *Appraisal of 4326 Ottertail Road, White Bear Township, MN 55110.* Prepared for David Zinschlag, Water Gremlin Company. The Search Co. Appraisal Division. (1997 Appraisal)
- *Response Action Plan Implementation, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; April 8, 1997. (1997 RAP Implementation)
- Letter Report to Mr. Douglas Johnson, Water Gremlin Company, *RE: Water Gremlin Site, MPCA Project Number 5540, No Further Action Determination.* Prepared for Water Gremlin Company. MPCA; June 20, 1997. (1997 NFA)
- *Environmental Soil and Groundwater Evaluation, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; August 4, 1997. (1997 Soil and Groundwater Evaluation 1)
- *Environmental Soil and Groundwater Evaluation Report 2, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; January 6, 1998. (1998 Soil and Groundwater Evaluation 2)
- *Environmental Soil and Groundwater Evaluation Report 3, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; January 15, 1999. (1999 Soil and Groundwater Evaluation 3)
- *Environmental Groundwater Evaluation Report 4, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; November 5, 1999. (1999 Soil and Groundwater Evaluation 4)
- *Annual Groundwater Monitoring Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; February 25, 2000. (1999 Annual Monitoring Report)
- *Annual Groundwater Monitoring Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; January 3, 2001. (2000 Annual Monitoring Report)
- *Annual Groundwater Monitoring Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; April 30, 2002. (2001 Annual Monitoring Report)
- *Annual Groundwater Monitoring Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; January 13, 2003. (2002 Annual Monitoring Report)
- *Annual Groundwater Monitoring Report, Water Gremlin Company, 1610 Whitaker Avenue, White Bear Lake, Minnesota*. Prepared for Water Gremlin Company. Braun Intertec Corporation; February 19, 2004. (2003 Annual Monitoring Report)
- *Draft Phase I Environmental Site Assessment, Water Gremlin, 1610 Whitaker Avenue, White Bear Lake Township, Minnesota*. Prepared for Water Gremlin Company. April 2004. (2004 Phase I ESA)
- Letter Report to Mr. David Zinschlag, Water Gremlin Company, *RE: Additional Groundwater Monitoring Assessment, Water Gremlin Company, 1610 Whitaker*

Avenue, White Bear Lake, Minnesota. Prepared for Water Gremlin Company. May 6, 2004. (2004 Groundwater Monitoring Report)

- Letter Report to Mr. David Zinschlag, Water Gremlin Company, *RE: Water Gremlin Site, 1610 Whitaker Avenue, White Bear Lake, Minnesota, MPCA Project Number VP5540, No Further Action Determination.* Prepared for Water Gremlin Company. MPCA; May 14, 2004. (2004 NFA)
- *Phase II Environmental Sampling, Water Gremlin, White Bear Lake Township, Minnesota*. Prepared for Water Gremlin Company. June 9, 2004. (2004 Phase II ESA)
- Facsimile message from Dave Zinschlag, Water Gremlin Co. to JoAnn Henry, MPCA Tanks Division regarding Water Gremlin Tank Inventory, October 5, 1999 & May 13, 2004. (1999-2004 Tank Inventory)
- Minnesota Pollution Control Agency AST Notification of Installation or Change in Status Form. October 10, 2012. (2012 MPCA Tanks – Change In Status)
- Minnesota Department of Health Well and Boring Sealing Record, Minnesota Well and Boring Sealing No. H355975. American Engineering Testing.4-25-2018. (MWD Well Sealing)
- *Report of Geotechnical Exploration, Die Cast Machine Foundation, Water Gremlin Company, 4400 Otter Lake Road, White Bear Township, Minnesota*. Prepared for Water Gremlin Company. American Engineering and Testing; May 16, 2018. (2018 AET Geotechnical Report)

The reviewed documentation was summarized in Wenck's April 2019 Phase I Environmental Site Assessment (ESA).

Following the March 2019 STIP, the following environmental investigations have been completed at the Site:

- *Phase I Environmental Site Assessment, Water Gremlin Company, 4400 Otter Lake Road, White Bear Lake Township, Minnesota.* Prepared for Water Gremlin Company. Wenck Associates, Inc.; April 2019. (2019 Wenck Phase I Report)
- *Remedial Investigation Work Plan, Water Gremlin Company, White Bear Lake Township.* Prepared for Water Gremlin Company. Wenck Associates; May 2019. (2019 RI Work Plan)
- *Remedial Investigation Summary, Water Gremlin Company, White Bear Lake Township.* Prepared for Water Gremlin Company. Wenck Associates; July 2019. (July 2019 RI)
- *Supplemental Remedial Investigation Work Plan, Water Gremlin Company, 4400 Otter Lake Road, White Bear Lake Township, MPCA Site ID SR0001534.* Prepared for Water Gremlin Company. Wenck Associates; May 2019. (2019 SRI Work Plan)
- *Supplemental Remedial Investigation Summary Report, Water Gremlin Company, 4400 Otter Lake Road, White Bear Lake Township, MPCA Site ID SR0001534.* Prepared for Water Gremlin Company. Wenck Associates; February 2020. (2020 Supplemental RI Report)

3.1 2019 WENCK PHASE I ESA REPORT

Wenck completed a Phase I ESA for the Site in April 2019. The ESA identified no RECs, CRECs or HRECs relative to the Subject Property, except for the following:

- *"In 1982 the MPCA had investigated a complaint of alleged discharge of contaminated cooling water with oil from the Water Gremlin plant to a county ditch. Lead impacted soil was identified in the soil sample collected at the discharge point.*

The identified impacts associated with the alleged discharge of contaminated cooling water is considered to represent a REC for the Subject Property.

- *The potential for subsurface soil, groundwater and soil vapor impacts at the Subject Property associated with the former septic system is considered to represent a REC for the Subject Property.*
- *Previous lead contaminated soil and solvent impacted groundwater investigated as VP5540 is considered a CREC for the Subject Property.*
- *Petroleum impacts to soil and groundwater have been identified at the North Campus building of the Subject Property during previous subsurface investigations completed between 1995 and 2004. The identified petroleum impacts have not been investigated and therefore are considered to represent a REC.*
- *Oil staining in the vicinity of the die cast machines and along the wall of the tool room in the North Die Cast building is considered a REC.*
- *The air pollution control equipment at the North Campus building was found to be not functioning properly, causing TCE to be emitted into the air at concentrations exceeding Water Gremlin's air permit. Corrective actions are currently on-going. The identified TCE release is considered a REC for the Subject Property."*

3.2 2019 RI WORK PLAN

The RI Work Plan was prepared by Wenck Associates on behalf of Water Gremlin to meet the requirements of Section 10, paragraphs aa. and cc. of the March 1, 2019 Stipulation Agreement between Water Gremlin Company and the MPCA. The RI Work Plan was submitted to the MPCA Remediation staff for review and approved on May 14, 2019.

The scope of work outlined in the RI Work Plan was completed and summarized in the July 2019 RI Summary report (Discussed in Section 3.1.3 below).

3.3 JULY 2019 RI REPORT

The purpose of the July 2019 RI was to assess soil, sediment, surface water, groundwater, sub-slab vapor and crawl space conditions identified as Areas of Concern (AOCs) in accordance with the approved 2019 RI Work Plan. The July 2019 RI consisted of the completion of 18 push-probe soil borings, 17 push-probe borings for vertical groundwater profiling, seven hand auger soil borings, 25 permanent sub-slab vapor pins, six crawl space air samples and two outdoor ambient air samples between June 4, 2019 and June 26, 2019. Soil, groundwater and soil vapor samples collected at the Site were analyzed for lead by EPA method 6010D and/or VOCs modified list by EPA method 8260B. The following VOCs were included in the MPCA-approved modified 8260B list and analyzed for during the June 2019 RI:

- VOCs: chloroethane; 1,1-dichloroethane (1,1-DCA); 1,2-dichloroethane (1,2-DCA); 1,1-dichloroethene (1,1-DCE); *cis*-1,2-dichloroethene (*cis*-1,2-DCE); *trans*-1,2-dichloroethene (*trans*-1,2-DCE); tetrachloroethene (PCE); 1,1,1-trichloroethane (1,1,1-TCA); 1,1,2-trichloroethene (TCE); and vinyl chloride (VC).

The July 2019 RI activities identified soil profiles across the Site generally consisting of approximately three to eleven feet of fill comprised primarily of dark brown silty and clayey sand with gravel. The native sediments below the fill generally consist of water bearing granular sediment primarily comprised of fine- to medium-grained sand, silty sand and clayey sand to approximately 20 feet bg. Below the granular sediments exists a semi-

confining clay layer consisting of very fine-grained lacustrine deposits containing highly laminated beds of silts, clays and very fine sands.

During the July 2019 RI activities Wenck identified groundwater depths between approximately 3.9 feet below grade (bg) to approximately 10.7 bg feet across the Site. The thickness of the perched water column was observed from approximately 9 to 27 feet above the top of the semi-confining clay layer.

Soil Conditions

A total of 31 soil samples were collected and analyzed for total lead. Lead was detected above laboratory reporting limits in all 31 of these samples. The Industrial Soil Reference Value (SRV) of 700 milligrams per kilogram (mg/kg) was exceeded at GP-16 (0-1') at 719 mg/kg, GP-18 (0-1') at 776 mg/kg, HA-1 (0-1') at 982 mg/kg and HA-5 (0-1') at 979 mg/kg. None of the detected total lead values exceeded the Tier 1 Soil Leaching Value (SLV) of 2,700 mg/kg.

VOCs were not detected above their respective laboratory reporting limits in any of the soil samples collected at the Site, with two exceptions. Specifically, GP-16 contained PCE at a detected concentration of 0.269 mg/kg, above the SLV of 0.042 mg/kg, and TCE at a concentration of 0.826 mg/kg, above the SLV of 0.0023 mg/kg.

Groundwater

A total of 58 groundwater samples collected from the soil borings were analyzed for VOCs. The VOC compounds including 1,1-DCA, chloroethane, *cis*-1,2-DCE, *trans*-1,2-DCE, TCE and VC were detected above their laboratory reporting limits during this investigation. TCE and VC were the only compounds identified at concentrations exceeding their respective HRLs. TCE exceeded the HRL in samples GP-1 (16-18), GP-2 (15-17), GP-3 (16-18), GP-6 (7-10), GP-6 (15-17), GP-7 (14-16), GP-8 (5-7), GP-8 (12-14), GP-9 (13-15), GP-10 90-5), GP-0 (10-12, GP-11 (15-17), GP-12 (22-24), GP-14 (9-14), GP-15 (8-13), GP-15 (18-20), GP-15 32-34), GP-16 (10-15), GP-16 (20-22, GP-16 (34-36), 062619-A (blind duplicate of GP-16 [34-36]), GP-17 (17-19), GP-17 (24-26) and GP-18 (20-22). VC was identified above the HRL in samples GP-14 (9-14), GP-15 (8-13), GP-15 (18-20), GP-16 (10-15), GP-16 (20-22), Gp-18 (10-15) and 062619-B (blind duplicate of GP-18 [10-15]).

Sub-Slab Soil Vapor

A total of 25 sub-slab soil vapor samples (SS-1 through SS-25) were analyzed for a modified list of VOCs by the EPA Method TO-15. Five individual VOCs (1,1,1-TCA, 1,1-DCA, *cis*-1,2 DCE, PCE, *trans*-1,2,DCE and TCE were detected above the laboratory method reporting limits but below their respective Industrial ISVs.

The following results were identified above 33X the Industrial Intrusion Screening Values (ISVs):

- TCE in the samples collected from: SS-1 through SS-4, SS-6, SS-8 through SS-15, SS-18 through SS-20 and SS-22 through SS-25.

The following results were identified above 33X the Industrial Expedited Intrusion Screening Values (EISVs):

- TCE in the samples collected from: SS-2, SS-6, SS-8 through SS-15, SS-18 through SS-20 and SS-22 through SS-24.

Indoor Air
A total of eight ambient air samples (six crawl space and two background samples) were collected during the July 2019 RI activities and analyzed for a modified list of VOCS by EPA Method TO-15. All eight samples reported VOCs identified above their respective laboratory reporting limit.

The following results were identified above the Industrial ISVs:

- TCE in the samples collected from: AA-3, AA-4, AA-5, AA-7 and AA-8.

Sediment
VOCs were not detected above laboratory reporting limits in any of the sediment samples collected during this investigation. Lead concentrations were identified above the MPCA Level 1 Sediment Quality Target (SQTs) in four of the five sediment samples collected from the north bank of County Ditch 14 and in one of the samples collected from the eastern stormwater pond outlet. The two sediment samples collected from the eastern stormwater pond inlets identified lead concentrations above the MPCA Level II SQT.

Surface Water
VOCs were not detected above laboratory reporting limits in any of the six surface water samples collected from County Ditch 14 (Lambert Creek). Concentrations of lead in the six surface water samples collected from County Ditch 14 (Lambert Creek) ranged from non-detect to 12.5 micrograms per liter (µg/l). Lead was detected above the hardness adjusted Tier I Surface Water Criteria at two sample locations.

The June 2019 RI analytical results are provided on the figures and tables included in **Appendix A**.

3.4 2019 SRI WORK PLAN

The SRI Work Plan was prepared by Wenck Associates on behalf of Water Gremlin to further evaluate the extent and magnitude of vapor, soil, groundwater, sediment and surface water impacts at the Site. The SRI Work Plan took into consideration the comments made by the MPCA in its Remedial Investigation Summary letter dated August 8, 2019 related to the review of the Wenck Remedial Investigation Report, dated July 2019.

The 2019 SRI Work Plan was submitted to the MPCA Remediation staff for review and verbally approved in October and November 2019. The MPCA provided an email confirmation of their approvals on January 16, 2020.

3.5 2020 SUPPLEMENTAL RI REPORT

The 2020 Supplemental Remedial Investigation was completed to further evaluate the extent and magnitude of vapor, soil, groundwater, sediment and surface water impacts previously identified at the Site during completion of the initial RI in June 2019. The first phase of the RI identified TCE in sub-slab vapor samples beneath the North Campus manufacturing building; VOCs, including TCE and VC, in the shallow groundwater on the property; the VOCs PCE and TCE in Site soils, and lead in soil, sediment and surface water samples on the Site, some of which were above applicable MPCA risk-screening criteria.

The SRI included the completion of 32 borings (17 interior borings and 15 exterior borings) over the course of the supplemental investigation for soil and/or groundwater sampling;

completion of additional interior sub-slab vapor sampling, two rounds of exterior vapor sampling at 23 locations, collection of additional surface water and sediment samples along Lambert Creek and installation of a permanent monitoring well adjacent to Lambert Creek. Concurrent to the implementation of the additional SRI activities, a draft Interim Vapor Mitigation Work Plan (August 2019) documenting the proposed installation of a dual sub-slab depressurization (SSDS) and soil vapor extraction (SVE) system to mitigate potential vapor intrusion to the north manufacturing building was submitted to the MPCA for review. The MPCA provided comments in a letter dated August 20, 2020. The temporary system was initially started up in September 2019 and is still operating at the Site today. The temporary blower system will be replaced with a permanent SSD / SVE blower system in early May 2020.

Soil profiles across the Site were generally consistent with previous investigation results. Surficial fill consisting primarily of dark brown silty with gravel were identified in the upper 3 to 5 feet of the exterior borings and upper 2 to 12 feet of interior borings. Organic sediments and peat were also encountered in the upper 5 to 10 feet of soil borings completed in the wetland area to the south and southeast of the North Campus building.

Shallow fill and/or organic sediments were generally underlain by water bearing granular sediments comprised of poorly graded fine sand and silty sand. In general, the granular sediments were underlain by a semi-confining clay layer comprised of very fine-grained lacustrine deposits containing highly laminated beds of silts, clays and very fine sands.

During completion of the July 2019 RI groundwater levels were measured from 3.88 feet bg to 10.7 feet bg throughout the Site and during the SRI groundwater was measured between 0.8 and 11.5 feet bg. The previous subsurface investigations completed at the Site identified a southerly to southwesterly groundwater flow direction.

Soil Conditions

A total of 32 soil samples, 14 exterior samples and 18 interior samples, were collected and analyzed for total lead during the SRI. Lead was identified in the shallow Site soils at concentrations in excess of Tier 2 Industrial SRV at several locations beneath the concrete floor of the North Manufacturing Building. The VOCs p-Isopropyltoluene, ethylbenzene and toluene were detected above laboratory reporting limits at one exterior soil boring location and TCE and trans-1,2-dichloroethene were detected above laboratory reporting limits at one interior soil boring location.

Groundwater

A total of 115 groundwater samples collected from the soil borings were analyzed for VOCs. The VOC compounds including 1,1-DCA, 1,1-DCE, 1,2-DCA, chloroethane, acetone, ethylbenzene, toluene, TCE, p-isopropyltoluene, *cis*-1,2-DCE, *trans*-1,2-DCE and VC were detected above their laboratory reporting limits during the SRI. The low-level detected concentrations of 1,1-DCA, chloroethane, *cis*-1,2-DCE, *trans*-1,2-DCE and VC appear consistent with natural degradation of TCE. 1,1-DCA, toluene, TCE, *trans*-1,2-DCE and VC were the only compounds identified at concentrations exceeding their respective regulatory risk-screening criteria during the SRI.

A total of 98 groundwater samples collected from the soil borings were analyzed for 1,4-dioxane. 1,4-Dioxane was identified in 27 groundwater samples collected during the SRI above the HRL of 1 ug/L.

Exterior Vapor

Two rounds of exterior soil vapor samples were collected from 3-5-feet bg at 23 locations throughout the Site to assess heating and non-heating season vapor conditions. Various VOCs were detected above laboratory reporting limits in the exterior soil vapor samples SV-1 through SV-23; however, none of the detected concentrations exceeded their respective 33X Residential/Industrial ISVs with the exception of two sample locations.

The second round of vapor sampling was completed between December 2nd and 5th, 2019. PCE was detected above 33x the Residential ISV at multiple locations during this sampling event. Naphthalene and ethylbenzene were also detected at concentrations in excess of their 33x the Residential ISVs. The PCE detections did not correlate to previous data, therefore, after corroboration with the MCPA, select locations were resampled. The additional sampling conducted on January 9th and 10th did not reveal PCE at concentrations exceeding the 33x Residential/Industrial ISV in any of the soil vapor sampled collected. Therefore, based on the lack of PCE detections identified at the resampled locations, the previous PCE detections do not appear to be indicative of a release at the Site.

Sub-slab Vapor

The results of the July 2019 RI found TCE and trans-1,2-DCE soil vapor concentrations above the EISVs beneath the north manufacturing building. Based on the results of the July 2019 RI, a full-scale vapor mitigation system has been operational at the North Campus facility building since September 2019.

Additional vapor sampling was completed as part of the SRI to further investigate previously un-delineated areas within the North Campus building. Multiple sub-slab samples as well as selected paired samples were collected pre and post mitigation from various locations throughout the course of the investigation. Evaluation of this data is being summarized as part of the Vapor Mitigation Response Action Implementation Report and will be submitted to the MCPA for review under separate cover.

Wetland Sediment

A total of 14 sediment samples were collected at the Site. The SRI sediment samples were collected east of the previous sample locations and the east stormwater pond further evaluate the nature of the lead identified during the July 2019 RI. Total lead concentrations were identified above the MPCA Level 1 SQT in 10 of the 14 sediment samples collected from the Site. The Level I SQTs are intended to identify contaminant concentrations below which harmful effects on sediment-dwelling organisms (i.e., benthic invertebrates) are unlikely to be observed. Three of the 14 sediment samples identified lead concentrations above the MPCA Level II SQT. The Level II SQTs are intended to identify contaminant concentrations above which harmful effects on sediment-dwelling organisms are likely to be observed.

Surface Water

During the implementation of the SRI, 14 surface water samples were collected from the Lambert Creek on the eastern portion of the property. Total lead concentrations ranged from non-detect to a high of 640 ug/l and exceeded the Tier 1 Surface Water Screening Criteria in six of 18 samples collected from Lambert Creek.

A part of the SRI, two stormwater roof downspout samples were collected as part of the last round of investigation activities. Two samples were collected during an October 21, 2019 rain event to evaluate the roof as a potential source for lead impacts to the stormwater pond and possibly the adjacent wetland. Lead was detected above laboratory reporting

limits in both downspout samples; however, the detected concentrations did not exceed the hardness adjusted Tier I Surface Water Criteria. Based on the very low levels of lead in these samples it does not appear at this time that the roof is a significant source of lead to the pond or adjacent wetland.

The cumulative SRI analytical results are provided on the figures and tables included in **Appendix A**.

4.0 Physical Setting

4.1 TOPOGRAPHY

The Site has a general slope to the east toward Goose Lake and White Bear Lake with the approximate elevation ranging from 920 to 910 feet above mean sea level. Site surface drainage is sheet flow toward the municipal stormwater sewer system associated with adjacent public streets and via infiltration in the wetland areas on the eastern portion of the Site. Historic development may have included grading or filling of the Site to improve the location for construction and drainage.

County Ditch 14 (Lambert Creek) is in an east-west configuration and bisects through the approximate center of the Site. County Ditch 14 receives drainage from the adjacent wetlands, residential developments and Goose Lake to the east and flows southwest through Rice Lake and eventually drains into East Vadnais Lake, located approximately 3.5-miles southwest of the Site.

A stormwater retention pond is located directly east of the main manufacturing building and receives stormwater runoff from the parking lot areas located on the east, north and southeast sides of the building as well as roof drain runoff. The eastern stormwater pond overflows to the surrounding wetlands and then to Lambert Creek, which runs along the south side of the Facility.

A stormwater pond is located southwest of the loading docks of the North Campus building. The stormwater pond receives runoff from the northwest portion of the facility, which includes the main employee parking lot and green spaces west of the building. The stormwater pond has an outlet on the south side and water flows under the drive via a culvert and then a ditch that discharges to directly to Lambert Creek.

4.2 GEOLOGY

Published references indicate White Bear Lake Township is located within quaternary-aged glacial deposits that overly Paleozoic sedimentary formations. Surficial deposits in the vicinity of the Site consist of glacial sandy lake sediments, outwash, and tills associated with the Grantsburg Sub-lobe deposited during the Late Wisconsinian ice advance and glacial tills and outwash deposited by the Wisconsin-age Superior Lobe. Organic deposits associated with wetlands commonly overlay glacial deposits. These sediments accumulate in poorly drained areas to form peat and are common along Lambert Creek (US Geological Survey 1994).

According to the Ramsey County Geologic Atlas surficial geology on the northwestern portion of the Site (in the vicinity of the North Campus building) is described as sandy lake sediment comprised of fine to medium silt and clay deposits of a former lake that may have been partially confined by stagnant ice. Surficial geology on the southeastern portion of the Site consists of organic sediment comprised of peat, shallow lakes and/or marshes. The Ramsey County Atlas indicates some areas may have been excavated and/or artificially filled (Minnesota Geological Survey, 1992).

Based on geologic references the unconsolidated glacial deposits overlay Ordovician St. Peter Sandstone and Prairie du Chien sedimentary bedrock units located approximately 200 feet bg.

During completion of the 2019 RI and SRI surficial fill consisting primarily of dark brown silty with gravel were identified in the upper five to 10 feet of the exterior borings across the Site and two to 12.5 feet of fill was observed in the interior borings. Organic sediments and peat were encountered in the upper five to 10 feet of the borings completed in the wetland area to the south and southeast of the North Campus building.

The shallow fill material was generally underlain by water bearing granular sediments comprised of poorly graded fine sand and silty sand. In general, the thickness of granular sediments appears to follow Site topography and were observed from approximately 15 to 30 feet thick on the northern portion of the Site to approximately five to 10 feet thick on the southern portions of the Site.

The unconsolidated sandy sediments are underlain by a semi-confining silty clay to clay confining unit present throughout the Site. This semi-confining unit is comprised of very fine organic silt and clay sediments containing highly laminated beds of silts, clays and very fine sands indicative of lacustrine deposits. The upper portions of the semi-confining unit include numerous layers of silt, silty sand, fine sand, clayey sand, fat clay and lean clay with high moisture content. Silt and clay content typically increased with depth becoming denser with fewer lenses of granular sediments. The semi-confining layer is estimated to be approximately 45 to 65 feet thick. Beneath this semi-confining layer is a clayey to silty sand unit overlaying a deeper buried glacial aquifer.

Published references describe the first-encountered bedrock unit beneath the northwestern portion of the property as the Ordovician-aged St. Peter Sandstone. The St. Peter Sandstone units ranges in thickness from approximately 155 to 165 feet in Ramsey County. The upper portion of the St. Peter Sandstone consists of fine- to medium-grained sandstone. The lower portion of this unit is composed of fine-grained units of mudstone, siltstone and shale interbedded with coarse-grained sandstone. The first encountered bedrock unit in the southeastern portion of the property is the Prairie du Chien Group consists of thinly to thickly-bedded dolostone. (Minnesota Geological Survey, 1992). Depth to bedrock is anticipated to be approximately 200 feet bg (Minnesota Geological Survey, 1992).

4.3 HYDROGEOLOGY

According to available hydrogeologic references, the general direction of shallow groundwater flow in the area of the Site is to the west (Minnesota Geological Survey, 1992). Local conditions may vary due to surface water features, perched groundwater conditions or artificially created drainage systems. Depth to regional groundwater is noted to be between approximately 10 to 20 feet below ground surface (Minnesota Geological Survey, 1992).

Previous investigation data indicate two distinct aquifers are present in the vicinity of the Site. The shallow watertable aquifer has historically been identified within approximately 10 feet of the surface and is underlain by a semi-confining clay layer located between approximately 20 and 40 feet bg. The semi-confining layer is estimated to be approximately 45 to 65 feet thick. Beneath this semi-confining layer is a clayey to silty sand unit overlaying a deeper buried glacial aquifer.

During completion of the 2019 RI groundwater levels were measured from 3.9 feet bg to 10.7 feet bg throughout the Site and during completion of the recent SRI groundwater was observed from within a foot of the surface to a depth of approximately 11.5 feet bg.

4.4 SURFACE WATER

The Site consists of a mix of permeable and impermeable surfaces including buildings, paved areas, retention ponds, wetlands, and landscaped areas. Surface water features at the Site include stormwater retention ponds, County Ditch 14 (Lambert Creek) and associated wetlands.

Runoff from impermeable surfaces generally flows to the two main retention ponds located southwest and east of the North Campus building. Stormwater from the southwest portion of the facility, including the shipping and receiving docks, covered dumpsters, and diesel generator flows to the west retention pond. The retention pond has an outlet on the south side and water flows under the drive via a culvert and then flows overland to Lambert Creek. All other runoff from significant materials exposed at the facility eventually flows to the east retention pond which overflows to the surrounding wetlands and then to Lambert Creek, which runs along the south side of the Facility.

Based on a review of the digital United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps (http://www.fws.gov/wetlands/data/Mapper.html), the Site has designated wetland areas onsite. The predominant wetlands onsite are described as freshwater emergent and freshwater forested/shrub wetlands. According to the Vadnais Lake Area Water Management Organization (VLAWMO) the wetlands on and adjacent to the southeast of the Site are described as the Sobota Slough freshwater emergent wetland complex.

Lambert Creek runs along the southern and eastern portions of the Site and a permanent drainage easement is in place allowing the City of White Bear Lake to conduct ditch maintenance, including tree removal. According to VLAWMO the headwaters of Lambert Creek are Whitaker Pond, located adjacent to the northeast of the Site along Whitaker Street and West Goose Lake via an unnamed ditch to the southeast of the Site. Lambert Creek flows approximately four miles to the southwest towards its outlet at Vadnais Lake and receives water from multiple side streams including Branches 1, 2, 3, 4 5A and 5 and storm drains. Lambert Creek is listed as a 303(d) impaired water body with an impairment for aquatic recreation due to fecal coliform.

5.0 Project Organization and Responsibility

5.1 RESPONSIBILITIES AND AUTHORITIES OF QUALITY CONTROL PERSONNEL

Table 5-1 identifies the responsibilities and authorities of key project personnel identified in the Project Organization Chart. **Table 5-2** provides a contact list for key project personnel.

Table 5-1: Personnel Responsibilities and Qualifications

Name	Title	Organizational Affiliation	Responsibilities
Aaron Benker	Principal in Charge, Wenck Project Manager	Wenck Associates, Inc.	▲ Staff resourcing and project support. ▲ Regulatory coordination. ▲ Review and approve technical reports, including subsequent revisions. ▲ Review and approve technical reports, including subsequent revisions. ▲ Provide document control on technical reports to ensure project team has the most current version. ▲ Coordinate with the QA Manager on all QA/QC matters. ▲ Ensure compliance with appropriate technical reports for all project work. ▲ Assign trained staff and resources to complete work in accordance with technical plans.
Shane Waterman	Technical Lead, QA Manager	Wenck Associates, Inc.	▲ Evaluates analytical results generated during sampling activities. ▲ Provides technical direction of field sampling team. ▲ Technical report preparation. ▲ Prepare or oversee preparation of field data validation reports. ▲ Initiate corrective action. ▲ Internal QC review of field documentation and laboratory samples. ▲ Completes final quality control and technical review of all deliverables prior to release. Coordination with the third-party data validator.
Katie Swor	Risk Assessor	Wenck Associates, Inc.	▲ Performs risk assessment. ▲ Technical report preparation. ▲ Provides regulatory support.
Diane Short & Associates	Third-party Data Validator	Wenck Associates, Inc.	▲ Performs risk assessment. ▲ Technical report preparation. ▲ Provides regulatory support.

Table 5-2: Contact List for Key Project Personnel

Individual	Affiliation	Project Role(s)	Phone Number	Email Address
Aaron Benker	Wenck Associates, Inc.	Principal	763.763.5132	abenker@wenck.com
Shane Waterman	Wenck Associates, Inc.	Technical Lead, QA Manager	651.294.4588	swaterman@wenck.com
Katie Swor	Wenck Associates, Inc.	Risk Assessor	651.395.5227	kswor@wenck.com
Diane Short	Diane Short & Associates	Data Validator	303-271-9642	Dsa7cbc@eazy.net
Mary Gail Scott	Water Gremlin Co.	EHS Director	651.255.9368	MaryGail.Scott@watergrem.com
Michael Ginsbach	MPCA	Hydrogeologist	651.757.2329	michael.ginsbach@state.mn.us

5.2 PROJECT COORDINATION

The Wenck PM will serve as the POC for communications with Water Gremlin. The Wenck PM will collaboratively oversee the scheduling and reporting and conduct project meetings and briefings (including conference calls). Formal and informal periodic reviews will also be scheduled within Wenck and with Water Gremlin, to evaluate status progress against plans, adjust schedules, and to coordinate resolution of outstanding issues. Requests for information from the public will be referred to the Wenck PM who will in turn notify the MPCA project manager. Wenck will not communicate with the public directly but will support the MPCA's public communication effort at the MPCA's request.

5.3 SUBCONTRACTORS

Subcontractor support will be needed to complete the project. Wenck will subcontract services for environmental drilling support, laboratory chemical analysis, and waste management. The Wenck Technical Lead/QA Manager will be the laboratory contact and will verify all data associated with the project. The Wenck PM will maintain ultimate control and accountability for the project by means of formal subcontract agreements with subcontractors and through directives and communication with the subcontractor's program and project management staff. The Wenck PM will have administrative authority for the subcontractors. The Wenck Technical Lead/QA Manager will manage subcontractor field operations.

5.4 TRAINING

All field personnel scheduled for work at the Site have been appropriately trained in accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response (HAZWOPER). Field personnel are experienced in hazardous waste site work, use of personal protective equipment (PPE), and emergency response procedures. All Wenck field personnel assigned to the project will receive the project planning documents and the Site Safety and Health Plan (SSHP) prior to beginning work on the site. The Wenck-Trained Field Technician (FT) will perform work status and safety/health briefings daily throughout the project. Relevant health and safety issues will be discussed during project safety meetings.

6.0 Supplemental Investigation Work Plan

6.1 RATIONALE AND OBJECTIVE

Wenck proposes to further assess soils, groundwater, sediment and surface water conditions at the Site. The general scope of services associated with the SRI consists of the following tasks:

- Preparation of the Additional SRI Work Plan (this document).
- A Restrictive Covenant limiting disturbance and/or alteration of soils at the Property will be filed for the North Campus facility based on the identified lead impacts to soil beneath the building.
- The eastern stormwater pond will be dredged to remove lead-impacted sediment. Following the removal of impacted sediment, confirmation samples will be collected from the base of the stormwater pond for lead analysis.
- Advancement of push-probe soil cores for the purpose of collecting soil samples for lab analysis of lead and 1,4-dioxane.
- Advancement of push-probes around the North Campus building and the South Campus building for the purpose of collecting grab groundwater samples for analysis of VOCs, dissolved lead and 1,4-dioxane.
- Collection of a sediment sample from Lambert Creek to the west of the Water Gremlin North Campus facility.
- Collection of a surface water sample (paired with sediment samples referenced above) from Lambert Creek to the west of the Water Gremlin North Campus facility.
- The installation of a network of permanent groundwater monitoring wells in the shallow and deeper aquifers.
- Continued water level monitoring of Lambert Creek and MW-1 to determine the dynamic between the creek and the shallow water table aquifer to determine if the creek is gaining or losing.
- Preparation of an investigation summary report documenting the implementation of the proposed SRI activities and recommendations.

Procedures for soil vapor, soil, groundwater, sediment and surface water sampling activities are detailed herein. This Work Plan was prepared using appropriate guidance included in the MPCA's publicly available documents entitled *Risk Based Site Characterization and Sampling Guidance* (Working Draft, September 16, 1998) and the MPCA's current *Vapor Intrusion Best Management Practices for Vapor Intrusion and Building Mitigation Decisions* (April 2020, c-rem3-06e).

6.2 ENVIRONMENTAL COVENANT

Due to remaining lead impacts to the soil beneath the North Campus Building and remaining contamination in other media, a Uniform Environmental Covenant and Easement will be filed with Ramsey County. The Environmental Covenant will include a description of the remaining contamination identified to soil, groundwater, surface water, sediment and soil vapor, the location of the contamination identified at the Site as well as special handling and MPCA requirements if the contaminated material is to be interacted with in the future. Additionally, the Environmental Covenant will document the ongoing operation, maintenance and monitoring of the SSDS and SVE systems at the North Campus building.

6.4 EAST STORMWATER POND CLEANING

The July 2019 RI identified lead at concentrations in excess of the Tier 2 SQT within the east stormwater retention basin. During the SRI two sediment samples and two surface water samples were collected south of the east stormwater pond (between the east stormwater pond discharge and Lambert Creek) to further evaluate the nature of the lead identified in the vicinity of the stormwater pond. The two sediment samples collected from the eastern stormwater pond inlets identified lead concentrations above the MPCA Level II SQT.

Based on the data collected to date it appears that anthropogenic deposition of lead has occurred in the wetland area south and east of the facility and within Lambert Creek. To reduce any additional loading of lead-impacted sediments into the adjacent wetland and ultimately Lambert Creek, the east stormwater pond will be drained and dredged to remove lead-impacted sediment.

Prior to stormwater pond maintenance activities, additional surface water and sediment samples will be collected from the east stormwater pond for laboratory analysis of lead. The additional characterization of the material will be completed to provide information on sediment removal methods and disposal options. Additional assessment of the west stormwater pond will be conducted during the next phase of investigation to determine if maintenance is required in this pond.

East pond cleaning activities will include draining and either on-Site treatment or off-Site treatment and disposal stormwater followed by removal, characterization and proper off-site disposal of lead-impacted sediment. Additional assessment of the pond will be completed to determine the volume of stormwater and sediment within the pond. Following completion of the stormwater pond survey and material characterization a detailed work plan for stormwater pond cleaning activities will be prepared and submitted under a separate cover for MPCAs review and approval.

6.5 SOUTH CAMPUS INVESTIGATION

The MPCA has requested assessment of the Research and Development area of the South Campus facility. Wenck proposes to complete three exterior push-probe soil borings along the south, east and west sides of the South Campus building (see **Figure 2**). The borings will be completed to the top of the semi-confining layer (approximately 30-feet bg) for the purpose of soil and groundwater sampling.

Soil samples will be collected from zero to one-foot interval for total lead analysis. One soil sample will be collected from the zone revealing the highest PID reading for VOCs and 1,4-dioxane. If no elevated PID readings are observed, then a sample will be collected just above the water table.

Vertical groundwater sampling will be completed and a minimum of two water samples will be collected at each boring location. The first grab groundwater sample will be collected at the top (within the upper three feet) of the unconfined groundwater table and every five feet thereafter. Groundwater sampling will discontinue once the semi-confining layer is encountered. Laboratory samples will be collected for VOC analysis (EPA Method 8260B), 1,4-dioxane using EPA Method 8270SIM and dissolved lead (EPA Method 6020B).

A summary of the soil and groundwater sampling and analytical requirements are presented in **Table 6-1** below.

Table 6-1: South Campus Soil & Groundwater Sampling and Analytical Requirements

Matrix	No. Field Samples	Analysis	Holding Time	Preservation Requirements	Sample Containers
Soil	Samples = Min. 3	Lead by EPA Method 6010D	180 days	None	4 oz glass container
Soil	Samples = Min. 3	VOCs by EPA Method 8260B	VOCs – 14 days	VOCs – Methanol 1:1 ratio, temperature <4 degrees Celsius	40 ml amber vial
Groundwater	Samples = Min of 6 Blind Dups = 1 MS/MSD = 1 Field Blanks = 1 Rinsate Blanks = 1 Trip Blanks = 1/cooler (lab-provided) **Total No. of samples = Approx. 7**	VOCs by EPA Method 8260B 1,4-dioxane by EPA Method 8270SIM Dissolved lead by EPA Method 6020B	VOCs – 14 days 1,4-dioxane – 7 days Lead – 180 days	VOCs – HCL, temperature <4 degrees Celsius 1,4-dioxane – None Lead – Unpreserved, lab to filter	40 ml amber vial 100ml amber container 250 ml HDPE bottle

Vapor assessment activities in the South Campus building will consist of the installation of two (2) permanent sub-slab vapor sampling ports inside the research and development portion of the building. The proposed sub-slab sample locations are shown on **Figure 2**. The sub-slab vapor samples will be analyzed for VOCs modified list by EPA method TO-15. The permanent sampling ports will allow for follow-up sampling of the sub-slab if additional monitoring is warranted.

Interior sub-slab soil vapor samples will be collected using the Vapor-Pin™ kit methodology for permanent sub-slab soil vapor sampling ports. The concrete slab will be cored with a 5/8" drill bit and the vapor pin is installed in the hole along with the silicone sealing sleeve. In addition, a larger diameter hole will be drilled to countersink the permanent port equipment. Dedicated polyethylene tubing is then placed on the fitting. Approximately 300 mL of air will be purged out of the sample line with a syringe prior to collecting the sample. The samples will be collected in 1L Summa canisters equipped with 5-minute fill regulator (200 mL per minute flow rate) and dedicated in-line moisture filter. The soil vapor samples will be submitted under chain-of-custody control to the selected accredited laboratory. A photoionization detector (PID) equipped with a 10.6 eV source lamp is then connected to the tubing for field screening purposes upon the completion of the Summa can sample collection.

A summary of the soil vapor sampling and analytical requirements are presented in **Table 6-2** below.

Table 6-2: South Campus Vapor Sampling and Analytical Requirements

Matrix	No. Field Samples	Analysis	Holding Time	Preservation Requirements	Sample Containers
Sub-Slab Soil Vapor Samples	Samples = 2 Blind Dups = 1 **Total No. of samples = Approx. 3**	EPA Method TO-15	30 days	None	1L Summa Canister

6.6 ADDITIONAL SOIL INVESTIGATION ACTIVITIES

Wenck proposes to complete up to 12 push-probe soil borings at the Site to assess soil conditions at the locations shown on **Figure 2**. Wenck proposes to advance six exterior push-probes for soil sampling only and six probes inside the North Campus building for soil sampling only, in an attempt to identify the possible source(es) of the 1,4-dioxane observed in the groundwater. Additionally, three soil samples will be collected from the south campus borings as described above in **Section 6.5.**

The interior soil borings will be completed in the vicinity of a historic 1,1,1-TCA release near the present-day shipping and receiving portions of the North Campus building. The proposed interior soil boring locations will primarily focus on further assessing the extent of 1,4-dioxane identified in the on-Site groundwater during the most recent SRI.

The interior soil borings will be completed to the unconfined water table, approximately 10-feet bg. Soil samples will be collected continuously to the unconfined groundwater table for field screening and analytical sampling. At each interior boring location, a soil sample will be collected from the vadose zone for laboratory analysis of 1,4-dioxane based on field-screening information. One soil sample will be collected from the zone revealing the highest PID reading for laboratory analysis of 1,4-dioxane. If no elevated PID readings are observed, then a 1,4-dioxane soils sample will be collected from three to four feet below grade. According to reference literature, 1,4-dioxane has an ionization potential of 9.19 eV.

Exterior push-probe soil borings will be completed around the North Campus building to further evaluate soil conditions for the presence of 1,4-dioxane. The exterior soil borings will be completed to the top of watertable. Sample locations are shown on **Figure 2**. One soil sample will be collected from the zone revealing the highest PID reading for 1,4-dioxane. If no elevated PID readings are observed, then a 1,4-dioxane soils sample will be collected from three to four feet below grade. According to reference literature, 1,4-dioxane has an ionization potential of 9.19 eV.

Field oversight of the soil borings by a geoscientist, including sample collection and field-screening of soil, will be conducted. Soil samples will be visually assessed and screened for the presence of volatile organics with a PID equipped with a 10.6 eV lamp. Based on soil screening, collection of soil samples for laboratory analysis will be completed. Soil classification will be performed in the field in accordance with ASTM Method D2488, *Standard Practice for Description and Identification of Soils*. A boring log will be created for each soil boring showing stratigraphic sequence and associated field screening notes and observations. Visual evidence of contamination will be noted on the field log.

Matrix spike (MS) and matrix spike duplicate (MSD) samples will be collected for each sampling method at a rate of 1:20 samples collected for laboratory analysis. Rinsate blank samples will also be collected at a rate of 1:20. Lab provided Methanol Blanks will accompany each sample cooler.

A summary of the soil sampling and analytical requirements are presented in **Table 6-3**.

Table 6-3: Soil Sampling and Analytical Requirements

Matrix	No. Field Samples	Analysis	Holding Time	Preservation Requirements	Sample Containers
Soil	Samples = Min. 12 MS/MSD = 1 Rinsate Blanks = 1 MeOH Blanks 1/cooler (lab-provided) **Total No. of samples = Min. 14**	1,4-dioxane by EPA Method 8270SIM	1,4-dioxane - 7 days	None	4 oz glass container

6.7 ADDITIONAL GROUNDWATER INVESTIGATION ACTIVITIES

6.7.1 Groundwater Sampling/Profiling

Previous investigation efforts have identified groundwater levels between 0.8 and 11.5 feet bg. Groundwater quality data collected during the recent RI and SRI identified the VOCs 1,1-DCA, 1,2-DCE, toluene, trans-1,2-DCE TCE and VC at concentrations exceeding their respective HRLs in shallow groundwater at the Site. Dissolved lead samples were collected from seven locations beneath the main coating room during the SRI and lead concentrations ranged from a low concentration of 0.21 mg/l to high of 3.5 mg/l. The semi-volatile compound 1,4-dioxane was identified in the shallow groundwater in excess of the HRL of 1.0 ug/l at 27 sample locations.

The VOCs in groundwater were detected near and down-gradient (south and southwest) of the suspected historic source areas located beneath the North Campus building. The distribution of the VOC impacts indicates a southerly to southwesterly flow direction.

Additional groundwater profiling will be completed at locations south and southwest, or downgradient of the North Campus Facility to further delineate the vertical and horizontal extent of VOC and 1,4-dioxane impacts previously identified at the Site. Wenck proposes to advance approximately 12 exterior push-probes for the purpose of collecting grab groundwater samples from the shallow unconfined watertable aquifer at the locations shown on **Figure 2.** Three of the 12 push-probe borings will be driven through the confining layer and into the buried groundwater aquifer. Vertical groundwater sampling will be conducted at each location with multiple samples collected from each boring. The first grab groundwater sample will be collected at the top (within the upper three feet) of the unconfined groundwater table and every five feet thereafter. Groundwater sampling will discontinue once the semi-confining layer is encountered. The elevation of the semi-confining layer will be estimated based on the soil characterization activities completed during the RI and SRI. At the three proposed deep borings, one groundwater sample will also be collected from the buried groundwater aquifer.

A minimum of two water samples will be collected at each location. Grab groundwater samples will be collected in laboratory-provided sample containers and placed in a cooler with ice. Groundwater samples will be collected directly from the push-probe equipment using low-flow methods. Laboratory samples will be collected for VOC analysis (EPA Method 8260B), 1,4-dioxane using EPA Method 8270SIM and dissolved lead (EPA Method 6020B). Quality control samples, including equipment rinsate blanks, blind field duplicates, matrix spike, matrix spike duplicate, and trip blanks will be collected. Samples will be labeled,

recorded on chain-of-custody (COC) forms, packed on ice, and sent to Pace Analytical for analysis within the required holding times. Groundwater sample locations will be surveyed per the procedures documented in Section 6.12 below.

Blind field duplicate samples will be collected at a rate of 1:10 samples collected for laboratory analysis. MS and MSD samples will be collected at a rate of 1:20 samples collected for analysis. Field blanks and Rinsate Blanks will also be collected at a rate of 1:20. laboratory-provided Trip Blanks will accompany each sample cooler.

A summary of the groundwater sampling and analytical requirements are presented in **Table 6-4** below.

Table 6-4: Groundwater Sampling and Analytical Requirements

Matrix	No. Field Samples	Analysis	Holding Time	Preservation Requirements	Sample Containers
Groundwater	Samples = Min of 50 Blind Dups = 5 MS/MSD = 3 Field Blanks = 3 Rinsate Blanks = 3 Trip Blanks = 1/cooler (lab-provided) **Total No. of samples = Approx. 65**	VOCs by EPA Method 8260B 1,4-dioxane by EPA Method 8270SIM Dissolved lead by EPA Method 6020B	VOCs - 14 days 1,4-dioxane – 7 days Lead – 180 days	VOCs - HCL, temperature <4 degrees Celsius 1,4-dioxane – None Lead – Unpreserved, lab to filter	40 ml amber vial 100ml amber container 250 ml HDPE bottle

6.7.2 Permanent Monitoring Wells

Permanent wells will be installed after the completion of the groundwater profiling activities discussed in Section 6.7.1 above. A Groundwater Monitoring Well Work Plan that details the number of wells, location of proposed wells and proposed screened intervals will be submitted to the MPCA for review and approval with the Supplemental Remedial Investigation Report on August 31, 2020. Permanent monitoring well construction details are provided below.

Future wells will be installed using hollow-stem auger drilling equipment. The boreholes will be advanced with a 3.25-inch I.D. x 8.5-inch O.D. hollow-stem augers. Split-spoon samples will be collected at 2.5-foot intervals incident to the well installation to determine the depth to the shallow groundwater table, top of the semi-confining unit and top of the deeper glacial aquifer. Soil classification will also be performed in the field in accordance with ASTM Method D2488, *Standard Practice for Description and Identification of Soils*. A soil boring log will be created for each soil boring showing stratigraphic sequence and associated field screening notes and observations. Field screening will be conducted continuously using a PID. Any visual evidence of contamination will be noted on the field geologist's log.

A licensed well drilling contractor will install the permanent groundwater monitoring wells per established MDH requirements. The wells with a total depth of less than 50 feet will be constructed with new, two (2)-inch inside diameter, flush-threaded Schedule 40 PVC casing and well screen (#10 slot or 0.010-inch). Wells deeper than 50 feet will be constructed with five-foot stainless-steel screens. Screen length will be a maximum of ten

(10) feet and will be installed to ensure that the screen straddles the groundwater table. Wells will be filter-packed with an appropriately sized sand pack to two to three (3) feet above the top of the screen. A two (2)-foot bentonite pellet seal will be installed above the sand pack to protect the screen and filter pack from grout intrusion. The remaining annular space will be filled with high-solids bentonite grout. Each well will be equipped with a vented riser cap, and a locking cover. A steel flush-mount protective cover will be cemented to a concrete apron to prevent the well from damage.

Upon completion of monitoring well installation, locations will be surveyed to a common Site datum as a reference. Vertical control (0.1-inch accuracy) and horizontal control (0.01-inch accuracy) will be established for reference with existing structures. Vertical measurements will be referenced to the National Geodetic Vertical Datum (NGVD) and longitude and latitude coordinates recorded.

Following completion of drilling and well installation, each monitoring well will be developed by over-pumping, surging, or bailing until the discharged water is relatively sediment-free, and the indicator parameters (pH, dissolved oxygen, temperature, and specific conductance) have reached steady state. Developing the well not only removes any sediment, but also may improve the hydraulic properties of the sand pack. The effectiveness of the development measurements will be closely monitored in an effort to keep the volume of discharged waters to the minimum necessary to obtain sediment-free samples. A portable turbidity meter will be used to aid in monitoring effectiveness of development. A turbidity reading of 50 NTU (10 NTU if possible) and steady state pH, temperature, dissolved oxygen, and specific conductivity readings will be used as a guide for discontinuing well development.

Collect two (2) rounds of groundwater quality data from each well with a minimum of four (4) weeks separation between rounds. The subcontracted laboratory will analyze the water samples for VOCs by EPA Method 8260B and 1,4-dioxane using EPA Method 8270SIM.

6.8 ADDITIONAL SEDIMENT SAMPLING ACTIVITIES

During the initial RI, lead was identified at concentrations in excess of the Tier 1 SQT along the north bank of Lambert Creek and above the Tier 2 SQT within the east stormwater retention basin. Sediment samples were collected east of the previous RI sample locations and the east stormwater pond during the SRI to determine if lead concentrations observed on the property are consistent with a naturally occurring lead concentrations. During the SRI total lead concentrations were identified above the MPCA Level 1 SQT in 10 of the 14 sediment samples collected from the Site and three sediment samples identified lead concentrations above the MPCA Level II SQT. Based on the data set generated to date it appears anthropogenic lead deposition has likely occurred on the property.

The MPCA has requested an assessment of potential lead and 1,4-dioxane impacts west of the property along Lambert Creek. Wenck proposes the collection of one sediment sample from Lambert Creek, west of Otter Lake Road, to determine if lead and/or 1,4-dioxane are present in sediment downgradient of the North Campus facility as shown on **Figure 2**.

Additionally, Wenck proposes to collect three sediment samples from the base of the west stormwater pond and one sample from the base of the south stormwater pond for total lead analysis.

The sediment samples will be collected using a hand push-probe sampling device. One sediment sample will be collected from each location as discussed above for chemical testing. The subcontracted laboratory will be directed to analyze the sediment samples for total lead by EPA Method 6010D.

MS and MSD samples will be collected at a rate of 1:20 samples collected for analysis. Rinsate blank samples will also be collected at a rate of 1:20. Laboratory-provided trip blanks will accompany each sample cooler with VOC samples.

A summary of the sediment sampling and analytical requirements are presented in **Table 6-5** below.

Table 6-5: Sediment Sampling and Analytical Requirements

Matrix	No. Field Samples	Analysis	Holding Time	Preservation Requirements	Sample Containers
Sediment	Lead Samples = 5 1,4-dioxane Samples = 1 MS/MSD = 1 Rinsate Blanks = 1 **Total No. of samples = Approx. 8**	Lead by EPA Method 6010D 1,4-dioxane by EPA Method 8270SIM	180 days 1,4-dioxane - 7 days	None None	4 oz glass jar 4 oz glass jar

6.9 ADDITIONAL SURFACE WATER SAMPLING ACTIVITES

Lead was detected above the Tier 1 Surface Water Screening Criteria in three of the six samples collected from Lambert Creek during the initial RI. During completion of the SRI, Wenck collected 14 surface water samples from Lambert Creek at locations to the east of the previous RI sample locations. Additionally, two roof drain downspout samples were collected during a rain event on October 21, 2019 to assess the stormwater runoff from the North Campus building roof discharging to the east stormwater pond.

Lead was detected above the Tier 1 Surface Water Screening Criteria of 6.72 ug/l in six of the samples collected from Lambert Creek. Total lead concentrations observed in the 14 surface water samples ranged from non-detect to a high of 640 ug/l. The highest total lead concentration was observed within a tributary of Lambert Creek located upgradient of the facility along the very eastern edge of the property. The downspout samples revealed very low levels of lead (1.6 and 2.7 ug/l) indicating the facility roof does not appear to be a significant source of lead to the eastern stormwater pond or adjacent wetland.

The MPCA has requested an assessment of potential surface water lead and/or 1,4-dioxane impacts west of the property along Lambert Creek. Wenck proposes the collection of one surface water sample from Lambert Creek, west of Otter Lake Road, for analysis of total lead (EPA Method 6020B) and 1,4-dioxane by Method 8270SIM to determine if impacts are present in surface water downgradient of the North Campus facility as shown on **Figure 2**. One additional hardness sample will also be collected at this location. Three surface water samples will also be collected from the western stormwater pond for total lead analysis. Proposed sample locations are shown on **Figure 2**.

The water samples will be collected using a dedicated disposable poly-bailer. One surface water sample will be collected from each location for chemical testing. The subcontracted

laboratory will be directed to analyze the surface water samples for total lead by EPA Method 6010D.

MS and MSD samples will be collected at a rate of 1:20 samples collected for analysis. Field blanks and Rinsate blanks will also be collected at a rate of 1:20. laboratory-provided trip blanks will accompany each sample cooler with VOC samples.

A summary of the surface water sampling and analytical requirements are presented in **Table 6-6** below.

Table 6-6: Surface Water Sampling and Analytical Requirements

Matrix	No. Field Samples	Analysis	Holding Time	Preservation Requirements	Sample Containers
Surface Water	Lead Samples = 4 1,4-Dioxane = 1 Blind Dups = 1 MS/MSD = 1 Field Blanks = 1 Rinsate Blanks = 1 **Total No. of samples = Approx. 9**	Total Lead by EPA Method 6020B	180 days	HNO_3	250 ml HDPE bottle
		Total Hardness EPA Method 2340B	180 days	HNO_3	250 ml plastic bottle
		1,4-dioxane by EPA Method 8270SIM	1,4-dioxane – 7 days	1,4-dioxane – None	100ml amber container

6.10 ONGOING CREEK MONITORING

During the SRI one groundwater monitoring well was installed adjacent to Lambert Creek and a stream staff gauge was installed in Lambert Creek to allow the measurement of the creek level. In an effort to determine if Lambert Creek is gaining or losing system groundwater measurements were collected from the shallow monitoring well and stream gauge adjacent to Lambert Creek on multiple occasions between November 2019 and February 2020.

Based on the data collected to date, Lambert Creek appears to exhibit a gaining characteristic; however, it is not conclusive that whether groundwater at the Site discharges to the ditch located south of the North Campus building. Additional assessment of the groundwater and surface water interaction will be completed during this Additional SRI. Continuous water level monitoring will be completed with pressure transducers. One pressure transducer will be installed in the monitoring well and one affixed to the creek gauge.

6.11 INVESTIGATION-DERIVED WASTE MANAGEMENT

Investigation Derived Waste (IDW) in the form of drill soil cuttings and well development and purge water will be collected and temporarily staged on-Site until characterized through analytical testing. Containers will be labeled and staged in a secure location until removal from the site. Once the waste streams have been characterized, they will be properly disposed of. Characterization of the IDW will be based in part on the analytical testing results from the investigation.

6.12 UTILITY CLEARANCE

Minnesota State Statute 216D requires anyone who engages in excavation/subsurface activities to provide advance notice of at least 48 hours to underground utility operations affected by the subsurface work. Prior to performing the subsurface investigation, Gopher One (811) will be notified to identify any underground lines or structures in the vicinity of the Site. Any utility lines buried at the Site will be located by the appropriate utility company and indicated on the ground surface. Private underground utilities buried by the property owner will also need to be identified. Private utilities will be located by contracted service provider.

6.13 QUALITY CONTROL

QC procedures are of prime importance to this investigation to ensure quality of the data collected, and thus the interpretations made from this data. The Wenck corporate QC program will be followed throughout the investigation, which mandates the use of industry-wide accepted procedures and practices during investigations. Laboratory results will be reviewed with respect to the laboratory's reported QC results, including assessment of whether any observed deviations from QC criteria will affect the usability of the data for the intended purpose. Results for any field QC samples (e.g., field duplicates, field blanks, etc.) will also be assessed, if collected.

6.14 SURVEYING

Upon completion of remedial investigation activities, exterior investigation locations will be surveyed to a common Site datum as a reference. Vertical control (0.1-inch accuracy) and horizontal control (0.01-inch accuracy) will be established for reference with existing structures. Vertical measurements will be referenced to the NGVD and longitude, latitude and UTM Z15N coordinates recorded. Interior sample locations will be surveyed using traditional staff and level technology. Horizontal locations will be established taking measurements from a minimum of two permanent structural features with a tape measure. Longitude, latitude and UTM Z15N coordinates will be assigned to all interior locations.

7.0 Field Documentation

The following sections describe the general field procedures to be used during the excavation activities performed at the site.

7.1 FIELD LOGBOOKS

Field logbooks will be hardbound with supplemental, water-resistant log sheets. Entries in the logbooks and supplemental log sheets will be written using indelible ink. The top of each page will include the project name and number, date, and page number. The bottom of each page in the book will include the time, initials of the person recording the entries, and sufficient detail so that the logic used in decision making during the project can be tracked through later review. During each day of project activity, information will be recorded in each field logbook including, but not limited to:

- Project Name
- Date/time
- Name and title of any personnel representatives onsite
- Purpose of the field activity
- Location of project activities
- Planned chronology of events during the day
- Information concerning any property access arrangements
- Information about any conversations with facility staff
- Weather conditions and air temperature
- General field observations
- Date and time of sample collection
- Notes related to QC samples (i.e., blind duplicate)
- Sample Identification (I.D.) number(s) and location information
- Sample transportation information, including the name of the laboratory and courier (if applicable)
- Information on any deviations from the approved work plans, including methodology and sample collection
- Summary of daily tasks and documentation on any scope of work changes required by field conditions
- Printed name, signature and date on the bottom of each logbook page

7.2 PHOTOGRAPHIC RECORDS

Digital photography will be conducted during the field activities. Digital photography will be numbered and cataloged in the field notebook to include a description of the scene, site area, date, and time. Selected digital photographs will be incorporated in the Remedial Investigation Report. A photographic log will be maintained in the field notebook to identify the location and subject of each photograph. The photographer will review the photographs and compare them to the photographic log to confirm the log and photographs match on a daily basis.

7.3 SAMPLE DOCUMENTATION

7.3.1 Sample Numbering System

The field sample numbering system will follow the MPCA's Location Unique Identifiers (LUIs) protocol. Sample numbers will be generated prior to implementing field sampling activities using the MPCA's Remediation LUI Generator.

Trip blanks, equipment rinsate blanks, and field duplicates use consecutive sample numbers (NN) just like any other environmental sample. The location of the blind duplicate will be noted in the log book.

Samples that are collected as blind field duplicates will be collected, numbered, packaged, and sealed in the same manner as other samples and submitted "blind" to the laboratory.

7.3.2 Sample Labels and/or Tags

Labels will be affixed to all sample containers during sampling activities. Information will be recorded on each sample container label at the time of sample collection. The information to be recorded on the sample container labels will be as follows:

- A unique sample number with consistent format (see below)
- Sample matrix
- Date
- Time
- Parameters to be analyzed
- Preservative (if any)
- Site ID
- Sampler's initials

Labels will be secured to the bottle and will be completed in indelible ink.

7.3.3 Chain-of-Custody Records

Field personnel are responsible for sample custody from the time of collection until the time of sample shipment. Samples must be kept in the secure possession of the sampler, meaning that they are either within sight of the sampler, in the sampler's secure vehicle, or within the secure office of the sampling firm. The CoC procedures implemented for the project will provide documentation of the handling of each sample from the time of collection until completion of laboratory analysis. The CoC form serves as a legal record of possession of the sample. A sample is considered to be "in custody" if one or more of the following criteria is met:

- The sample is in the sampler's possession.
- The sample is in the sampler's view after being in possession.
- The sample was in the sampler's possession and then was placed into a locked area to prevent tampering.
- The sample is in a designated secure area.

Custody will be documented throughout the project field sampling activities by the CoC form initiated for each day during which samples are collected. This record will accompany the samples from the site to the laboratory and will be returned to the Wenck PM with the

final analytical report. All personnel with sample custody responsibilities will be required to sign, date, and note the time on the CoC form when relinquishing samples from their immediate custody (except in the case where samples are placed into designated secure areas for temporary storage prior to shipment). Bills of lading or air-bills will be used as custody documentation during times when the samples are being shipped from the site to the laboratory, and they will be retained as part of the permanent sample custody documentation.

CoC forms will be used to document the integrity of all samples collected. To maintain a record of sample collection, transfer between personnel, shipment, and receipt by the laboratory, CoC forms will be filled out for sample sets as determined appropriate during the course of fieldwork.

The following procedures for chain-of-custody forms will be followed:

- Chain of custody forms will be Pace Analytical standard forms (see attached example).
- Chain of custody forms will include the project name or number, signature of sampler, receiving laboratory, sample ID numbers, date and time of collection, sample location, number of containers, analyses requested, sample matrix, and custody transfer signatures, including the name of the shipping company. Signature of personnel from the shipping company is not required. The shipping bill number will be recorded on the chain of custody form.
- One chain of custody form will be supplied in each cooler.
- Chain of custody forms will be completed in ink.
- Mistakes will be lined out with a single line and initialed and dated.
- Entries will be sequentially numbered.
- Repetitive entries made in the same column may be simplified with a continuous vertical arrow between the first entry and the next different entry. A "ditto" or quotation marks indicating repetitive information will not be used.
- Multiple chain of custody forms for a single shipment will be consecutively numbered using the "Page ___ of ___" designation.
- At least one copy of the chain of custody form will be filed with the sampling firm for tracking and laboratory communication purposes.

The individual responsible for shipping the samples from the field to the laboratory will be responsible for completing the CoC form and noting the date and time of shipment. This individual will also inspect the form for completeness and accuracy. After the form has been inspected and determined to be complete, the responsible individual will sign, date, and note the time of transfer on the form. For commercial couriers, the CoC form will be placed in a sealable plastic bag and placed inside the cooler used for sample transport after the field copy of the form has been detached. In this case the laboratory will retain a copy of the shipping bill as proof of custody during transit. For laboratory couriers, the CoC form will be placed in a sealable plastic bag on the top of the cooler for the courier to accept custody. The field copy of the form will be appropriately filed and kept at the site for the duration of the site activities.

In addition to the CoC form, CoC seals will also be placed on each cooler used for sample transport. These seals will consist of a tamper proof adhesive material placed across the lid and body of the coolers in such a manner that if the cooler is opened, the seals will be broken. The CoC seals will be used to ensure that no sample tampering occurs between the time the samples are placed into the coolers and the time the coolers are opened for

analysis at the laboratory. Cooler custody seals will be signed and dated by the individual responsible for completing the CoC form contained within the cooler.

7.4 DOCUMENTATION PROCEDURES/DATA MANAGEMENT AND RETENTION

Field documentation from logbooks, data collection sheets, digital photography, email correspondence, and CoC forms will comprise the bulk of the field documentation associated with the sampling and remediation at the site. Hard copy field data will be reproduced for backup and scanned for inclusion in the project.

The analytical laboratory will provide data as final analytical reports using a pdf format. The report will include all the report requirements of Minn. Rules Part 4740 and the details appear in Section C.2.3 of the MPCA's 2014 Site Assessment QAPP. All final lab reports will be reviewed and approved by the laboratory's technical QA/QC and project management staff. All data will be provided to Wenck electronically in the MPCA-developed EQuIS format. This format can be found at the following EarthSoft web page - http://www.earthsoft.com/?s=Lab_MN. All laboratory analytical reports generated as part of this investigation effort will be submitted directly to the MPCA from Pace Analytical Services. The raw data will be submitted to the MPCA as an electronic data deliverable in Lab_MN format to wqdata@state.mn.us and in both Lab_MN and pdf formats to Michael Ginsbach, Michael.ginsbach@state.mn.us.

The Wenck QA Manager and Risk Assessor are charged with tracking the reporting of analytical data and sample coordinates and tracks the external analytical data validation. The Wenck QA Manager and Risk Assessor will also track and manage the updating and storage of all analytical data tables generated during the preparation of the RI Report.

Digital data files are stored on a network drive at Wenck's Maple Plain, Minnesota office. The network servers are backed up daily, then replicated to the Cloud for indefinite storage. Data stored electronically by Wenck will be retrievable from the Cloud indefinitely.

8.0 Sample Packaging and Shipping Requirements

The subcontracted laboratories will provide all sample containers. Preparation certification and lot numbers will accompany all sample containers delivered to the site from the vendors. The following procedures will be followed for samples that will be analyzed by subcontracted laboratories:

- Each lab-provided sample cooler will be wiped clean of all debris and water.
- Sample collection points, depth increments, and sampling devices documented in the field logbooks will be verified with the information written on the sample label and CoC form.
- Glass sample containers will be wrapped with plastic insulating material (bubble wrap) to prevent contact with other sample containers or the inner walls of the cooler. Samples will be placed into re-sealable plastic bags.
- Samples will be packaged in thermally insulated, rigid coolers, according to DOT specifications 173 Subparts A and B and 172 Subparts B, C, and D. Environmental samples and field QC blanks to be submitted to the analytical laboratory will be placed in a sample cooler along with ice and temperature blanks, and the final cooler temperature will be recorded. After a cooler is filled, the appropriate CoC form will be placed inside a re-sealable plastic bag and taped to the inside lid of the cooler, and the outer surface of the cooler will be cleaned.
- Coolers will be secured with at least two cooler custody seals and covered with clear plastic packing tape.
- Each cooler will be taped and sealed shut with clear plastic packing tape around each end of the cooler.
- Each cooler will either be hand delivered to the laboratory or be picked up by a laboratory courier the day of collection.

Sample preparation and packaging will be completed at the end of each day that samples are collected. If samples are collected during the weekend, the samples will undergo normal preparation and will be kept within a cooler, on ice, until all samples have been collected during the weekend. On the following Monday, the iced samples will be delivered to the laboratory. Samples held over the weekend will be checked once in the morning and once in the evening to ensure that they kept at proper temperature and have sufficient ice.

9.0 Contractor Quality Control

9.1 GENERAL

The Wenck Corporate QA/QC program is in place to ensure that sampling and analytical activities and the resulting chemical parameter measurement data comply with the data quality objectives (DQOs) and the requirements of the project work plan. The Wenck PM and Wenck QA Manager are responsible for the preparatory, initial, and follow-up phases of the project. Tasks subject to inspection consist of the review of planning documents, oversight of field and laboratory activities, oversight of data analysis and assessment, and oversight of report preparation. The PM or Technical Lead may, at any time, conduct a field or laboratory audit to ensure that proper protocols are being applied.

9.2 PRE-PROJECT MEETING

The Wenck PM and Technical Lead will conduct a pre-project meeting prior to initiating any field work associated with the project. The meeting will include a review of all work requirements, a physical examination of all required materials and equipment, an examination of work areas to ascertain completion of all preliminary work, and a demonstration of all field activities. The Wenck PM or the Technical Lead/QA Manager must conduct additional meetings with sampling or technical personnel arriving onsite during the work effort prior to their beginning work. Prior to the pre-project meeting, field personnel will have reviewed in detail the project work plan prior to the inspection and will participate in a discussion of all pertinent sections of these plans and/or specifications during the meeting. Project plans (Work Plan and SSHP) will be present onsite. Materials to be accumulated during the preparatory phase will consist of the items listed below:

- Site maps
- Sample summary tables, correlating field samples to field control samples
- Field instrument calibration tables
- Laboratory information, including name, address, telephone number, POC, and turnaround time for the analyses, instructions for laboratory on requirements for sample procedures
- Field logbooks
- Field file box or equivalent to store field documentation
- Indelible ink pens
- Field instrumentation pertinent to the project
- Instrument operating manuals
- Established procedures or contracts for instrument repair
- PPE (e.g., nitrile gloves)
- Supplies for soil sampling (i.e., stainless steel spade, Alconox, decontamination wash bucket, decontamination rinse bucket)
- Drum for storage of IDW
- Plastic bags
- Stainless steel bowls and spoons
- Sample CoC forms
- Sample shipping documents
- Sample containers of the types to be used for each test or chemical analysis planned for all environmental samples and any QC samples
- Labels for sample containers

- Sample cooler custody seals
- Sample shipping coolers
- Clear tape

The Wenck PM or QA Manager will review pertinent sections of the plans and specifications during the meeting in order to ensure that all field personnel understand the overall project DQOs as well as any specific sampling and analysis requirements. Field instruments should be calibrated during the meeting using certified calibration standards. Frequency and contents of data reporting requirements will be discussed. The sampling team will demonstrate in detail how each type of sample will be collected, using the intended sample containers, sampling equipment, decontamination, and sample handling procedures. Equipment decontamination procedures will be reviewed in detail using the proper decontamination solutions in accordance with the project work plan. The area designated for decontamination will be identified.

The sample numbering system, sample labeling, and sample shipment documentation requirements will be discussed during the meeting. Laboratory address and contact information will be also be discussed. Analytical test methods, sample hold times per method, sample turnaround times and sample preservation requirements will be fully discussed. The items detailed in this section will be documented in the meeting minutes.

9.3 PROJECT INSPECTION

A project inspection will be conducted for each definable field task. The Wenck PM will provide direction and oversight for all project subtasks and will review the work for compliance with contract requirements. Oversight will ensure that initial and ongoing instrument calibrations are observed, verified, and documented. Field notes will be reviewed to ensure that all pertinent data are recorded in accordance with the requirements discussed in Section 7.0.

The packaging, shipping and overall handling of the samples will be inspected daily by the Field Technician (FT). Individual sample labels and CoC forms will be inspected for accuracy, completeness, and consistency. The FT will document each day of sampling in the project field book.

9.4 FOLLOW-UP INSPECTIONS

Follow-up inspections will be conducted as needed to ensure continued compliance with contract requirements until completion of each project task. Procedures and documentation will be checked periodically to ensure they are complete, accurate, and consistently applied throughout the duration of the project. Inspections will include a review of any field data and the daily calibration log of all instruments being used. The Wenck PM, and QA Manager may, at any time, conduct a field audit to ensure that proper protocols are being applied.

The subcontractor laboratory for the project is Pace Analytical Services. Laboratory audits (internal) will be conducted by the Pace Analytical Services Quality Manager (or designee) on an annual basis (minimum). Throughout the project, Wenck will submit blind performance samples along with project samples to a designated laboratory for analysis. The analytical results of these single-blind performance samples are evaluated to ensure that the laboratory maintains acceptable performance.

10.0 Nonconformance/Corrective Actions

10.1 GENERAL

Discovery and resolution of a nonconformance with project procedures or other problem discovered during the implementation of project activities will be noted in the FT's logbook. Possible discrepancies or problems could include, but are not limited to: improper sampling procedures, improper instrument calibration procedures, incomplete or improper sample preservation, and problems with samples upon receipt at the laboratory.

10.2 FIELD SAMPLING

The Wenck PM will be responsible for implementation and monitoring of the project work plan procedures. In the event of improper sampling procedures, the Wenck PM will:

1. Communicate to the sampling crew to immediately comply with the project work plan;
2. Document the discrepancy from proper sampling procedures and the reasons for the discrepancy; and
3. Re-collect samples, if necessary, using the proper sampling procedures.

Improper sampling procedures and any corrective action will be documented in the field book.

Field instruments will be calibrated using manufacturer's criteria as documented in the instrument manual. Instrument calibrations will be recorded daily by the project staff conducting the calibrations. Any instrument problems will be reported immediately to the Wenck PM for resolution. The FT will arrange to either attempt recalibration of the instrument or replace defective instruments with instruments in proper working condition. Improper instrument calibration and any corrective action will be documented in the field book.

Sample preservation procedures in the field will be supervised by the FT. Sampling containers that have been prepared by the laboratories will be inspected by the FT. The laboratory will relay problems with the samples to the FT in the field. In the event of discrepancies between the CoC form and the sample labels, the FT will resolve the problem. Broken sample containers or samples that are listed on the CoC forms and are not in the cooler will be replaced, if necessary, by the sampling crew. The FTL will documents in the project's field notebook. Any other deviations from the project work plan will be reported initially to the Wenck PM.

10.3 LABORATORY

Corrective actions may be required for analytical/equipment problems and noncompliance with criteria. Analytical and equipment problems may occur during sampling, sample handling, sample preparation, laboratory instrumental analysis, and data review.

Laboratory QA plans will provide systematic procedures to identify out-of-control situations and document corrective actions. Corrective actions will be implemented to resolve problems and restore malfunctioning analytical systems. In general, corrective action

procedures often are handled at the bench level by the analyst who reviews the preparation or extraction procedure for possible errors and checks such factors as instrument calibration, spike and calibration mixes, and instrument sensitivity. If the problem persists or cannot be identified, the matter is referred to the Laboratory Supervisor, Manager, and/or QA Department for further investigation. When resolved, full documentation of the corrective action procedure is filed with project records and the laboratory QA Department, and the information is summarized within case narratives.

11.0 Proposed Schedule

- Submit Supplemental Remedial Investigation Work Plan to Minnesota Pollution Control Agency — April 17, 2020
- Install pressure transducers to MW-1 & creek gauge — Week of April 13, 2020
- Draft Uniform Environmental Covenant document *To be completed at the end of all RI activities*
- Complete proposed exterior soil borings — Beginning Week of June 22, 2020
- Collected proposed exterior groundwater samples — Week of June 22, 2020
- Collect proposed interior and exterior soil samples — Week of June 29, 2020
- Collect proposed sediment, surface water samples — Week of June 29, 2020
- Submit Supplemental Remedial Investigation Summary Report / Groundwater Monitoring Well Work Plan — Week of August 31, 2020
- Installation of permanent groundwater monitoring well network — Beginning Week of October 1, 2020
- Complete first round of groundwater sampling — Two weeks after well development has been completed
- Complete second round of groundwater sampling — Four weeks after first groundwater sampling event
- Prepare Draft Stormwater Pond Maintenance Work Plan — Week of November 30, 2020

12.0 Standard of Care

The standard of care for all professional services performed by Wenck and presented within this report is the care, skill, and diligence used by members of the consulting services profession practicing under similar circumstances at the same time and in the same locality. Wenck makes no warranties, express or implied, with respect to this report or otherwise, in connection with Wenck's services.

Report prepared by:

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Principal

Report reviewed by:

_____
Aaron Benker
Principal

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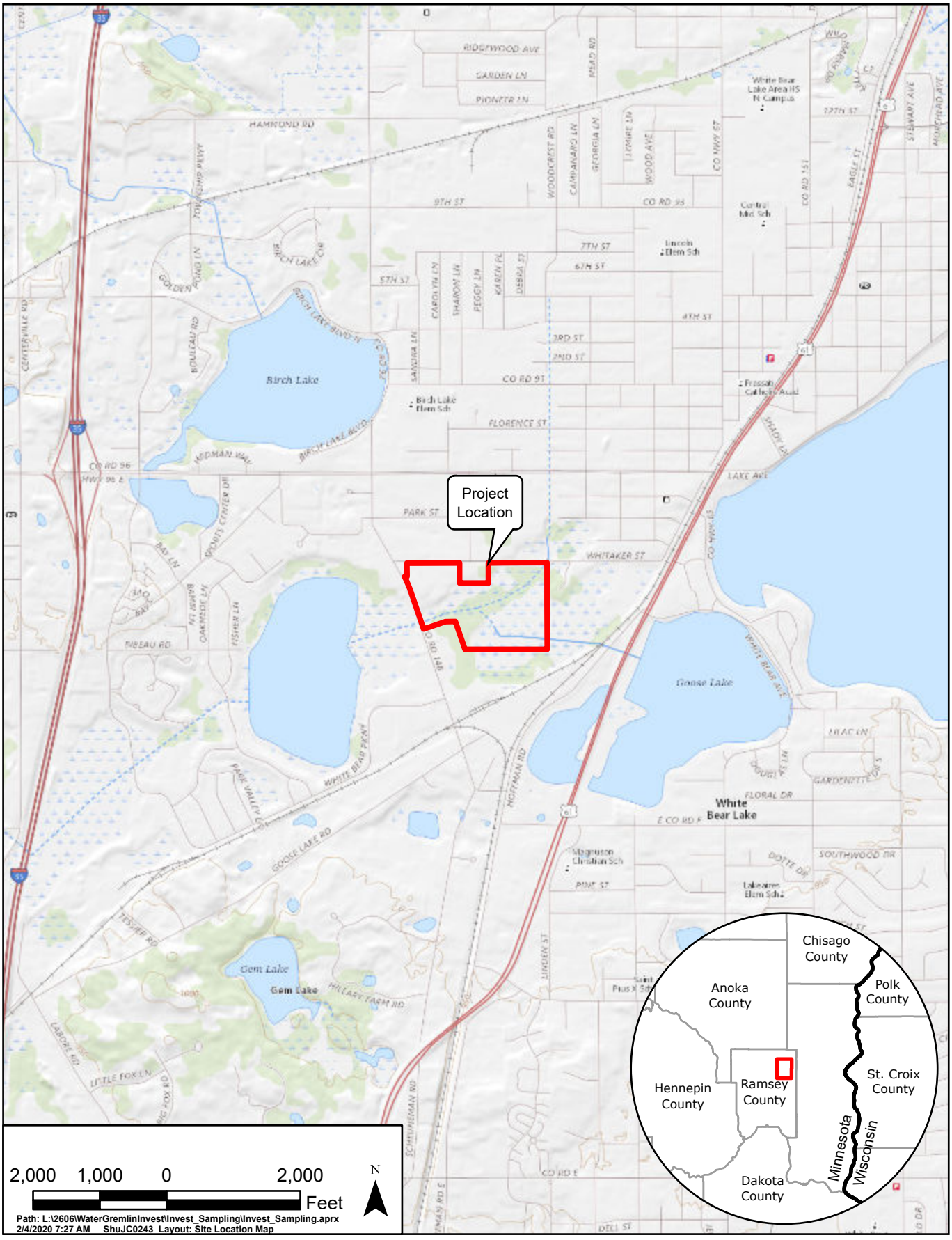
Figures



WATER GREMLIN COMPANY	WENCK Responsive partner. Exceptional outcomes.	FEB 2020
Site Location Map		Figure 1

Legend

- Property Boundary
- Exterior soil boring location to evaluate 1,4-dioxane in soils
- Interior soil boring location to evaluate 1,4-dioxane in soils
- Sediment and surface water sample location
- Deep groundwater aquifer boring location (approx. 120')
- Shallow groundwater aquifer boring location (approx. 40')
- Soil and groundwater boring location
- Sediment sample Location
- Sub-slab sample Locations

200 100 0 200 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
1/27/2020 4:08 PM ShuJC0243 Layout: Remedial Investigation Area Detail Map

WATER GREMLIN COMPANY

Proposed Sample Locations

WENCK

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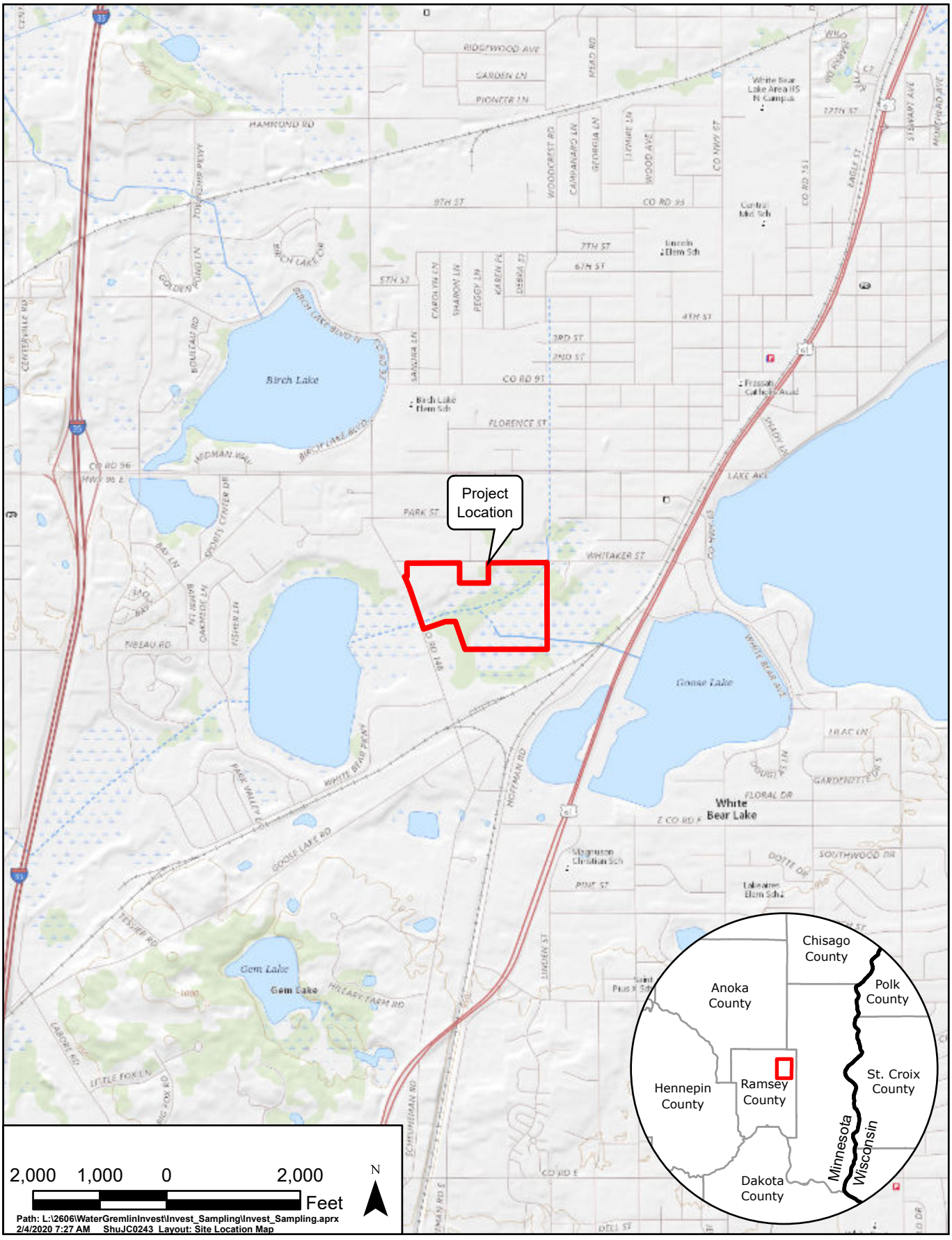
APR 2020

Figure 2

Appendix A

Figures and Tables from Wenck's Supplemental Remedial Investigation Summary Report dated February 2020



WATER GREMLIN COMPANY	WENCK Responsive partner. Exceptional outcomes.	FEB 2020
Site Location Map		Figure 1

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring
- Sediment Sample
- Surface Water Sample
- Soil Gas Samples
- Sub-slab Soil Vapor Sample Locations
- Background Ambient Air Sample Locations
- Crawl Space Sample Locations
- Indoor Air Sample
- Monitoring Well

180 90 0 180
Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/5/2020 1:30 PM ShuJC0243 Layout: Remedial Investigation Area Detail Map

WATER GREMLIN COMPANY

Remedial Investigation Area Detail Map

WENCK

Responsive partner. Exceptional outcomes.

FEB 2020

Figure 2

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring

80 40 0 80 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/4/2020 7:27 AM ShuJC0243 Layout: Soil Boring Locations

WATER GREMLIN COMPANY

Soil Boring Locations

WENCK

Responsive partner. Exceptional outcomes.

FEB 2020

Figure 3

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring
- Monitoring Well

100 50 0 100 Feet

N

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2/4/2020 7:27 AM ShuJC0243 Layout: Groundwater Sample Locations

WATER GREMLIN COMPANY	WENCK Responsive partner. Exceptional outcomes.	FEB 2020
Groundwater Sample Locations		Figure 4

Legend

- Investigation Boundary
- Soil Gas Samples

80 40 0 80 Feet

N

Path: L:\2606\WaterGremlin\Invest\Invest_Sampling\Invest_Sampling.aprx
2/5/2020 1:30 PM ShuJC0243 Layout: Soil Gas Sampling Locations

WATER GREMLIN COMPANY

Soil Gas Sampling Locations

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Figure 5

Legend

- Investigation Boundary
- Sub-slab Soil Vapor Sample Locations
- Background Ambient Air Sample Locations
- Crawl Space Sample Locations
- Indoor Air Sample

60 30 0 60 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/5/2020 1:30 PM ShuJC0243 Layout: Sub-Slab Vapor, Crawl Space Air and Ambient Air Sample Locations

WATER GREMLIN COMPANY

Sub-Slab Vapor, Crawl Space Air and Ambient Air Sample Locations

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Figure 6

Legend

- Investigation Boundary
- Sediment Samples

160 80 0 160 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/5/2020 7:54 AM ShuJC0243 Layout: Sediment Sample Locations

WATER GREMLIN COMPANY	WENCK Responsive partner. Exceptional outcomes.	FEB 2020
Sediment Sample Locations		Figure 7

Legend

- Investigation Boundary
- Surface Water Samples

180 90 0 180 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/4/2020 7:27 AM ShuJC0243 Layout: Surface Waters Sample Locations

WATER GREMLIN COMPANY

Surface Waters Sample Locations

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Figure 8

Legend

- Investigation Boundary
- Sub-slab Soil Vapor Sample Locations
- Background Ambient Air Sample Locations
- Crawl Space Sample Locations
- Indoor Air Sample
- Interior Soil Boring

60 30 0 60 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/5/2020 1:30 PM ShuJC0243 Layout: Interior Sample Locations

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Interior Sample Locations

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Figure 9

Legend

- Investigation Boundary
- Cross Sections
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring

80 40 0 80 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_Sampling.aprx
2/20/2020 1:59 PM ShuJC0243 Layout: Cross Section Index Map

WATER GREMLIN COMPANY	FEB 2020
Cross Section Index Map	Figure 10

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Maple Plain, MN 55359
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CLIENT Water Gremlin

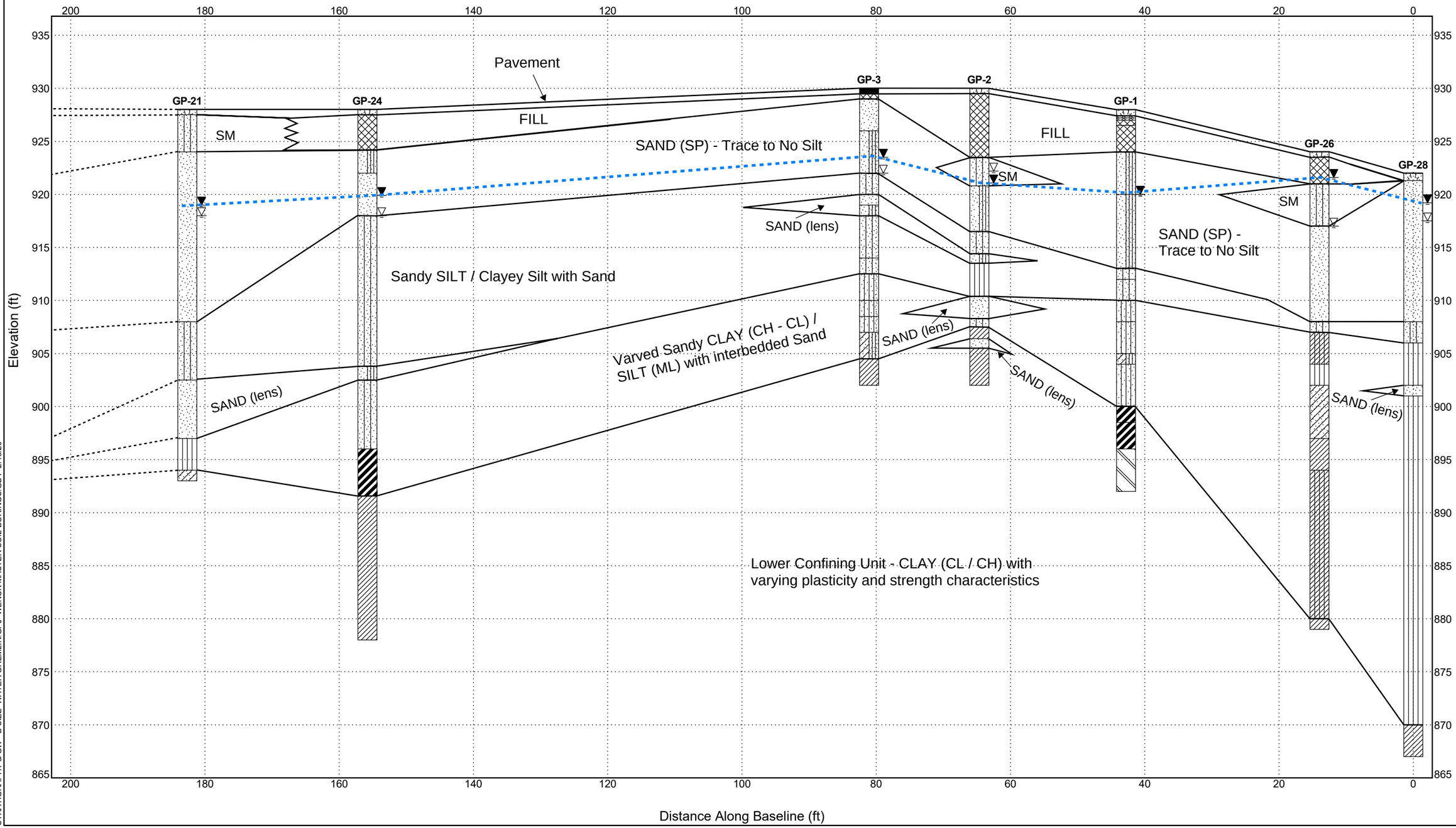
PROJECT NUMBER 2606-0016

SUBSURFACE DIAGRAM
CROSS SECTION A - A'
Figure 11

PROJECT NAME Remedial Investigation

PROJECT LOCATION 4400 Otter Lake Road, White Bear Twp., MN 55110

- Topsoil
- Fill (made ground)
- USCS Poorly-graded Sand with Silt
- USCS Silty Sand
- USCS Sandy Silt
- USCS Clayey Sand
- USCS High Plasticity Clay
- USCS Low to High Plasticity Clay
- USCS Silt
- USCS Poorly-graded Sand
- USCS Low Plasticity Clay
- USCS Clayey Sand



STRATIGRAPHY & GW - B SIZE WATER GREMLIN.GPJ WENCK MASTER SOIL BORINGS.GDT 2/18/20

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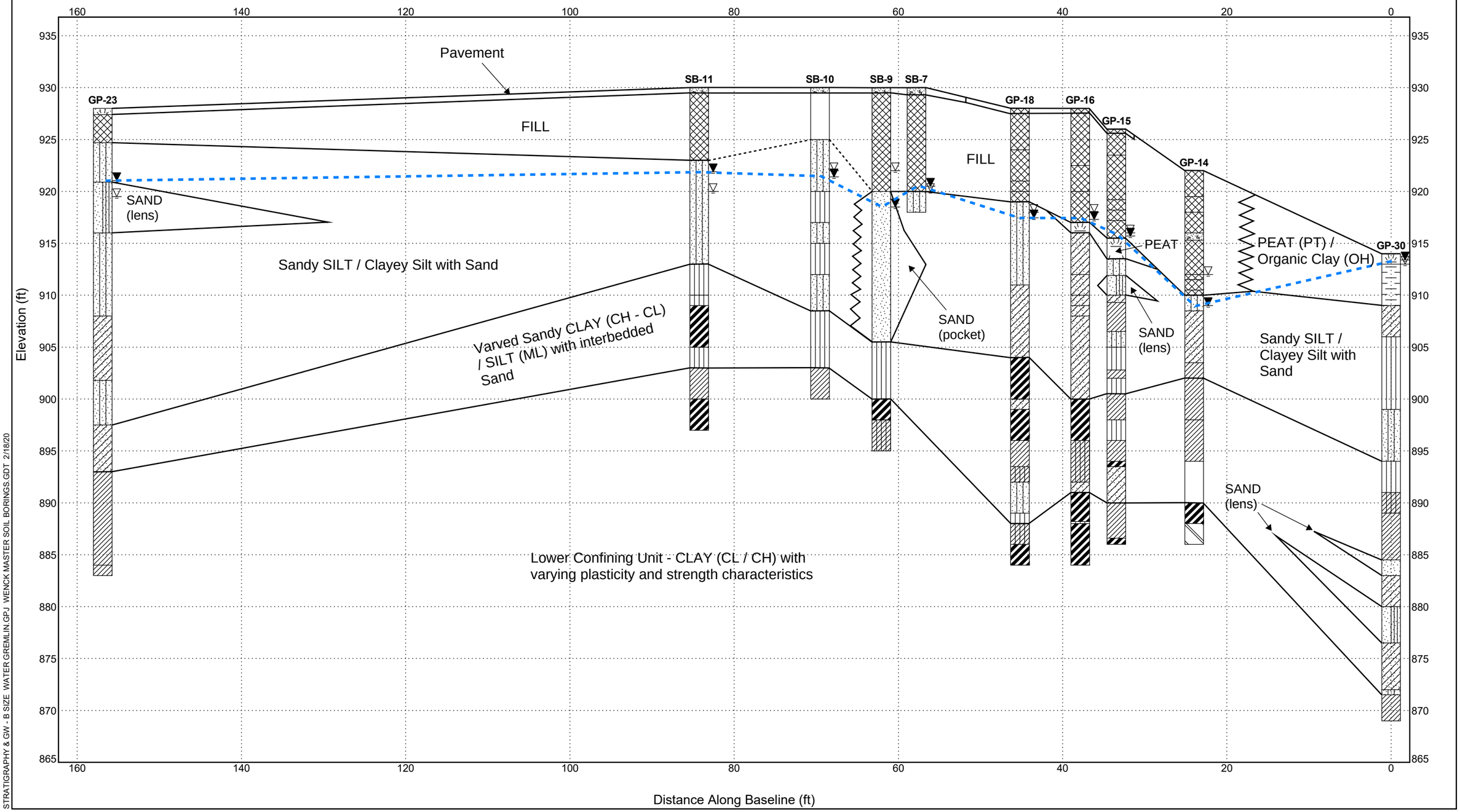
CLIENT Water Gremlin
PROJECT NUMBER 2606-0016

SUBSURFACE DIAGRAM
CROSS SECTION B - B'
Figure 12

PROJECT NAME Remedial Investigation
PROJECT LOCATION 4400 Otter Lake Road, White Bear Twp., MN 55110

- Fill (made ground)
- USCS Clayey Sand
- USCS Low to High Plasticity Clay
- USCS Sandy Silt
- Concrete
- USCS Low Plasticity Clay
- USCS Peat
- USCS Silt
- USCS Silty Sand
- USCS High Plasticity Clay
- USCS Poorly-graded Sand with Silt
- USCS Low Plasticity Silty Clay



STRATIGRAPHY & GW - B SIZE WATER GREMLIN.GPJ WENCK MASTER SOIL BORINGS.GDT 2/19/20

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CLIENT Water Gremlin

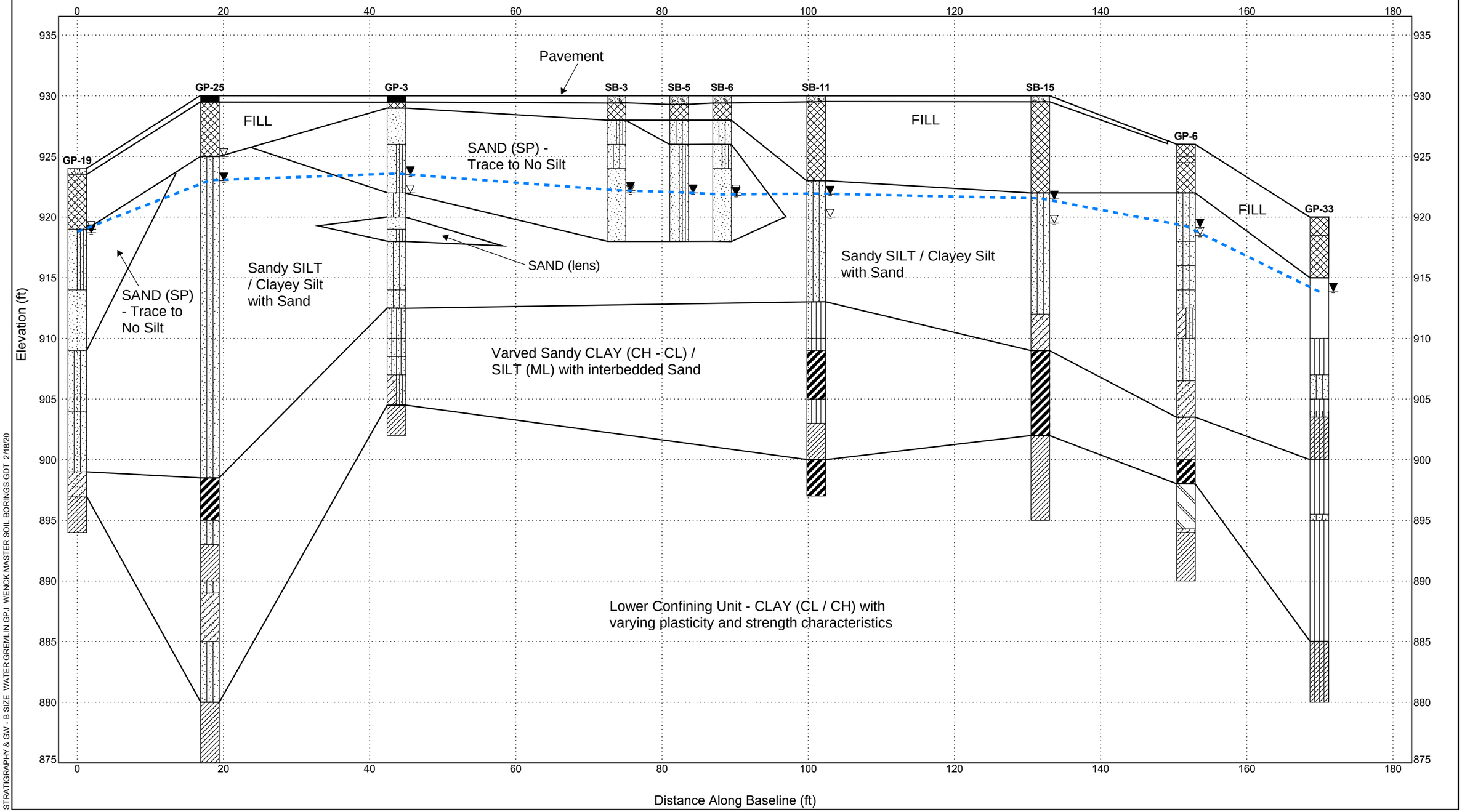
PROJECT NUMBER 2606-0016

SUBSURFACE DIAGRAM
CROSS SECTION C - C'
Figure 13

PROJECT NAME Remedial Investigation

PROJECT LOCATION 4400 Otter Lake Road, White Bear Twp., MN 55110

- Topsoil
- Fill (made ground)
- USCS Poorly-graded Sand with Silt
- USCS Poorly-graded Sand
- USCS Silty Sand
- USCS Clayey Sand
- USCS Low Plasticity Clay
- Asphalt
- USCS High Plasticity Clay
- USCS Sandy Silt
- USCS Clayey Sand
- USCS Silt



STRATIGRAPHY & GW - B SIZE WATER GREMLIN.GPJ WENCK MASTER SOIL BORINGS.GDT 2/18/20

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CLIENT Water Gremlin

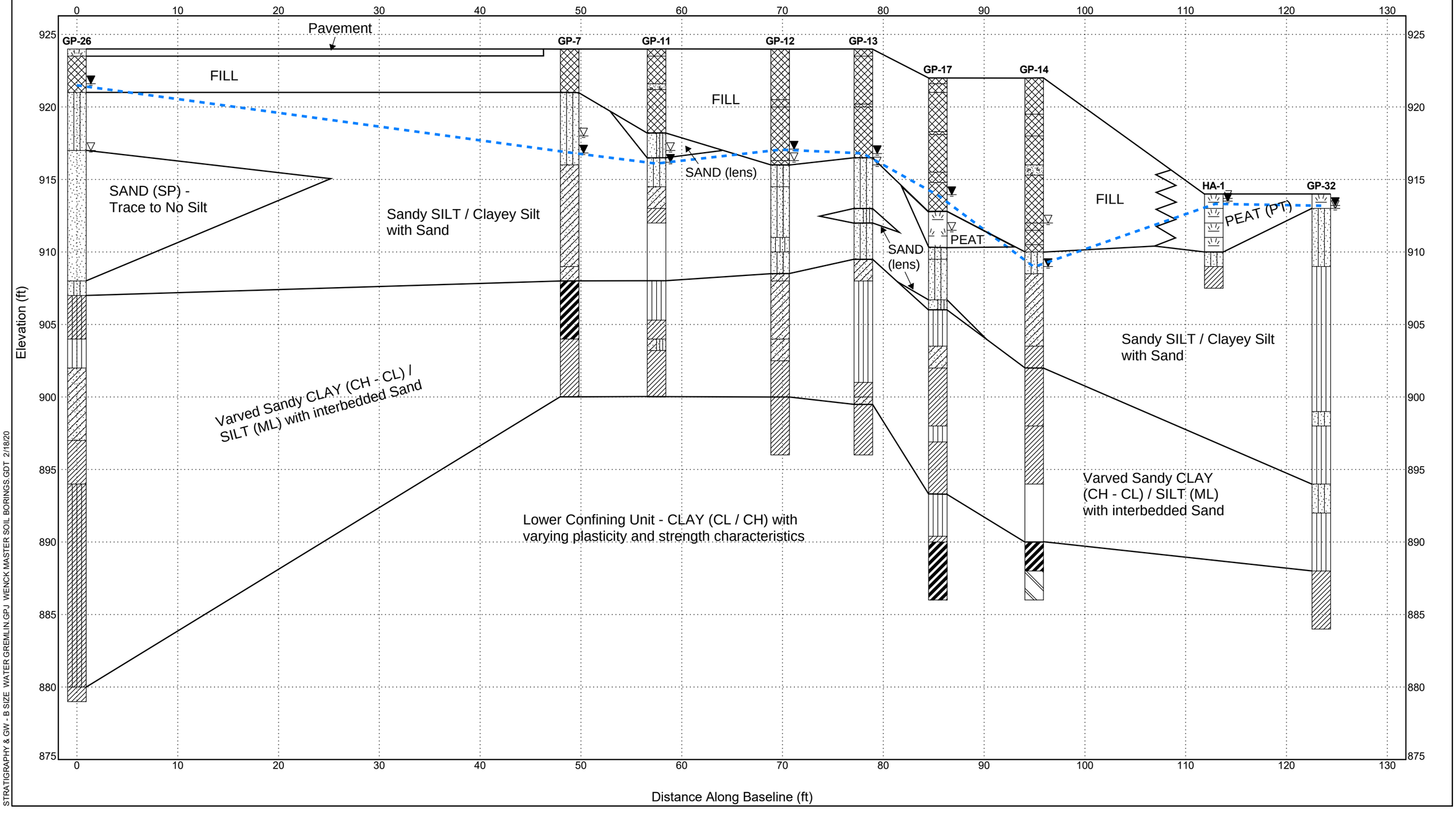
PROJECT NUMBER 2606-0016

SUBSURFACE DIAGRAM
CROSS SECTION D - D'
Figure 14

PROJECT NAME Remedial Investigation

PROJECT LOCATION 4400 Otter Lake Road, White Bear Twp., MN 55110

- Fill (made ground)
- Concrete
- USCS Poorly-graded Sand with Silt
- USCS Silty Sand
- USCS Clayey Sand
- USCS Low Plasticity Clay
- USCS Silt
- USCS Clayey Sand
- USCS Sandy Silt
- USCS High Plasticity Clay
- USCS Low to High Plasticity Clay
- USCS Peat



STRATIGRAPHY & GW - B SIZE WATER GREMLIN.GPJ WENCK MASTER SOIL BORINGS.GDT 2/18/20

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring

Soil Data Key	
Units	mg/kg
Industrial SRV exceedance	
SLV exceedance	

80 40 0 80 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_SamplingResults.aprx
2/21/2020 8:52 AM ShuJC0243 Layout: Total Lead in Soil

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Total Lead in Soil

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Figure 15

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring

Soil Data Key	
Units	mg/kg
Industrial SRV exceedance	
SLV exceedance	

80 40 0 80 Feet

N

Path: L:\2606\WaterGremlin\Invest\Invest_Sampling\Invest_SamplingResults.aprx
2/21/2020 8:52 AM ShuJC0243 Layout: VOCs in Soil

WATER GREMLIN COMPANY

VOCs in Soil

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Figure 16

SB-1	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/4/2019	15
SB-1 (4-9)	**1.8**

SB-2	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/4/2019	15
SB-2 (5-10)	**0.24**

SB-3	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/4/2019	15
SB-3 (6-11)	**0.42**

SB-4	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/4/2019	15
SB-4 (6-11)	**0.57**
100419A(6-11)	<0.10

SB-5	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/4/2019	15
SB-5 (6-11)	**2.9**

SB-6	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/4/2019	15
SB-6 (6-11)	**3.5**

SB-7	
Compound	Dissolved Lead
Sample ID	EPA MCL
10/7/2019	15
SB-6 (6-11)	<10.0

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring
- Monitoring Well

Groundwater Data Key	
Units	ug/L
EPA MCL Exceedance	

80 40 0 80 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_SamplingResults.aprx
2/21/2020 8:52 AM ShuJC0243 Layout: Dissolved Lead in Groundwater

WATER GREMLIN COMPANY

Dissolved Lead in Groundwater

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Figure 17

GP-3

Compound	Trichloroethene
Sample ID	HRL
8/30/2019	0.4
GP-3 (8-11)	<1.00
GP-3 (16-18)	**1.09**
GP-3 (23-25)	<1.00

GP-22

Compound	Trichloroethene
Sample ID	HRL
6/17/2019	0.4
GP-22 (10-14)	<1.00
GP-22 (19-21)	<1.00
083019 (19-12')	<1.00
GP-22 (24-28)	<1.00

SB-4

Compound	Trichloroethene	Trans-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL
10/4/2019	0.4	40	1
SB-4 (6-11)	**79.2**	**2.4**	<0.25
100419A(6-11)	**83.4**	**2.6**	<0.25

SB-1

Compound	Trichloroethene	Trans-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL
10/4/2019	0.4	40	1
SB-1 (4-9)	**29.9**	**3.0**	<0.25

GP-24

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/4/2019	0.4	1
GP-24 (8-12)	<0.40	<0.36
GP-24 (17-19)	<0.40	<0.23
120419A(17-19)	<0.40	<0.25
GP-24 (24-26)	<0.40	<0.23
GP-24 (31-33)	<0.40	**0.24**
GP-24 (38-40)	<0.40	**2.4**
GP-24 (45-47)	<0.40	<0.33

GP-21

Compound	Trichloroethene
Sample ID	HRL
8/29/2019	0.4
GP-21 (9-12)	<1.00
GP-21 (17-19)	<1.00
GP-21 (24-26)	<1.00
GP-21 (31-34)	<1.00

GP-23

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/3/2019	0.4	1
GP-23 (6-10)	<1.00	<0.25
GP-23 (15-17)	<1.00	<0.42
GP-23 (22-24)	<1.00	<0.29
GP-23 (29-31)	<1.00	<0.36
GP-23 (36-38)	<1.00	**1.4**

SB-5

Compound	Trichloroethene	cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL	HRL
10/4/2019	0.4	6	40	1
SB-5 (6-11)	**74.7**	**1.7**	**14.9**	<0.25

SB-6

Compound	Trichloroethene	cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL	HRL
10/4/2019	0.4	6	40	1
SB-6 (6-11)	**37.8**	**2.1**	**51.9**	<0.25

SB-11

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/4/2019	0.4	1
SB-11 (10-12)	**6.6**	**0.48**
SB-11 (17-19)	**5.9**	**0.44**
SB-11 (24-26)	<0.60	<0.42

SB-13

Compound	Trichloroethene	Trans-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL
12/5/2019	0.4	40	1
SB-13 (10-13)	**2.8**	**4.2**	<0.42
SB-13 (18-20)	**0.42**	<4.0	<0.29
SB-13 (34-36)	<0.40	<4.0	**2.0**

GP-20

Compound	Trichloroethene
Sample ID	HRL
8/29/2019	0.4
GP-20 (6-10)	<1.00
GP-20 (15-17)	<1.00
GP-20 (22-24)	<1.00
GP-20 (29-31)	<1.00
GP-20 (34-36)	<1.00

GP-4

Compound	Trichloroethene
Sample ID	HRL
6/17/2019	0.4
GP-4 (5-7)	<1.00
GP-4 (12-14)	<1.00
GP-4 (19-21)	<1.00
GP-4 (26-28)	<1.00

GP-25

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/4/2019	0.4	1
GP-25 (7-11)	<0.40	<0.31
GP-25 (16-18)	<0.40	<0.23
GP-25 (23-25)	<0.40	<0.29
GP-25 (30-32)	<0.40	<0.25
GP-25 (37-39)	<0.40	<0.31
GP-25 (44-46)	<0.40	<0.26

GP-2

Compound	Trichloroethene
Sample ID	HRL
6/17/2019	0.4
GP-2 (7-10)	<1.00
GP-2 (15-17)	**4.47**
GP-2 (22-24)	<1.00

SB-17

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/10/2019	0.4	1
SB-17-(7-13)	<0.80	<0.31

GP-10

Compound	Trichloroethene	Trans-1,2-Dichloroethene
Sample ID	HRL	HRL
6/19/2019	0.4	40
GP-10 (0-5)	**23.9**	**1.91**
GP-10 (10-12)	**5.06**	<1.00 UJ-
GP-10 (17-19)	<1.00	<1.00 UJ-

GP-27

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/9/2019	0.4	1
GP-27 (8-12)	<0.40	**1.4**
GP-27 (17-19)	**1.3**	<0.25
GP-27 (24-26)	<0.40	<0.25
GP-27 (31-33)	<0.40	**0.64**
GP-27 (38-40)	<0.40	**5.8**
GP-27 (44-46)	<0.40	**0.81**

SB-12

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/4/2019	0.4	1
SB-12 (10-13)	<0.40	<0.26
SB-12 (18-20)	**4.1**	<0.25
SB-12 (21-24)	<0.40	<0.26

GP-19

Compound	Trichloroethene
Sample ID	HRL
8/28/2019	0.4
GP-19 (4-7)	<1.00
GP-19 (12-14)	<1.00
082819 (12-14')	<1.00
GP-19 (19-21)	<1.00

GP-9

Compound	Trichloroethene
Sample ID	HRL
6/18/2019	0.4
GP-9 (6-8)	<1.00
GP-9 (13-15)	**4.89**
GP-9 (20-22)	<1.00
061819B(20-22)	<1.00

GP-1

Compound	Trichloroethene
Sample ID	HRL
6/14/2019	0.4
GP-1 (7-11')	<1.00
GP-1 (16-18')	**3.08**
GP-1 (23-25')	<1.00

SB-14

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/5/2019	0.4	1
SB-14 (10-13)	**1.6**	<0.29

GP-8

Compound	Trichloroethene
Sample ID	HRL
6/18/2019	0.4
GP-8 (5-7)	**1.08**
GP-8 (12-14)	**1.42**
GP-8 (19-21)	<1.00

GP-26

Compound	Toluene	Trichloroethene	1,4-Dioxane
Sample ID	HRL/HBV	HRL	HRL
12/5/2019	200/70	0.4	1
GP-26 (6-10)	**101**	**0.53**	<0.38
GP-26 (15-17)	<1.0	**2.4**	<0.25
120519A(15-17')	<1.0	**2.5**	<0.25
GP-26 (22-24)	**1.4**	<0.40	**2.2**
GP-26 (29-31)	<1.0	<0.40	**0.38**
GP-26 (36-38)	<1.0	<0.40	**2.3**
GP-26 (41-43)	**15.0**	<0.40	**7.4**

GP-28

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/6/2019	0.4	1
GP-28 (11-13)	<0.40	<0.25
GP-28 (18-20)	**2.8**	<0.25
GP-28 (2-6)	<0.40	<0.25
GP-28 (25-27)	**3.1**	<0.25
GP-28 (30-34)	<0.40	**0.75**
GP-28 (39-41)	<0.40	**1.1**
120619B(39-41)	<0.40	**0.89**
GP-28 (46-48)	<0.40	**2.7**

GP-7

Compound	Trichloroethene
Sample ID	HRL
6/18/2019	0.4
GP-7 (6-9)	<1.00
061819-A (6-9)	<1.00
GP-7 (14-16)	**1.3**
GP-7 (21-23)	<1.00

GP-11

Compound	1,1-Dichloroethene	Trichloroethene
Sample ID	HRL	HRL
6/21/2019	80	0.4
GP-11 (5-10)	**3.87**	<1.00
GP-11 (15-17)	**1.31**	**1.31**

GP-29

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride	1,4-Dioxane
Sample ID	HRL	HRL	HRL	HRL
12/10/2019	80	0.4	0.2	1
GP-29 (2-6)	<1.0	<0.40	<0.20	**0.25**
GP-29 (11-13)	<1.0	<0.40	<0.20	**0.26**
GP-29 (18-20)	**2.5**	<0.40	<0.20	**2.3**
GP-29 (25-27)	**3.8**	<0.40	<0.20	**1.6**
GP-29 (32-34)	**9.9**	<0.40	**0.83**	**1.3**
GP-29 (38-41)	<1.0	<0.40	<0.20	**4.2**

GP-12

Compound	1,1-Dichloroethene	Trichloroethene
Sample ID	HRL	HRL
6/21/2019	80	0.4
GP-12 (7-10)	**15.7**	<1.00
GP-12 (15-17)	**28.4**	<1.00
GP-12 (22-24)	<1.00	**1.05**

GP-13

Compound	1,1-Dichloroethene	Trichloroethene
Sample ID	HRL	HRL
6/21/2019	80	0.4
GP-13 (7-10)	**15.1**	<1.00
GP-13 (15-17)	**22.3**	<1.00
GP-13 (22-24)	**2.35**	<1.00

GP-17

Compound	1,1-Dichloroethene	Trichloroethene
Sample ID	HRL	HRL
6/26/2019	80	0.4
GP-17 (7-12)	<10.0	<10.0
GP-17 (17-19)	**4.32**	**4.40**
GP-17 (24-26)	**1.06**	**1.08**

GP-30

Compound	1,1-Dichloroethene	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL
12/11/2019	80	0.4	1
GP-30 (1-3)	<1.0	<0.40	**1.3**
GP-30 (8-10)	**1.7**	<0.40	**12.4**
GP-30 (15-17)	<1.0	<0.40	**1.9**
GP-30 (29-31)	<1.0	<0.40	**5.7**
GP-30 (36-38)	<1.0	<0.40	**10.1**

GP-14

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride
Sample ID	HRL	HRL	HRL
6/24/2019	80	0.4	0.2
GP-14 (9-14)	**31.3**	**11.7**	**20.1**
GP-14 (19-21)	**17.3**	<1.00	<1.00
GP-14 (26-28)	<1.00	<1.00	<1.00

GP-31

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/12/2019	0.4	1
121219 (9-11)	<0.40	**1.2**
GP-31 (16-18)	<0.40	**1.1**
GP-31 (2-4)	<0.40	**0.83**
GP-31 (9-11)	<0.40	**1.0**

HA-1

Compound	Trichloroethene
Sample ID	HRL
6/19/2019	0.4
HA-1 (0-5)	<1.00

SB-8

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/2/2019	0.4	1
SB-8 (7-10)	**3.35**	<0.33
SB-8 (15-17)	<1.00	<0.38
120219(15-17)	<1.00	<0.36
SB-8 (22-24)	<1.00	<0.31

GP-6

Compound	Trichloroethene
Sample ID	HRL
6/18/2019	0.4
GP-6 (7-10)	**5.53**
GP-6 (15-17)	**3.60**
GP-6 (22-24)	<1.00

SB-15

Compound	Trichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL
12/6/2019	0.4	6	1
SB-15 (8-11)	**159**	**1.6**	<0.31
SB-15 (16-18)	**20.8**	<1.0	<0.31
SB-15 (23-25)	**4.1**	<1.0	<0.29

GP-33

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/13/2019	0.4	1
GP-33 (6-10)	**16.4**	**0.56**
GP-33 (15-17)	**4.4**	<0.25
GP-33 (21-24)	<0.40	**1.2**
GP-33 (29-31)	<0.40	**1.2**

SB-10

Compound	1,1-Dichloroethene	1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	cis-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL	HRL	HRL	HRL
12/3/2019	80	1	0.4	0.2	6	1
SB-10 (9-12)	**126**	**1.01**	<1.00	**21.8**	<1.00	**4.5**
SB-10 (17-19)	**5.85**	<1.00	**1.17**	<1.00	**1.14**	**0.47**
SB-10 (23-25)	<1.00	<1.00	<1.00	<1.00	<1.00	<0.23
120319(23-25)	**3.98**	<1.00	<1.00	<1.00	<1.00	<0.23

SB-9

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/2/2019	0.4	1
SB-9 (11-14)	**12.3**	<0.42
SB-9 (16-18)	<1.00	<0.23
SB-9 (23-25)	<1.00	<0.23

SB-16

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride	cis-1,2-Dichloroethene	1,4-Dioxane
Sample ID	HRL	HRL	HRL	HRL	HRL
12/9/2019	80	0.4	0.2	6	1
SB-16 (10-13)	**5.5**	**2.7**	**0.71**	**3.1**	**0.41**
SB-16 (18-20)	<1.0	<0.40	<0.20	<1.0	**0.32**
SB-16 (25-27)	**2.2**	<0.40	<0.20	**1.2**	**0.27**

SB-7

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride	1,4-Dioxane
Sample ID	HRL	HRL	HRL	HRL
10/7/2019	80	0.4	0.2	1
SB-6 (6-11)	**3.2**	**2.6**	**4.4**	**0.32**

GP-18

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride
Sample ID	HRL	HRL	HRL
6/26/2019	80	0.4	0.2
GP-18 (10-15)	**1.33**	<1.00	**11.1**
062619B(10-15)	**1.41**	<1.00	**12.2**
GP-18 (20-22)	<1.00	**1.58**	<1.00
GP-18 (34-38)	<1.00	<1.00	<1.00

GP-16

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride	Trans-1,2-Dichloroethene
Sample ID	HRL	HRL	HRL	HRL
6/26/2019	80	0.4	0.2	40
GP-16 (10-15)	<1.00	**3.25**	**1.21**	<1.00
GP-16 (20-22)	**1.28**	**5.45**	**5.53**	<1.00
GP-16 (27-29)	<10.0	<10.0	<10.0	<10.0
GP-16 (34-36)	<1.00	**10.7**	<1.00	**3.01**
062619A(34-36)	<1.00	**9.34**	<1.00	**2.11**

GP-15

Compound	1,1-Dichloroethene	Trichloroethene	Vinyl Chloride
Sample ID	HRL	HRL	HRL
6/24/2019	80	0.4	0.2
GP-15 (8-13)	<1.00	**2.44**	**4.27**
GP-15 (18-20)	**1.75**	**4.03**	**7.24**
GP-15 (25-27)	**7.52**	<1.00	<1.00
GP-15 (32-34)	<1.00	**8.03**	<1.00

GP-32

Compound	Trichloroethene	1,4-Dioxane
Sample ID	HRL	HRL
12/12/2019	0.4	1
GP-32 (1-3)	<0.40	**1.1**
GP-32 (8-10)	<0.40	**0.98**
GP-32 (15-17)	<0.40	**0.75**
GP-32 (21-24)	<0.40	**2.2**

Legend

- Investigation Boundary
- Soil Boring
- Interior Soil Boring
- Hand Auger Boring
- Monitoring Well

Groundwater Data Key	
Units	ug/L
MDH HRL/HBV exceedance	

200 100 0 200 Feet

N

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2/21/2020 8:52 AM ShuJC0243 Layout: VOCs in Groundwater

WATER GREMLIN COMPANY

VOCs in Groundwater

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Figure 18

SV-3					
Compound	8/23/2019	12/4/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	<2.2	**178**	**4.1**	110	1100
Trichloroethene	<1.8	**1.3**	<0.98	70	230
Vinyl chloride	<0.85	<0.45	<0.47	57	730

SV-4					
Compound	8/23/2019	12/2/2019	1/9/2020	33x ISV	33x ISV
Naphthalene	**23.3**	**527**	<4.6	310	1100
Tetrachloroethene	**3.9**	**28.0**	<1.2	110	1100
Trichloroethene	<1.0	<0.98	<0.95	70	230
Vinyl chloride	<0.49	<0.47	<0.45	57	730

SV-5					
Compound	8/23/2019	12/2/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	**1.3**	**26.5**	<1.2	110	1100
Trichloroethene	<1.0	<0.98	<0.98	70	230
Vinyl chloride	<0.49	<0.47	<0.47	57	730

SV-12					
Compound	8/28/2019	12/4/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	<1.3	**137**	**26.7**	110	1100
Trichloroethene	<1.0	<0.92	<0.95	70	230
Vinyl chloride	<0.49	<0.44	<0.45	57	730

SV-13					
Compound	8/28/2019	12/3/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	<1.3	**43.4**	<1.2	110	1100
Trichloroethene	<1.0	<0.93	<0.95	70	230
Vinyl chloride	<0.49	<0.44	<0.45	57	730

SV-14					
Compound	8/28/2019	12/2/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	<19.8	**40.0**	<1.3	110	1100
Trichloroethene	<15.7	<0.92	<1.1	70	230
Vinyl chloride	<7.5	<0.44	<0.50	57	730

SV-15					
Compound	8/29/2019	12/4/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	<1.2	**158**	<1.2	110	1100
Trichloroethene	<0.95	<0.92	<0.98	70	230
Vinyl chloride	<0.45	<0.44	<0.47	57	730

SV-11					
Compound	8/28/2019	12/4/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	**7.8**	**152**	**1.6**	110	1100
Trichloroethene	<1.0	<1.7	<0.92	70	230
Vinyl chloride	<0.49	<0.82	<0.44	57	730

SV-6				
Compound	8/23/2019	12/2/2019	33x ISV	33x ISV
Tetrachloroethene	**10.7**	**29.8**	110	1100
Trichloroethene	**10.7**	<0.92	70	230
Vinyl chloride	<0.47	<0.44	57	730

SV-2					
Compound	8/23/2019	12/5/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	**8.4**	**122**	**2.3**	110	1100
Trichloroethene	<1.0	<0.95	<0.93	70	230
Vinyl chloride	<0.49	<0.45	<0.44	57	730

SV-7					
Compound	8/23/2019	12/2/2019	1/9/2020	33x ISV	33x ISV
Tetrachloroethene	<2.7	**30.0**	<1.2	110	1100
Trichloroethene	<1.1	<0.92	<0.98	70	230
Vinyl chloride	<0.50	<0.44	<0.47	57	730

SV-10					
Compound	8/28/2019	12/4/2019	1/10/2020	33x ISV	33x ISV
Tetrachloroethene	**5.5**	**130**	<1.2	110	1100
Trichloroethene	<0.98	<0.95	<0.92	70	230
Vinyl chloride	<0.47	<0.45	<0.44	57	730

SV-16				
Compound	10/28/2019	12/3/2019	33x ISV	33x ISV
Tetrachloroethene	**45.9**	**31.8**	110	1100
Trichloroethene	<1.0	<0.95	70	230
Vinyl chloride	<0.95	<0.45	57	730

SV-9					
Compound	8/28/2019	12/4/2019	1/10/2020	33x ISV	33x ISV
Tetrachloroethene	**8.0**	**152**	**10.1**	110	1100
Trichloroethene	<0.98	<1.0	<0.97	70	230
Vinyl chloride	<0.47	<0.49	<0.46	57	730

SV-17				
Compound	10/28/2019	12/4/2019	33x ISV	33x ISV
Tetrachloroethene	**38.0**	**169**	110	1100
Trichloroethene	<0.95	<13.0	70	230
Vinyl chloride	<0.90	<6.2	57	730

SV-1					
Compound	8/23/2019	12/4/2019	1/10/2020	33x ISV	33x ISV
Tetrachloroethene	<3.5	**127**	<1.2	110	1100
Trichloroethene	**3.7**	<0.92	<0.93	70	230
Vinyl chloride	<1.3	<0.44	<0.44	57	730

SV-18				
Compound	10/28/2019	12/4/2019	33x ISV	33x ISV
Ethylbenzene	**14.6**	**145**	140	1300
Tetrachloroethene	**31.0**	**189**	110	1100
Trichloroethene	**19.5**	<0.95	70	230
Vinyl chloride	<0.92	<0.45	57	730

SV-8					
Compound	8/28/2019	12/4/2019	1/10/2020	33x ISV	33x ISV
Tetrachloroethene	**13.9**	**152**	<1.2	110	1100
Trichloroethene	<0.98	<1.1	<0.93	70	230
Vinyl chloride	<0.47	<0.50	<0.44	57	730

SV-19				
Compound	10/28/2019	12/4/2019	33x ISV	33x ISV
Tetrachloroethene	**33.9**	**179**	110	1100
Trichloroethene	**281**	**445**	70	230
Vinyl chloride	<0.90	**17.3**	57	730

SV-23					
Compound	8/29/2019	12/4/2019	1/10/2020	33x ISV	33x ISV
Tetrachloroethene	**22.9**	**145**	<1.2	110	1100
Trichloroethene	<0.95	<9.5	<0.93	70	230
Vinyl chloride	<0.90	<4.5	<0.44	57	730

SV-20				
Compound	10/28/2019	12/5/2019	33x ISV	33x ISV
Tetrachloroethene	**40.4**	**20.3**	110	1100
Trichloroethene	**51.2**	**1.5**	70	230
Vinyl chloride	**559**	**35.3**	57	730

SV-22					
Compound	8/29/2019	12/5/2019	1/10/2020	33x ISV	33x ISV
Tetrachloroethene	**20.8**	**20.4**	<1.2	110	1100
Trichloroethene	<0.92	<0.95	<0.93	70	230
Vinyl chloride	<0.87	<0.45	<0.44	57	730

SV-21				
Compound	10/28/2019	12/5/2019	33x ISV	33x ISV
Tetrachloroethene	**32.2**	**16.4**	110	1100
Trichloroethene	<0.98	<0.92	70	230
Vinyl chloride	<0.94	<0.44	57	730

Legend

Investigation Boundary

Soil Gas Samples

Soil Vapor Data Key	
Units	ug/m3
33 x Residential ISV exceedance	
33 x Industrial ISV exceedance	

120 60 0 120 Feet

N

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2/21/2020 8:52 AM ShuJC0243 Layout: VOCs in Soil Gas – Exterior Locations

WATER GREMLIN COMPANY

VOCs in Soil Gas – Exterior Locations

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Figure 19

SS-33				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-33	8/23/2019	**236**	<0.49	**37.5**

SS-32				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-32	8/23/2019	**118**	<0.50	**7.5**

SS-31				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-31	8/23/2019	**103**	<0.53	**7.0**

SS-30				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-30	8/23/2019	**42.0**	<0.47	**8.6**
SS-30	10/10/2019	**13.0**	<0.49	<1.5

SS-29				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-29	8/23/2019	**24.0**	<0.47	<1.5

SS-28				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-28	8/23/2019	**21.4**	<0.49	**9.8**

SS-15				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-15	06/11/19	**23000**	<130	**11000**
SS-15	9/16/2019	**2790**	<0.51	**2940**
DUP091619	9/16/2019	**3000**	<0.49	**1440**
SS-15	10/3/2019	**4730**	<0.50	**517**
SS-15	10/7/2019	**580**	<14.0	**677**
SS-15-2	12/23/2019	**560**	<0.62	**28.1**
SS-15-2	12/26/2019	**636**	<4.9	**28.0**

SS-34				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-34	8/23/2019	**1920**	<0.49	**60.1**
SS-34	10/10/2019	**9.8**	<0.53	**6.1**

SS-35				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-35	8/23/2019	**54.8**	<0.47	**170**
SS-35	9/16/2019	**35.8**	<0.47	**19.3**

SS-1				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-1	06/11/19	**560**	<200	**23000**

SS-2				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-2	06/11/19	**3400**	<51	**7600**
061119 A	06/11/19	**6400**	<51	**11000**
SS-2	9/16/2019	**702**	<0.49	**226**

SS-14				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-14	06/11/19	**23000**	<1000	**150000**
SS-14	9/16/2019	**210**	<0.47	**1340**
SS-14	10/3/2019	**5400**	<0.56	**1030**
DUP100319	10/3/2019	**3970**	<0.55	**910**
SS-14	10/7/2019	**7890**	<14.6	**1130**
SS-14-2	12/23/2019	**535**	<0.57	**66.0**
SS-14-2	12/26/2019	**471**	<0.47	**89.2**

SS-3				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-3	06/11/19	**260**	<160	**16000**

SS-4				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-4	06/11/19	**290**	<200	**22000**

SS-12				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-12	06/11/19	**70000**	<3700	**530000**
SS-12	9/16/2019	**4560**	<10.1	**23800**
SS-12	10/3/2019	**9030**	<0.54	**13200**
SS-12	10/7/2019	**19400**	<15.4	**7110**
SS-12-2	12/23/2019	**46900**	<0.49	**22300**
SS-12-2	12/26/2019	**44000**	<74.9	**17600**

SS-5				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-5	06/11/19	<380	<180	**20000**

SS-6				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-6	06/11/19	**1100**	<20	**3200**
SS-6	9/16/2019	**41.5**	<0.48	**63.3**

SS-7				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-7	06/11/19	<280	<130	**22000**

SS-22				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-22	06/12/19	**1600**	<13	**2600**
SS-22	9/17/2019	**1570**	<0.48	**2210**

SS-13				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-13	06/11/19	**38000**	<200	**60000**
SS-13	9/16/2019	**1870**	<0.47	**3310**
SS-13	10/3/2019	**567**	<0.55	**205**
SS-13-2	12/23/2019	**680**	<0.55	**329**
SS-13-2	12/26/2019	**280**	<5.3	**272**

SS-21				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-21	06/12/19	**220**	<5.1	**460**

SS-36				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-36	8/23/2019	**184**	<0.47	**5.7**
SS-36	10/10/2019	**100**	<2.4	**8.5**
Dup 101019	10/10/2019	**93.3**	<2.5	**10.9**

SS-17				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-17	06/11/19	**170**	<20	**3500**

SS-16				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-16	06/11/19	**88**	<20	**3400**

SS-19				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-19	06/11/19	**3800**	<10	**1600**
SS-19	9/17/2019	**510**	<0.49	**2070**
SS-19	10/3/2019	**989**	<0.49	**2480**
SS-19	10/7/2019	**1210**	<14.3	**2930**
Dup 10/7/19	10/7/2019	**1100**	<14.6	**3180**
SS-19-2	12/26/2019	**2590**	<16.4	**3050**

SS-20				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-20	06/11/19	**830**	<26	**3800**
SS-20	9/17/2019	**542**	<0.49	**754**
SS-20	10/3/2019	**607**	<0.45	**2160**
SS-20	10/7/2019	**876**	<0.47	**954**
SS-20-2	12/26/2019	**185**	<5.0	**612**
DUP122619	12/26/2019	**185**	<5.1	**596**

SS-8				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-8	06/11/19	**3900**	<200	**19000**
SS-8	9/16/2019	**38.8**	<0.49	**90.6**
DUP91619A	9/16/2019	**37.5**	<0.48	**88.4**

SS-9				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-9	06/11/19	**55000**	<2100	**320000**
SS-9	9/16/2019	**169000**	<152	**278000**

SS-26				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-26	8/23/2019	**65.0**	<0.45	**72.7**
SS-26	9/16/2019	**12.1**	<0.47	**46.3**

SS-10				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-10	06/12/19	**100000**	<770	**78000**
061219	06/12/19	**120000**	<510	**76000**
SS-10	9/16/2019	**13200**	<0.49	**6410**
SS-10	10/3/2019	**7910**	<0.50	**7190**
SS-10	10/7/2019	**7490**	<14.6	**4720**
SS-10-2	12/23/2019	**48200**	<0.50	**13800**
SS-10-2	12/26/2019	**41000**	<77.8	**11300**

SS-25				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-25	06/12/19	**18000**	<100	**3400**
SS-25	9/17/2019	**4380**	<15.1	**3270**

SS-24				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-24	06/12/19	**25000**	<1300	**220000**
SS-24	9/17/2019	**65400**	<14.8	**31000**

SS-38				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-38	10/10/2019	**7.2**	<0.48	**46.3**

SS-27				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-27	8/23/2019	**268**	<0.47	**164**

SS-11				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-11	06/11/19	**39000**	<3200	**410000**
SS-11	9/16/2019	**63000**	<156	**584000**
SS-11	10/3/2019	**34200**	<128	**216000**
SS-11	10/7/2019	**34500**	<121	**194000**
SS-11-2	12/23/2019	**69400**	<0.50	**46900**
DUP122319	12/23/2019	**65900**	<0.50	**47300**
SS-11-2	12/26/2019	**50400**	<15.1	**33100**

SS-23				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-23	06/12/19	**830**	<23	**4700**
SS-23	9/17/2019	**4170**	<14.0	**36300**

SS-37				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-37	8/23/2019	**26.0**	**22100**	**28.6**
SS-37	10/10/2019	**7.4**	**226**	**4.0**

SS-18				
Compound		Trichloroethene	Vinyl chloride	Trans-1,2-Dichloroethene
33X Industrial ISV		230	730	8300
33X Industrial EISV		700	7300	25000
SS-18	06/11/19	**1200**	<15	**2400**
061119 B	06/11/19	**900**	<5.1	**910**
SS-18	9/17/2019	**270**	<0.47	**81.8**

Legend

- Investigation Boundary
- Sub-slab Soil Vapor Sample Locations

Sub-Slab Vapor Data Key	
Units	ug/m3
33X Industrial ISV Exceedance	
33X Industrial EISV Exceedance	

N

80 40 0 80 Feet

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_SamplingResults.aprx
2/21/2020 8:42 AM ShuJC0243 Layout: VOCs in Sub-Slab Soil Gas

WATER GREMLIN COMPANY

VOCs in Sub-Slab Soil Gas

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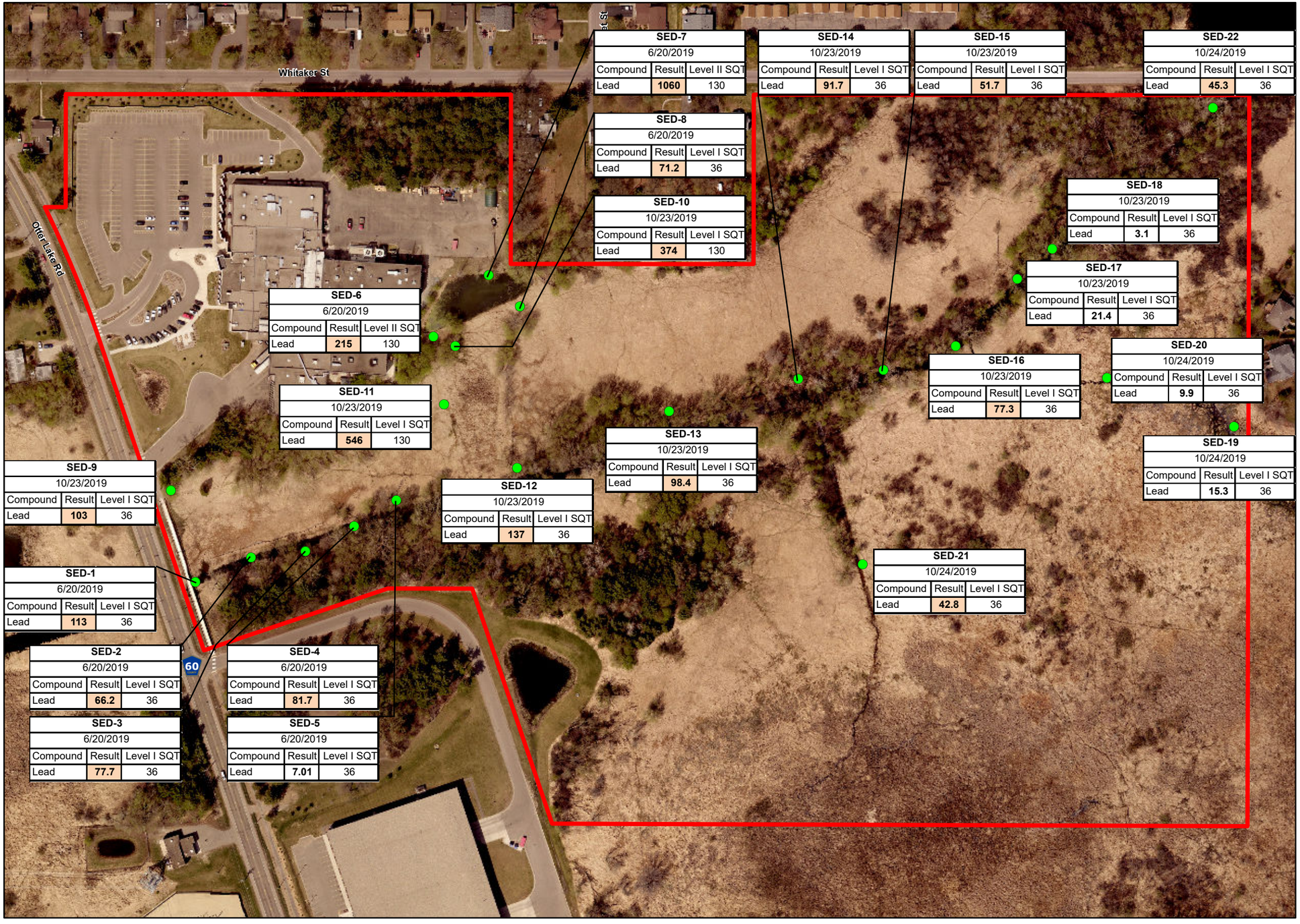
Responsive partner. Exceptional outcomes.

FEB 2020

Figure 20



SED-7		
6/20/2019		
Compound	Result	Level II SQT
Lead	1060	130

SED-8		
6/20/2019		
Compound	Result	Level I SQT
Lead	71.2	36

SED-10		
10/23/2019		
Compound	Result	Level I SQT
Lead	374	130

SED-14		
10/23/2019		
Compound	Result	Level I SQT
Lead	91.7	36

SED-15		
10/23/2019		
Compound	Result	Level I SQT
Lead	51.7	36

SED-22		
10/24/2019		
Compound	Result	Level I SQT
Lead	45.3	36

SED-18		
10/23/2019		
Compound	Result	Level I SQT
Lead	3.1	36

SED-6		
6/20/2019		
Compound	Result	Level II SQT
Lead	215	130

SED-17		
10/23/2019		
Compound	Result	Level I SQT
Lead	21.4	36

SED-11		
10/23/2019		
Compound	Result	Level I SQT
Lead	546	130

SED-16		
10/23/2019		
Compound	Result	Level I SQT
Lead	77.3	36

SED-20		
10/24/2019		
Compound	Result	Level I SQT
Lead	9.9	36

SED-13		
10/23/2019		
Compound	Result	Level I SQT
Lead	98.4	36

SED-19		
10/24/2019		
Compound	Result	Level I SQT
Lead	15.3	36

SED-9		
10/23/2019		
Compound	Result	Level I SQT
Lead	103	36

SED-12		
10/23/2019		
Compound	Result	Level I SQT
Lead	137	36

SED-21		
10/24/2019		
Compound	Result	Level I SQT
Lead	42.8	36

SED-1		
6/20/2019		
Compound	Result	Level I SQT
Lead	113	36

SED-2		
6/20/2019		
Compound	Result	Level I SQT
Lead	66.2	36

SED-4		
6/20/2019		
Compound	Result	Level I SQT
Lead	81.7	36

SED-3		
6/20/2019		
Compound	Result	Level I SQT
Lead	77.7	36

SED-5		
6/20/2019		
Compound	Result	Level I SQT
Lead	7.01	36

Legend

- Investigation Boundary
- Sediment Samples

Sediment Data Key	
Units	mg/kg
Level I SQT exceedance	
Level II SQT exceedance	

160 80 0 160 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_SamplingResults.aprx
2/21/2020 8:52 AM ShuJC0243 Layout: Total Lead in Sediment

WATER GREMLIN COMPANY

Total Lead in Sediment

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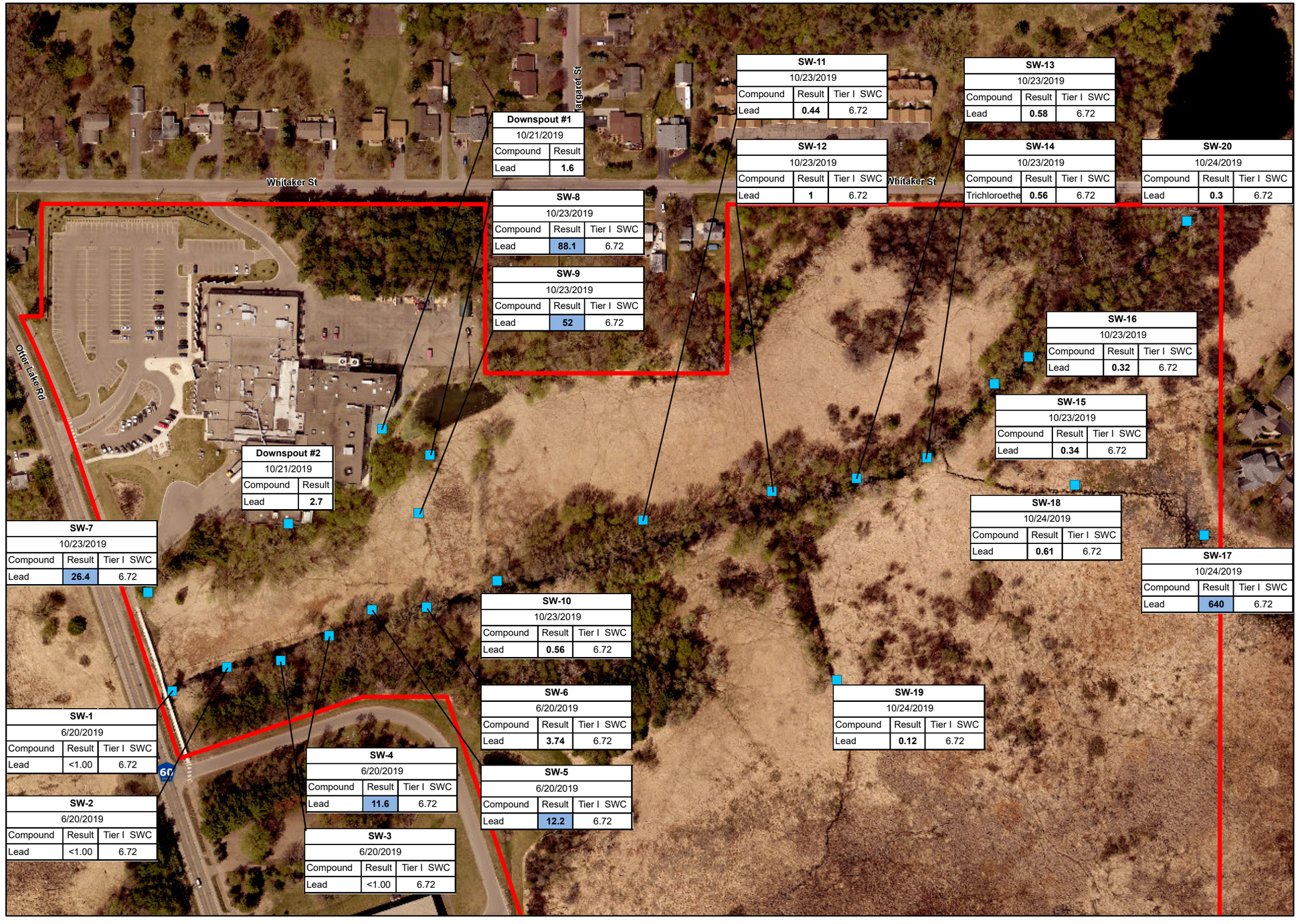
Figure 21



Downspout #1	
10/21/2019	
Compound	Result
Lead	**1.6**

Downspout #2	
10/21/2019	
Compound	Result
Lead	**2.7**

SW-1		
6/20/2019		
Compound	Result	Tier I SWC
Lead	<1.00	6.72

SW-2		
6/20/2019		
Compound	Result	Tier I SWC
Lead	<1.00	6.72

SW-3		
6/20/2019		
Compound	Result	Tier I SWC
Lead	<1.00	6.72

SW-4		
6/20/2019		
Compound	Result	Tier I SWC
Lead	**11.6**	6.72

SW-5		
6/20/2019		
Compound	Result	Tier I SWC
Lead	**12.2**	6.72

SW-6		
6/20/2019		
Compound	Result	Tier I SWC
Lead	**3.74**	6.72

SW-7		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**26.4**	6.72

SW-8		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**88.1**	6.72

SW-9		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**52**	6.72

SW-10		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**0.56**	6.72

SW-11		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**0.44**	6.72

SW-12		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**1**	6.72

SW-13		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**0.58**	6.72

SW-14		
10/23/2019		
Compound	Result	Tier I SWC
Trichloroethe	**0.56**	6.72

SW-15		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**0.34**	6.72

SW-16		
10/23/2019		
Compound	Result	Tier I SWC
Lead	**0.32**	6.72

SW-17		
10/24/2019		
Compound	Result	Tier I SWC
Lead	**640**	6.72

SW-18		
10/24/2019		
Compound	Result	Tier I SWC
Lead	**0.61**	6.72

SW-19		
10/24/2019		
Compound	Result	Tier I SWC
Lead	**0.12**	6.72

SW-20		
10/24/2019		
Compound	Result	Tier I SWC
Lead	**0.3**	6.72

Legend

Investigation Boundary

Surface Water Samples

Groundwater Data Key		
Units	ug/L	Tier I SWC
Tier I Surface Water Screening Criteria (non ORVW or OIRW waters)		

180 90 0 180 Feet

N

Path: L:\2606\WaterGremlinInvest\Invest_Sampling\Invest_SamplingResults.aprx
2/21/2020 8:52 AM ShuJC0243 Layout: Total Lead in Surface Water

WATER GREMLIN COMPANY

Total Lead in Surface Water

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Figure 22

Table 1
Investigation Sample Coordinates
Water Gremlin SRI
4400 Otter Lake Road
White Bear Township, MN
February 2020

Sample Type	Sample ID	UTM Zone 15N X	UTM Zone 15N Y	NAD 1983 X-Coord	NAD 1983 Y-Coord	LUI Number	
						Soil LUI	GW LUI
Exterior Soil Boring	GP-1	497417.9813	4991195.916	-93.032803	45.074220	2001004917	2001004837
Exterior Soil Boring	GP-2	497422.8933	4991217.226	-93.032740	45.074412	2001004918	2001004838
Exterior Soil Boring	GP-3	497413.9708	4991235.606	-93.032854	45.074578	2001004919	2001004839
Exterior Soil Boring	GP-4	497518.5312	4991263.701	-93.031526	45.074831	2001004920	2001004840
Exterior Soil Boring	GP-5	497539.2254	4991248.467	-93.031263	45.074694	2001004921	2001004841
Exterior Soil Boring	GP-6	497521.5865	4991225.938	-93.031487	45.074491	2001004922	2001004842
Exterior Soil Boring	GP-7	497448.7646	4991168.423	-93.032412	45.073973	2001004923	2001004843
Exterior Soil Boring	GP-8	497440.9175	4991180.008	-93.032511	45.074077	2001004924	2001004844
Exterior Soil Boring	GP-9	497447.7706	4991195.813	-93.032424	45.074220	2001004925	2001004845
Exterior Soil Boring	GP-10	497444.5764	4991209.258	-93.032465	45.074341	2001004926	2001004846
Exterior Soil Boring	GP-11	497457.2026	4991163.816	-93.032304	45.073932	2001004934	2001004848
Exterior Soil Boring	GP-12	497469.6536	4991168.144	-93.032146	45.073971	2001004935	2001004849
Exterior Soil Boring	GP-13	497477.7984	4991165.406	-93.032043	45.073946	2001004936	2001004850
Exterior Soil Boring	GP-14	497494.8093	4991166.522	-93.031827	45.073956	2001004937	2001004851
Exterior Soil Boring	GP-15	497492.2243	4991175.756	-93.031859	45.074039	2001004938	2001004852
Exterior Soil Boring	GP-16	497493.0603	4991180.286	-93.031849	45.074080	2001004939	2001004853
Exterior Soil Boring	GP-17	497485.2387	4991166.399	-93.031948	45.073955	2001004940	2001004854
Exterior Soil Boring	GP-18	497491.2599	4991187.462	-93.031872	45.074144	2001004941	2001004855
Exterior Soil Boring	GP-19	497368.1243	4991206.036	-93.0334362	45.07431125	NA	2001004856
Exterior Soil Boring	GP-20	497578.6853	4991335.627	-93.0307618	45.07547855	NA	2001004857
Exterior Soil Boring	GP-21	497430.6788	4991335.822	-93.03264216	45.07547979	NA	2001004858
Exterior Soil Boring	GP-22	497346.201	4991308.052	-93.03371526	45.0752295	NA	2001004859
Exterior Soil Boring	GP-23	497483.6521	4991299.014	-93.031969	45.075149	2001004953	2001004867
Exterior Soil Boring	GP-24	497418.9816	4991310.704	-93.032791	45.075254	2001004954	2001004868
Exterior Soil Boring	GP-25	497388.3843	4991235.547	-93.033179	45.074577	2001004955	2001004869
Exterior Soil Boring	GP-26	497399.9021	4991170	-93.033032	45.073987	2001004956	2001004870
Exterior Soil Boring	GP-27	497432.3215	4991208.682	-93.032621	45.074335	2001004957	2001004871
Exterior Soil Boring	GP-28	497408.9477	4991154.073	-93.032917	45.073844	2001004958	2001004872
Exterior Soil Boring	GP-29	497450.6614	4991142.207	-93.032387	45.073737	2001004959	2001004873
Exterior Soil Boring	GP-30	497488.5751	4991141.636	-93.031906	45.073732	2001004960	2001004874
Exterior Soil Boring	GP-31	497515.2107	4991151.809	-93.031567	45.073824	2001004961	2001004875
Exterior Soil Boring	GP-32	497523.2181	4991164.211	-93.031466	45.073935	2001004962	2001004876
Exterior Soil Boring	GP-33	497538.848	4991211.603	-93.031267	45.074362	2001004963	2001004877
Interior Soil Boring	SB-1	497444.1861	4991242.659	-93.03247	45.074641	2001004946	2001004860
Interior Soil Boring	SB-2	497438.4538	4991241.053	-93.032543	45.074627	2001004947	2001004861
Interior Soil Boring	SB-3	497444.2625	4991237.156	-93.032469	45.074592	2001004948	2001004862
Interior Soil Boring	SB-4	497448.6955	4991232.723	-93.032413	45.074552	2001004949	2001004863
Interior Soil Boring	SB-5	497452.8227	4991236.697	-93.03236	45.074588	2001004950	2001004864
Interior Soil Boring	SB-6	497458.4021	4991232.188	-93.032289	45.074547	2001004951	2001004865
Interior Soil Boring	SB-7	497479.0384	4991198.711	-93.032027	45.074246	2001004952	2001004866
Interior Soil Boring	SB-8	497523.7007	4991244.043	-93.03146	45.074654	2001004964	2001004878
Interior Soil Boring	SB-9	497482.9437	4991203.477	-93.031977	45.074289	2001004965	2001004879
Interior Soil Boring	SB-10	497476.9168	4991210.28	-93.032054	45.07435	2001004966	2001004880
Interior Soil Boring	SB-11	497470.7508	4991224.366	-93.032132	45.074477	2001005475	2001004881
Interior Soil Boring	SB-12	497456.8906	4991209.82	-93.032309	45.074346	2001005476	2001004882
Interior Soil Boring	SB-13	497464.8239	4991211.427	-93.032208	45.07436	2001005477	2001004883
Interior Soil Boring	SB-14	497458.583	4991196.641	-93.032287	45.074227	2001005478	2001004884
Interior Soil Boring	SB-15	497501.2057	4991220.558	-93.031746	45.074442	2001005479	2001004885
Interior Soil Boring	SB-16	497470.3006	4991204.449	-93.032138	45.074297	2001005480	2001004886
Interior Soil Boring	SB-17	497440.5379	4991215.422	-93.032516	45.074396	2001005481	2001004887
Monitoring Well	MW-1	497439.5794	4991093.397	-93.032528	45.073298	NA	NA
Hand Auger Boring	HA-1	497512.5978	4991165.41	-93.031601	45.073946	2001004927	2001004847
Hand Auger Boring	HA-2	497505.4435	4991176.076	-93.031692	45.074042	2001004928	NA
Hand Auger Boring	HA-3	497518.1845	4991172.555	-93.031530	45.074010	2001004929	NA
Hand Auger Boring	HA-4	497518.3021	4991159.938	-93.031528	45.073897	2001004930	NA
Hand Auger Boring	HA-5	497506.6738	4991161.01	-93.031676	45.073906	2001004931	NA
Hand Auger Boring	HA-6	497424.0297	4991284.577	-93.032726	45.075018	2001004932	NA
Hand Auger Boring	HA-7	497422.4248	4991276.937	-93.032747	45.074950	2001004933	NA
Sediment Sample Location	SED-1	497413.5881	4991076.955	-93.032858	45.073149	S015-354	
Sediment Sample Location	SED-2	497443.5202	4991090.218	-93.032478	45.073269	S015-355	
Sediment Sample Location	SED-3	497472.9134	4991093.582	-93.032104	45.073299	S015-356	
Sediment Sample Location	SED-4	497499.1976	4991107.061	-93.031771	45.073421	S015-357	
Sediment Sample Location	SED-5	497521.9768	4991121.094	-93.031481	45.073547	S015-358	
Sediment Sample Location	SED-6	497541.9233	4991209.44	-93.031228	45.074343	LD00362	
Sediment Sample Location	SED-7	497571.8011	4991242.598	-93.030849	45.074641	LD00363	
Sediment Sample Location	SED-8	497588.598	4991225.731	-93.030635	45.074489	LD00364	
Sediment Sample Location	SED-9	497400.2779	4991126.434	-93.033035	45.073603	LD00371	

Table 1
Investigation Sample Coordinates
Water Gremlin SRI
4400 Otter Lake Road
White Bear Township, MN
February 2020

Sample Type	Sample ID	UTM Zone 15N X	UTM Zone 15N Y	NAD 1983 X-Coord	NAD 1983 Y-Coord	LUI Number
Sediment Sample Location	SED-10	497553.7389	4991204.319	-93.031086	45.074304	LD00368
Sediment Sample Location	SED-11	497547.6437	4991172.914	-93.031163	45.074022	LD00369
Sediment Sample Location	SED-12	497587.1048	4991138.586	-93.030662	45.073713	LD00370
Sediment Sample Location	SED-13	497669.0865	4991169.241	-93.02962	45.073989	LD00372
Sediment Sample Location	SED-14	497738.6985	4991186.526	-93.028736	45.074145	LD00373
Sediment Sample Location	SED-15	497784.7785	4991191.412	-93.028151	45.074189	LD00374
Sediment Sample Location	SED-16	497823.7224	4991204.216	-93.027656	45.074304	LD00375
Sediment Sample Location	SED-17	497856.9144	4991240.617	-93.027234	45.074632	LD00376
Sediment Sample Location	SED-18	497875.7627	4991256.742	-93.026995	45.074777	LD00377
Sediment Sample Location	SED-19	497973.8407	4991160.83	-93.025748	45.073914	LD00378
Sediment Sample Location	SED-20	497905.3103	4991187.065	-93.026619	45.07415	LD00379
Sediment Sample Location	SED-21	497773.5324	4991086.496	-93.028293	45.073245	LD00380
Sediment Sample Location	SED-22	497962.4666	4991332.788	-93.025894	45.075462	LD00381
Surface Water Sample Location	SW-1	497414.2662	4991076.536	-93.032849	45.073146	S015-354
Surface Water Sample Location	SW-2	497443.9352	4991089.57	-93.032472	45.073263	S015-355
Surface Water Sample Location	SW-3	497473.0725	4991093.135	-93.032102	45.073295	S015-356
Surface Water Sample Location	SW-4	497499.2578	4991106.487	-93.031770	45.073416	S015-357
Surface Water Sample Location	SW-5	497522.3819	4991120.681	-93.031476	45.073543	S015-358
Surface Water Sample Location	SW-6	497551.976	4991122.064	-93.031100	45.073556	S015-359
Surface Water Sample Location	SW- 7	497401.1583	4991129.97	-93.03302383	45.07363467	S016-198
Surface Water Sample Location	SW- 8	497553.7389	4991204.319	-93.031086	45.074304	S016-199
Surface Water Sample Location	SW- 9	497547.6437	4991172.914	-93.031163	45.074022	S016-200
Surface Water Sample Location	SW- 10	497590.1719	4991136.336	-93.030623	45.073693	S016-201
Surface Water Sample Location	SW- 11	497669.0865	4991169.241	-93.02962	45.073989	S016-202
Surface Water Sample Location	SW- 12	497738.8034	4991184.724	-93.028735	45.074129	S016-203
Surface Water Sample Location	SW- 13	497784.6071	4991191.766	-93.028153	45.074192	S016-204
Surface Water Sample Location	SW- 14	497822.7587	4991202.913	-93.027668	45.074293	S016-205
Surface Water Sample Location	SW- 15	497859.1913	4991242.799	-93.027205	45.074652	S016-206
Surface Water Sample Location	SW- 16	497877.6893	4991257.389	-93.02697	45.074783	S016-207
Surface Water Sample Location	SW- 17	497972.7519	4991161.034	-93.025762	45.073916	S016-208
Surface Water Sample Location	SW- 18	497902.7969	4991188.141	-93.026651	45.07416	S016-209
Surface Water Sample Location	SW- 19	497773.9862	4991082.627	-93.028287	45.07321	S016-210
Surface Water Sample Location	SW- 20	497963.3962	4991330.832	-93.025882	45.075445	S016-211
Downspout Sample Location	Downspout # 1	497527.9375	4991218.433	-93.031414	45.074431	S016-212
Downspout Sample Location	Downspout # 2	497477.1734	4991167.088	-93.032058	45.073969	S016-213
Soil Gas Samples	SV-1	497379.4438	4991238.291	-93.033293	45.074602	GS00777
Soil Gas Samples	SV-2	497388.8531	4991276.946	-93.033173	45.07495	GS00778
Soil Gas Samples	SV-3	497408.1804	4991324.755	-93.032928	45.07538	GS00779
Soil Gas Samples	SV-4	497456.4985	4991322.466	-93.032314	45.07536	GS00780
Soil Gas Samples	SV-5	497510.9199	4991318.906	-93.031623	45.075328	GS00781
Soil Gas Samples	SV-6	497542.9625	4991289.152	-93.031215	45.07506	GS00782
Soil Gas Samples	SV-7	497576.7851	4991289.152	-93.030786	45.07506	GS00783
Soil Gas Samples	SV-8	497368.1243	4991206.036	-93.0334362	45.07431125	GS00771
Soil Gas Samples	SV-9	497354.0934	4991247.251	-93.03361467	45.07468221	GS00772
Soil Gas Samples	SV-10	497343.6677	4991272.78	-93.03374726	45.07491198	GS00773
Soil Gas Samples	SV-11	497346.201	4991308.052	-93.03371526	45.0752295	GS00774
Soil Gas Samples	SV-12	497360.7191	4991330.365	-93.03353094	45.07543041	GS00775
Soil Gas Samples	SV-13	497430.6788	4991335.822	-93.03264216	45.07547979	GS00776
Soil Gas Samples	SV-14	497487.2896	4991335.529	-93.03192294	45.07547736	GS00797
Soil Gas Samples	SV-15	497578.6853	4991335.627	-93.0307618	45.07547855	GS00798
Soil Gas Samples	SV-16	497527.4434	4991226.952	-93.031412	45.0745	GS00909
Soil Gas Samples	SV-17	497544.925	4991261.436	-93.03119	45.074811	GS00910
Soil Gas Samples	SV-18	497519.0347	4991212.722	-93.031519	45.074372	GS00911
Soil Gas Samples	SV-19	497498.7422	4991189.373	-93.031777	45.074162	GS00912
Soil Gas Samples	SV-20	497484.9967	4991167.285	-93.031951	45.073963	GS00913
Soil Gas Samples	SV-21	497457.4025	4991162.182	-93.032302	45.073917	GS00915
Soil Gas Samples	SV-22	497419.3028	4991158.68	-93.032786	45.073885	GS00916
Soil Gas Samples	SV-23	497404.3976	4991193.518	-93.032975	45.074199	GS00917
Sub-slab Soil Vapor Sample Locations	SS-1	497425.8434	4991250.136	-93.032703	45.074708	GS00699
Sub-slab Soil Vapor Sample Locations	SS-2	497432.2529	4991241.097	-93.032622	45.074627	GS00690
Sub-slab Soil Vapor Sample Locations	SS-3	497427.1582	4991237.317	-93.032686	45.074593	GS00689
Sub-slab Soil Vapor Sample Locations	SS-4	497432.0886	4991233.208	-93.032624	45.074556	GS00686
Sub-slab Soil Vapor Sample Locations	SS-5	497438.1694	4991227.621	-93.032546	45.074506	GS00688
Sub-slab Soil Vapor Sample Locations	SS-6	497432.2529	4991222.526	-93.032622	45.07446	GS00687
Sub-slab Soil Vapor Sample Locations	SS-7	497430.7738	4991215.952	-93.03264	45.074401	GS00685
Sub-slab Soil Vapor Sample Locations	SS-8	497452.139	4991243.234	-93.032369	45.074646	GS00700
Sub-slab Soil Vapor Sample Locations	SS-9	497457.8911	4991239.782	-93.032296	45.074615	GS00701
Sub-slab Soil Vapor Sample Locations	SS-10	497464.958	4991238.796	-93.032206	45.074607	GS00712

Table 1
Investigation Sample Coordinates
Water Gremlin SRI
4400 Otter Lake Road
White Bear Township, MN
February 2020

Sample Type	Sample ID	UTM Zone 15N X	UTM Zone 15N Y	NAD 1983 X-Coord	NAD 1983 Y-Coord	LUI Number
Sub-slab Soil Vapor Sample Locations	SS-10-2	497466.613	4991236.552	-93.032185	45.074586	GS00712
Sub-slab Soil Vapor Sample Locations	SS-11	497458.7128	4991233.702	-93.032285	45.074561	GS00702
Sub-slab Soil Vapor Sample Locations	SS-11-2	497460.4984	4991231.11	-93.032263	45.074537	GS00702
Sub-slab Soil Vapor Sample Locations	SS-12	497450.1668	4991234.688	-93.032394	45.074569	GS00703
Sub-slab Soil Vapor Sample Locations	SS-12-2	497451.836	4991232.129	-93.032373	45.074546	GS00703
Sub-slab Soil Vapor Sample Locations	SS-13	497444.2503	4991231.565	-93.032469	45.074541	GS00704
Sub-slab Soil Vapor Sample Locations	SS-13-2	497445.867	4991228.945	-93.032449	45.074518	GS00704
Sub-slab Soil Vapor Sample Locations	SS-14	497440.1416	4991235.838	-93.032521	45.07458	GS00706
Sub-slab Soil Vapor Sample Locations	SS-14-2	497441.7906	4991233.458	-93.0325	45.074558	GS00706
Sub-slab Soil Vapor Sample Locations	SS-15	497444.9077	4991244.548	-93.032461	45.074658	GS00705
Sub-slab Soil Vapor Sample Locations	SS-15-2	497446.2616	4991242.056	-93.032444	45.074636	GS00705
Sub-slab Soil Vapor Sample Locations	SS-16	497467.0946	4991215.295	-93.032179	45.074395	GS00707
Sub-slab Soil Vapor Sample Locations	SS-17	497465.2867	4991212.501	-93.032202	45.07437	GS00708
Sub-slab Soil Vapor Sample Locations	SS-18	497483.3553	4991207.689	-93.031972	45.074327	GS00709
Sub-slab Soil Vapor Sample Locations	SS-19	497479.2563	4991200.832	-93.032024	45.074265	GS00710
Sub-slab Soil Vapor Sample Locations	SS-19-2	497481.6265	4991198.572	-93.031994	45.074244	GS00710
Sub-slab Soil Vapor Sample Locations	SS-20	497479.585	4991196.066	-93.03202	45.074222	GS00711
Sub-slab Soil Vapor Sample Locations	SS-21	497457.2337	4991215.623	-93.032304	45.074398	GS00713
Sub-slab Soil Vapor Sample Locations	SS-22	497438.4981	4991221.869	-93.032542	45.074454	GS00715
Sub-slab Soil Vapor Sample Locations	SS-23	497452.3033	4991226.635	-93.032367	45.074497	GS00714
Sub-slab Soil Vapor Sample Locations	SS-24	497509.1675	4991238.632	-93.031645	45.074605	GS00716
Sub-slab Soil Vapor Sample Locations	SS-25	497513.1118	4991245.699	-93.031594	45.074669	GS00717
Sub-slab Soil Vapor Sample Locations	SS-26	497480.935	4991249.85	-93.032003	45.074706	GS00718
Sub-slab Soil Vapor Sample Locations	SS-27	497480.303	4991231.73	-93.032011	45.074543	GS00719
Sub-slab Soil Vapor Sample Locations	SS-28	497470.7165	4991271.867	-93.032133	45.074904	GS00720
Sub-slab Soil Vapor Sample Locations	SS-29	497471.77	4991288.301	-93.03212	45.075052	GS00762
Sub-slab Soil Vapor Sample Locations	SS-30	497461.4461	4991284.403	-93.032251	45.075017	GS00763
Sub-slab Soil Vapor Sample Locations	SS-31	497457.7591	4991272.183	-93.032298	45.074907	GS00764
Sub-slab Soil Vapor Sample Locations	SS-32	497440.6931	4991285.772	-93.032515	45.075029	GS00765
Sub-slab Soil Vapor Sample Locations	SS-33	497440.1664	4991272.604	-93.032521	45.074911	GS00766
Sub-slab Soil Vapor Sample Locations	SS-34	497450.9116	4991257.013	-93.032385	45.07477	GS00767
Sub-slab Soil Vapor Sample Locations	SS-35	497431.1067	4991261.332	-93.032636	45.074809	GS00768
Sub-slab Soil Vapor Sample Locations	SS-36	497460.0767	4991203.814	-93.032268	45.074292	GS00769
Sub-slab Soil Vapor Sample Locations	SS-37	497493.2604	4991207.711	-93.031846	45.074327	GS00770
Sub-slab Soil Vapor Sample Locations	SS-38	497530.2702	4991236.097	-93.031376	45.074582	GS00872
Background Ambient Air Sample Locations	AA-1	497514.9196	4991252.437	-93.031571	45.074729	GS00691
Background Ambient Air Sample Locations	AA-2	497457.2337	4991170.263	-93.032304	45.07399	GS00693
Crawl Space Air Sample Location	AA-3	497456.905	4991179.796	-93.032308	45.074075	GS00692
Crawl Space Air Sample Location	AA-4	497458.5485	4991189.492	-93.032287	45.074163	GS00694
Crawl Space Air Sample Location	AA-5	497466.2728	4991188.999	-93.032189	45.074158	GS00695
Crawl Space Air Sample Location	AA-6	497466.4372	4991178.481	-93.032187	45.074064	GS00696
Crawl Space Air Sample Location	AA-7	497473.9971	4991177.166	-93.032091	45.074052	GS00697
Crawl Space Air Sample Location	AA-8	497474.4902	4991187.684	-93.032085	45.074146	GS00698
Background Ambient Air Sample Locations	AA-9	497425.5867	4991240.993	-93.032706	45.074626	GS00841
Background Ambient Air Sample Locations	AA-9(b)	497437.9619	4991301.693	-93.032549	45.075173	GS00868
Background Ambient Air Sample Locations	AA-10	497535.6923	4991251.891	-93.031308	45.074725	GS00869
Background Ambient Air Sample Locations	AA-11	497449.3079	4991165.443	-93.032405	45.073946	GS00870
Indoor Air Sample Location	IA-1	497432.2529	4991222.526	-93.032622	45.07446	GS00859
Indoor Air Sample Location	IA-2	497431.1067	4991261.332	-93.032636	45.074809	GS00860
Indoor Air Sample Location	IA-3	497480.935	4991249.85	-93.032003	45.074706	GS00861
Indoor Air Sample Location	IA-4	497444.9077	4991244.548	-93.032461	45.074658	GS00842
Indoor Air Sample Location	IA-5	497440.1416	4991235.838	-93.032521	45.07458	GS00843
Indoor Air Sample Location	IA-6	497444.2503	4991231.565	-93.032469	45.074541	GS00844
Indoor Air Sample Location	IA-7	497450.1668	4991234.688	-93.032394	45.074569	GS00845
Indoor Air Sample Location	IA-8	497458.7128	4991233.702	-93.032285	45.074561	GS00846
Indoor Air Sample Location	IA-9	497464.958	4991238.796	-93.032206	45.074607	GS00847
Indoor Air Sample Location	IA-10	497479.2563	4991200.832	-93.032024	45.074265	GS00848
Indoor Air Sample Location	IA-11	497447.3115	4991254.393	-93.03243	45.074747	GS00862
Indoor Air Sample Location	IA-12	497530.227	4991235.995	-93.031377	45.074582	GS00863
Indoor Air Sample Location	IA-13	497491.3261	4991206.506	-93.031871	45.074316	GS00865
Indoor Air Sample Location	IA-14	497461.4461	4991284.403	-93.032251	45.075017	GS00866
Indoor Air Sample Location	IA-15	497460.0767	4991203.814	-93.032268	45.074292	GS00867

Table 2
Remedial Investigation
Boring Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Investigation	Boring ID	Date Completed	Depth (feet)	Soil LUI #	Soil Sample Intervals (feet)	Analysis	Groundwater LUI #	Groundwater Sample Intervals (feet)	Analysis
RI	GP-1	6/14/2019	36	2001004917	0-1	Pb	2001004837	7-11	VOC (modified list)
					2-4	Pb		16-18	VOC (modified list)
					8-10	VOC		23-25	VOC (modified list)
					30-32	VOC			
	GP-2	6/17/2019	28	2001004918	0-1	Pb	2001004838	7-10	VOC (modified list)
					5-7	VOC		15-17	VOC (modified list)
					22-24	VOC		22-24	VOC (modified list)
	GP-3	6/17/2019	28	2001004919	0-1	Pb	2001004839	8-11	VOC (modified list)
					0-2	VOC		16-18	VOC (modified list)
					26-28	VOC		23-25	VOC (modified list)
	GP-4	6/17/2019	32	2001004920	0-1	Pb	2001004840	5-7	VOC (modified list)
					4-6	VOC		12-14	VOC (modified list)
								19-21	VOC (modified list)
								26-28	VOC (modified list)
	GP-5	6/17/2019	32	2001004921	0-1	Pb	2001004841	NA	NA
					2-4	VOC			
	GP-6	6/18/2019	36	2001004922	0-1	Pb	2001004842	7-10	MS/MSD VOC (modified list)
					2-4	Pb		15-17	VOC (modified list)
					4-6	VOC		22-24	VOC (modified list)
	GP-7	6/18/2019	24	2001004923	0-1	Pb	2001004843	6-9 & DUP061819	VOC (modified list)
					2-4	VOC		14-16	VOC (modified list)
					10-12	VOC		21-23	VOC (modified list)
	GP-8	6/18/2019	28	2001004924	0-1	Pb	2001004844	5-7	VOC (modified list)
					6-8	VOC		12-14	VOC (modified list)
								19-21	VOC (modified list)
	GP-9	6/18/2019	24	2001004925	0-1	Pb	2001004845	6-8	VOC (modified list)
					5-7	Pb		13-15	VOC (modified list)
					6-8	VOC		20-22 & 061819-B	VOC (modified list)
	GP-10	6/19/2019	24	2001004926	0-1	Pb	2001004846	0-5	VOC (modified list)
					1-3	VOC		10-12	VOC (modified list)
								17-19	VOC (modified list)
	GP-11	6/21/2019	24	2001004934	0-1	Pb	2001004848	5-10	VOC (modified list)
					6-8	VOC		15-17	VOC (modified list)
	GP-12	6/21/2019	28	2001004935	0-1	Pb	2001004849	7-10	VOC (modified list)
					4-6	VOC		15-17	VOC (modified list)
					6-8	Pb		22-24	VOC (modified list)
					8-9.5	VOC			
	GP-13	6/21/2019	28	2001004936	0-1	Pb	2001004850	7-10	VOC (modified list)
								15-17	
								22-24	
	GP-14	6/24/2019	36	2001004937	0-1	Pb	2001004851	9-14	VOC (modified list)
					10-12	VOC		19-21	VOC (modified list)
								26-28	VOC (modified list)
	GP-15	6/24/2019	40	2001004938	0-1	Pb	2001004852	8-13	VOC (modified list)
					2-4	VOC		18-20	MS/MSD VOC (modified list)
								25-27	VOC (modified list)
								32-34	VOC (modified list)
	GP-16	6/24/2019	44	2001004939	0-1	Pb	2001004853	10-15	VOC (modified list)
					2-4	VOC		20-22	VOC (modified list)
								27-29	VOC (modified list)
								34-36 & DUP062619-A	VOC (modified list)
	GP-17	6/26/2019	36	2001004940	0-1	Pb	2001004854	7-12	VOC (modified list)
					8-10	VOC		17-19	VOC (modified list)
					28-30	VOC		24-26	VOC (modified list)
	GP-18	6/26/2019	44	2001004941	0-1	Pb	2001004855	10-15 & 062619-B	VOC (modified list)
					4-6	VOC		20-22	VOC (modified list)
					6-8	Pb		34-38	VOC (modified list)
					41-43	VOC			
	HA-1	1/6/1900	6/19/2019	2001004927	0-1	Pb, VOC	2001004847	1-6	VOC (modified list)
	HA-2	1/3/1900	6/19/2019	2001004928	0-1	Pb, VOC	NA	NA	NA
	HA-3	1/3/1900	6/19/2019	2001004929	0-1	Pb, VOC	NA	NA	NA
	HA-4	1/3/1900	6/19/2019	2001004930	0-1	Pb, VOC	NA	NA	NA
	HA-5	1/3/1900	6/19/2019	2001004931	0-1	Pb, VOC	NA	NA	NA
	HA-6	1/3/1900	6/19/2019	2001004932	0-1	Pb, VOC	NA	NA	NA
	HA-7	1/3/1900	6/19/2019	2001004933	0-1	Pb, VOC	NA	NA	NA

Table 2
Remedial Investigation
Boring Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

SRI Exterior	GP-19	8/28/2019	30	2001004942	NA	NA	2001004856	4-7	VOC
								12-14 & DUP082819	VOC
								19-21	VOC
	GP-20	8/29/2019	36	2001004943	NA	NA	2001004857	6-10	VOC
								15-17	VOC
								22-24	VOC
								29-31	VOC
								34-36	VOC
	GP-21	8/29/2019	35	2001004944	NA	NA	2001004858	9-12	VOC
								17-19	VOC
								24-26	VOC
								31-34	VOC
	GP-22	8/30/2019	30	2001004945	NA	NA	2001004859	10-14	VOC
								19-21 & DUP083019	VOC
								24-28	VOC
	GP-23	12/3/2019	45	2001004953	0-1	Pb	2001004867	6-10	VOC, 1,4-dioxane
					5-7.5	VOC		15-17	VOC, 1,4-dioxane
								22-24	VOC, 1,4-dioxane
								29-31	VOC, 1,4-dioxane
								36-38	VOC, 1,4-dioxane
	GP-24	12/3/2019	50	2001004954	0-1	Pb	2001004868	8-12	VOC, 1,4-dioxane
					5-7.5	VOC, Pb & Pb MS/MSD		17-19 & DUP120419-A	VOC, 1,4-dioxane
								24-26	VOC, 1,4-dioxane
								31-33	VOC, 1,4-dioxane
								38-40	VOC, 1,4-dioxane
								45-47	VOC, 1,4-dioxane
	GP-25	12/4/2019	55	2001004955	0-1	Pb	2001004869	7-11	VOC, 1,4-dioxane
					0-2.5	VOC		16-18	VOC, 1,4-dioxane
					7.5-10	VOC		23-25	VOC, 1,4-dioxane
								30-32	VOC, 1,4-dioxane
								37-39	VOC, 1,4-dioxane
								44-46	MS/MSD VOC, 1,4-dioxane
	GP-26	12/5/2019	45	2001004956	0-1	Pb	2001004870	6-10	VOC, 1,4-dioxane
					5-7	VOC & Pb		15-17 & DUP120519-A	VOC, 1,4-dioxane
					12.5-15	VOC		22-24	VOC, 1,4-dioxane
								29-31	VOC, 1,4-dioxane
								36-38	VOC, 1,4-dioxane
								41-43	VOC, 1,4-dioxane
	GP-27	12/9/2019	45	2001004957	0-1	Pb	2001004871	8-12	VOC, 1,4-dioxane
					5-7.5	VOC & MS/MSD		17-19	VOC, 1,4-dioxane
								24-26	VOC, 1,4-dioxane
								31-33	VOC, 1,4-dioxane
								38-40	VOC, 1,4-dioxane
								44-46	VOC, 1,4-dioxane
	GP-28	12/6/2019	55	2001004958	0-1 & DUP120619-A	Pb	2001004872	2-6	VOC, 1,4-dioxane
					2.5-4	VOC MS/MSD		11-13	VOC, 1,4-dioxane
								18-20	VOC, 1,4-dioxane
								25-27	VOC, 1,4-dioxane
								30-34	VOC, 1,4-dioxane
								39-41 & DUP120619-B	VOC, 1,4-dioxane
								46-48	VOC, 1,4-dioxane
	GP-29	12/10/2019	45	2001004959	0-1	Pb	2001004873	2-6	VOC, 1,4-dioxane
					1-2	VOC		11-13	VOC, 1,4-dioxane
								18-20	VOC, 1,4-dioxane
								25-27	VOC, 1,4-dioxane
								32-34	VOC, 1,4-dioxane
								38-41	VOC, 1,4-dioxane
	GP-30	12/11/2019	45	2001004960	0-1	Pb	2001004874	1-3	VOC, 1,4-dioxane
					2-4	VOC		8-10	VOC, 1,4-dioxane
					25-27	VOC		15-17	VOC, 1,4-dioxane
								29-31	VOC, 1,4-dioxane
								36-38	VOC, 1,4-dioxane
	GP-31	12/12/2019	25	2001004961	0-1	Pb & MS/MSD	2001004875	2-4	VOC, 1,4-dioxane
					1-3	VOC		9-11 & DUP121219	VOC, 1,4-dioxane
								16-18	VOC, 1,4-dioxane
	GP-32	12/12/2019	30	2001004962	0-1	Pb	2001004876	1-3	VOC, 1,4-dioxane
					20-22	VOC		8-10	VOC, 1,4-dioxane
								15-17	VOC, 1,4-dioxane
								21-24	VOC, 1,4-dioxane
	GP-33	12/13/2019	40	2001004963	0-1	Pb	2001004877	6-10	VOC, 1,4-dioxane
					4-5	VOC		15-17	VOC, 1,4-dioxane
								21-24	MS/MSD VOC, 1,4-dioxane
								29-31	VOC, 1,4-dioxane

Table 2
Remedial Investigation
Boring Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

SRI Interior	SB-1	10/4/2019	10	2001004946	0.5-1	Pb	2001004860	4-9	VOC, 1,4-dioxane, dissolved lead
					6-6.5	VOC			
	SB-2	10/4/2019	10	2001004947	0.5-1	Pb	2001004861	5-10	VOC, 1,4-dioxane, dissolved lead
					6-8	VOC			
	SB-3	10/4/2019	12	2001004948	0.5-1	Pb	2001004862	6-11	VOC, 1,4-dioxane, dissolved lead
					6-8	VOC			
	SB-4	10/4/2019	12	2001004949	0-1	Pb	2001004863	6-11 & DUP100419-A	VOC, 1,4-dioxane, dissolved lead
					6-8	VOC			
	SB-5	10/4/2019	12	2001004950	0-1' & DUP100419-B	Pb	2001004864	6-11	VOC, 1,4-dioxane, dissolved lead
					6-8	VOC			
	SB-6	10/4/2019	12	2001004951	0-1	Pb	2001004865	6-11	VOC, 1,4-dioxane, dissolved lead
					6-8 & DUP100419-C	VOC			
	SB-7	10/7/2019	12	2001004952	0-1	Pb MS/MSD	2001004866	6-11	MS/MSD VOC, 1,4-dioxane, dissolved lead
					8-10	VOC MS/MSD			
	SB-8	12/2/2019	30	2001004964	0-1	Pb MS/MSD	2001004878	7-10	VOC, 1,4-dioxane
					5.5-7.5	VOC		15-17 & DUP120219	VOC, 1,4-dioxane
					25-27	VOC		22-24	VOC, 1,4-dioxane
	SB-9	12/3/2019	35	2001004965	0-1	Pb	2001004879	11-14	VOC, 1,4-dioxane
					8-10	VOC MS/MSD		16-18	VOC, 1,4-dioxane
					30-32	VOC		23-25	MS/MSD VOC, 1,4-dioxane
	SB-10	12/3/2019	30	2001004966	5	Pb	2001004880	9-12	VOC, 1,4-dioxane
					8-10	VOC		17-19	VOC, 1,4-dioxane
								23-25 & DUP120319	VOC, 1,4-dioxane
	SB-11	12/4/2019	35	2001005475	0-1	Pb	2001004881	10-12	VOC, 1,4-dioxane
					8-10	VOC		17-19	VOC, 1,4-dioxane
					15-17	VOC		24-26	VOC, 1,4-dioxane
	SB-12	12/4/2019	30	2001005476	0-1	Pb	2001004882	10-13	VOC, 1,4-dioxane
					8-10	VOC MS/MSD		18-20	VOC, 1,4-dioxane
								21-24	VOC, 1,4-dioxane
	SB-13	12/5/2019	40	2001005477	0-1	Pb	2001004883	10-13	VOC, 1,4-dioxane
					11-13	VOC		18-20	VOC, 1,4-dioxane
					16-18	VOC		34-36	VOC, 1,4-dioxane
	SB-14	12/5/2019	30	2001005478	0-1	Pb	2001004884	10-13	VOC, 1,4-dioxane
					10-12.5	VOC			
	SB-15	12/6/2019	35	2001005479	0-1	Pb	2001004885	8-11	VOC, 1,4-dioxane
					12.5-15	VOC		16-18	VOC, 1,4-dioxane
								23-25	MS/MSD VOC, 1,4-dioxane
	SB-16	12/9/2019	35	2001005480	0-1	Pb	2001004886	10-13	VOC, 1,4-dioxane
					12.5-15	VOC		18-20	VOC, 1,4-dioxane
								25-27	VOC, 1,4-dioxane
	SB-17	12/10/2019	13	2001005481	0-1	Pb	2001004887	7-13	VOC, 1,4-dioxane
					11-13	VOC			

Table 3
Soil Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. 2606-0017
February 2020

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, Date Collected & MPCA LUI #																		
			GP-1 (0-1')	GP-1 (2-4')	GP-1 (8-10')	GP-1 (30-32')	GP-2 (0-1)	GP-2 (5-7)	GP-2 (22-24)	GP-3 (0-1)	GP-3 (0-2)	GP-3 (26-28)	GP-4 (0-1)	GP-4 (4-6)	GP-5 (0-1)	GP-5 (2-4)	GP-6 (0-1)	GP-6 (2-4)	GP-6 (4-6)	GP-7 (0-1)	GP-7 (2-4)	GP-7 (10-12)
			06/14/2019	06/14/2019	06/14/2019	06/14/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019
			2001004917	2001004917	2001004917	2001004917	2001004918	2001004918	2001004918	2001004919	2001004919	2001004919	2001004920	2001004920	2001004921	2001004921	2001004922	2001004922	2001004922	2001004923	2001004923	2001004923
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																						
1,1,1-Trichloroethane	472	55.7	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
1,1-Dichloroethane	55	.41	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
1,1-Dichloroethene	60	1.4	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
1,2-Dichloroethane	6	0.0038	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
Chloroethane	3000	NE	NS	NS	<0.302	<0.296	NS	<0.171 UJ	<0.207 UJ	NS	<0.275 UJ	<0.273 UJ	NS	<0.231 UJ	NS	<0.178 UJ	NS	NS	<0.251 UJ	NS	<0.219 UJ	<0.256 UJ
Ethylbenzene	200	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	131	0.042	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
Toluene	305	2.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	46	0.0023	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
Vinyl chloride	2.2	0.0014	NS	NS	<0.302	<0.296	NS	<0.171 UJ	<0.207 UJ	NS	<0.275 UJ	<0.273 UJ	NS	<0.231 UJ	NS	<0.178 UJ	NS	NS	<0.251 UJ	NS	<0.219 UJ	<0.256 UJ
cis-1,2-Dichloroethene	22	0.21	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
p-Isopropyltoluene	N/A	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	33	0.42	NS	NS	<0.302	<0.296	NS	<0.171	<0.207	NS	<0.275	<0.273	NS	<0.231	NS	<0.178	NS	NS	<0.251	NS	<0.219	<0.256
Lead EPA Method 6020B and/or 6010D - reported in mg/kg																						
Lead	700	2700	**45.1**	**56.4**	NS	NS	**23.8**	NS	NS	**47.9**	NS	NS	**11.5**	NS	**57.4**	NS	**247**	**263**	NS	**69.6**	NS	NS

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, Date Collected & MPCA LUI #																		
			GP-8 (0-1)	GP-8 (6-8)	GP-9 (0-1)	GP-9 (5-7)	GP-9 (6-8)	GP-10 (0-1)	GP-10 (1-3)	GP-11 (0-1)	GP-11 (6-8)	GP-12 (0-1)	GP-12 (4-6)	GP-12 (6-8)	GP-12 (8-9.5)	GP-13 (0-1)	GP-14 (0-1)	GP-14 (10-12)	GP-15 (0-1)	GP-15 (2-4)	GP-16 (0-1)	GP-16 (2-4)
			06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/19/2019	06/19/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019
			2001004924	2001004924	2001004925	2001004925	2001004925	2001004926	2001004926	2001004934	2001004934	2001004935	2001004935	2001004935	2001004935	2001004936	2001004937	2001004937	2001004938	2001004938	2001004939	2001004939
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																						
1,1,1-Trichloroethane	472	55.7	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
1,1-Dichloroethane	55	.41	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
1,1-Dichloroethene	60	1.4	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
1,2-Dichloroethane	6	0.0038	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
Chloroethane	3000	NE	NS	<0.256 UJ	NS	NS	<0.189 UJ	NS	<0.174 UJ	NS	<0.153 UJ	NS	<0.230 UJ	NS	<0.277 UJ	NS	NS	<0.158	NS	<0.123	NS	<0.119
Ethylbenzene	200	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	131	0.042	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	**0.269**
Toluene	305	2.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	46	0.0023	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	**0.826**
Vinyl chloride	2.2	0.0014	NS	<0.256 UJ	NS	NS	<0.189 UJ	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
cis-1,2-Dichloroethene	22	0.21	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
p-Isopropyltoluene	N/A	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	33	0.42	NS	<0.256	NS	NS	<0.189	NS	<0.174	NS	<0.153	NS	<0.230	NS	<0.277	NS	NS	<0.158	NS	<0.123	NS	<0.119
Lead EPA Method 6020B and/or 6010D - reported in mg/kg																						
Lead	700	2700	**25.8**	NS	**7.22**	**28.0**	NS	**3.51**	NS	**157 J**	NS	**147**	NS	**17.5**	NS	**158**	**473 J+**	NS	**174**	NS	**719**	NS

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, Date Collected & MPCA LUI #													
			GP-17 (0-1)	GP-17 (8-10)	GP-17 (28-30)	GP-18 (0-1)	GP-18 (4-6)	GP-18 (6-8)	GP-18 (41-43)	HA-1 (0-1)	HA-2 (0-1)	HA-3 (0-1)	HA-4 (0-1)	HA-5 (0-1)	HA-6 (0-0.5)	HA-7 (0-0.5)
			06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019
			2001004940	2001004940	2001004940	2001004941	2001004941	2001004941	2001004941	2001004927	2001004928	2001004929	2001004930	2001004931	2001004932	2001004933
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																
1,1,1-Trichloroethane	472	55.7	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
1,1-Dichloroethane	55	.41	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
1,1-Dichloroethene	60	1.4	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
1,2-Dichloroethane	6	0.0038	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
Chloroethane	3000	NE	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63 UJ	<1.78 UJ	<0.957 UJ	<1.66 UJ	<2.28 UJ	<0.301 UJ	<0.236 UJ
Ethylbenzene	200	1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	131	0.042	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
Toluene	305	2.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	46	0.0023	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
Vinyl chloride	2.2	0.0014	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
cis-1,2-Dichloroethene	22	0.21	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
p-Isopropyltoluene	N/A	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	33	0.42	NS	<0.148	<0.147	NS	<0.186	NS	<0.205	<1.63	<1.78	<0.957	<1.66	<2.28	<0.301	<0.236
Lead EPA Method 6020B and/or 6010D - reported in mg/kg																
Lead	700	2700	**140 J**	NS	NS	**776**	NS	**13.8**	NS	**982**	**566**	**498**	**563**	**979**	**60.1**	**71.1**

Notes:
NE = Not Established
NS = Not Sampled
-- = Not Sampled
< = Less than the laboratory reporting limit
Bold = analyte detected above the laboratory reporting limit but less than regulatory limit
Industrial SRV exceedance
SLV exceedance
mg/kg = milligrams per kilogram (parts per million)
MPCA = Minnesota Pollution Control Agency
SRV = Soil Reference Value
SLV = Soil Leaching Value

Qualifiers (US EPA Qualifier Code):
UJ = Samples marked with this flag were non-detect but contained a representative quality control sample with a relative percent difference (RPD)outside the quality control range, or percent recovery of the analyte was below the QC limits; The associated parent sample is therefore flagged as estimated even though the results were below the laboratory reporting limits.
J = Analyte was positively identified in the sample, but the concentration is an estimated (approximate) value; Samples marked with this flag were designated as estimated based on an associated MS/MSD QC sample that contained lead recovery outside of the QC limits; As a result, the parent sample is considered estimated.
This flag was also added to samples where the serial dilution exceeded a percentage with the result greater than 50x the MDL; This value is considered to be estimated also.
J+ = Analyte was positively identified in the sample, but the concentration is believed to be estimated with a potential positive bias; Samples with this flag had an associated MS/MS sample where the RPD was outside the QC limits, resulting in a parent sample detection that is considered estimated with a potential positive bias.

Table 3
Soil Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. 2606-0017
February 2020

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, LUI and Date Collected																	
			GP-23 (0-1)	GP-23 (5-7.5)	GP-24 (0-1)	GP-24 (5-7.5)	GP-25 (0-1)	GP-25 (0-2.5)	GP-25 (7.5-10)	GP-26 (0-1)	GP-26 (5-7)	GP-26 (12.5-15)	GP-27 (0-1)	GP-27 (5-7.5)	GP-28 (0-1)	DUP 120619-A	GP-28 (2.5-4)	GP-29 (0-1)	GP-29 (1-2)	GP-30 (0-1)	GP-30 (2-4)	GP-30 (25-27)
			12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/9/2019	12/9/2019	12/6/2019	12/6/2019	12/6/2019	12/10/2019	12/10/2019	12/11/2019	12/11/2019	12/11/2019
			2001004953	2001004953	2001004954	2001004954	2001004955	2001004955	2001004955	2001004956	2001004956	2001004956	2001004957	2001004957	2001004958	2001004958	2001004958	2001004959	2001004959	2001004960	2001004960	2001004960
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																						
1,1,1-Trichloroethane	472	55.7	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
1,1-Dichloroethane	55	.41	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.23	<0.26
1,1-Dichloroethene	60	1.4	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
1,2-Dichloroethane	6	0.0038	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
Chloroethane	3000	NE	NS	<0.286	NS	<0.275	NS	<0.54 J-	<0.59 J-	<0.58	<0.71	<0.60	NS	<0.61	NS	NS	<0.58	NS	<0.58	NS	<0.58	<0.65
Ethylbenzene	200	1.1	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	**0.30**	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
Tetrachloroethene	131	0.042	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
Toluene	305	2.5	NS	<0.286	NS	<0.275	NS	<0.054	<0.059	<0.058	**5.8**	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
Trichloroethene	46	0.0023	NS	<0.0572	NS	<0.0551	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
Vinyl chloride	2.2	0.0014	NS	<0.143	NS	<0.138	NS	<0.022	<0.024	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
cis-1,2-Dichloroethene	22	0.21	NS	<0.143	NS	<0.138	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
p-Isopropyltoluene	N/A	N/A	NS	<0.286	NS	<0.275	NS	<0.054	<0.059	<0.058	**23.6**	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.058	<0.065
trans-1,2-Dichloroethene	33	0.42	NS	<0.286	NS	<0.275	NS	<0.054	<0.059	<0.058	<0.071	<0.060	NS	<0.061	NS	NS	<0.058	NS	<0.058	NS	<0.23	<0.26
Lead EPA Method 6020B and/or 6010D - reported in mg/kg																						
Lead	700	2700	**156**	NS	**79.6**	**2.1**	**9.8**	NS	NS	**54.5**	**32.7**	NS	**122**	NS	**12.8 J**	**26.4 J**	NS	**84.1**	NS	**2.1**	NS	NS

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, LUI and Date Collected																			
			GP-31 (0-1)	GP-31 (1-3)	GP-32 (0-1)	GP-32 (20-22)	GP-33 (0-1)	GP-33 (4-5)	SB-1 (0.5-1.5)	SB-1 (6-6.5)	SB-2 (0.5-1)	SB-2 (6-8)	SB-3 (0.5-1)	SB-3 (6-8)	SB-4 (0-1)	SB-4 (6-8')	SB-5 (0-1)	DUP100419-B	SB-5 (6-8)	SB-6 (0-1)	SB-6 (6-8)	DUP100419-C
			12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/13/2019	12/13/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019
			2001004961	2001004961	2001004962	2001004962	2001004963	2001004963	2001004946	2001004946	2001004947	2001004947	2001004948	2001004948	2001004949	2001004949	2001004950	Blind Dup SB-5 (0-1)	2001004950	2001004951	2001004951	Blind Dup SB-6 (6-8)
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																						
1,1,1-Trichloroethane	472	55.7	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
1,1-Dichloroethane	55	.41	NS	<0.068	NS	<0.062	NS	<0.29	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
1,1-Dichloroethene	60	1.4	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
1,2-Dichloroethane	6	0.0038	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
Chloroethane	3000	NE	NS	<0.68	NS	<0.62	NS	<0.73	NS	<0.51 J-	NS	<0.59 J-	NS	<0.58 J-	NS	<0.51 J-	NS	NS	<0.59 J-	<0.51 J-	<0.58 J-	<0.58 J-
Ethylbenzene	200	1.1	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
Tetrachloroethene	131	0.042	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
Toluene	305	2.5	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
Trichloroethene	46	0.0023	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	**0.12**	<0.058	<0.058
Vinyl chloride	2.2	0.0014	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.020	NS	<0.024	NS	<0.023	NS	<0.020	NS	NS	<0.023	<0.021	<0.023	<0.023
cis-1,2-Dichloroethene	22	0.21	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
p-Isopropyltoluene	N/A	N/A	NS	<0.068	NS	<0.062	NS	<0.073	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	<0.051	<0.058	<0.058
trans-1,2-Dichloroethene	33	0.42	NS	<0.068	NS	<0.062	NS	<0.29	NS	<0.051	NS	<0.059	NS	<0.058	NS	<0.051	NS	NS	<0.059	**0.11**	<0.058	<0.058
Lead EPA Method 6020B and/or 6010D - reported in mg/kg																						
Lead	700	2700	**164 J+**	NS	**2.5**	NS	**81.0 J-**	NS	**302 J**	NS	**17.3**	NS	**51.9**	NS	**303**	NS	**1860 J**	**5800 J**	NS	**13600**	NS	NS

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, LUI and Date Collected																			
			SB-7 (0-1)	SB-7 (8-10)	SB-8 (0-1)	SB-8 (5.5-7.5)	SB-8 (25-27)	SB-9 (0-1)	SB-9 (8-10)	SB-9 (30-32)	SB-10 (5)	SB-10 (8-10)	SB-11 (0-1)	SB-11 (8-10)	SB-11 (15-17)	SB-12 (0-1)	SB-12 (8-10)	SB-13 (0-1)	SB-13 (11-13)	SB-13 (16-18)	SB-14 (0-1)	SB-14 (10-12.5)
			10/7/2019	10/8/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
			2001004952	2001004952	2001004964	2001004964	2001004964	2001004965	2001004965	2001004965	2001004966	2001004966	2001005475	2001005475	2001005475	2001005476	2001005476	2001005477	2001005477	2001005477	2001005478	2001005478
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																						
1,1,1-Trichloroethane	472	55.7	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
1,1-Dichloroethane	55	.41	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
1,1-Dichloroethene	60	1.4	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
1,2-Dichloroethane	6	0.0038	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
Chloroethane	3000	NE	NS	<0.60	NS	<0.286	<0.292	NS	<0.276	<0.326	NS	<0.299	NS	<0.59	<0.59	NS	<0.60	NS	<0.56	<0.66	NS	<0.61
Ethylbenzene	200	1.1	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
Tetrachloroethene	131	0.042	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
Toluene	305	2.5	NS	<0.060	NS	<0.286	<0.292	NS	<0.276	<0.326	NS	<0.299	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
Trichloroethene	46	0.0023	NS	<0.060	NS	<0.0571	<0.0585	NS	<0.0552	<0.0651	NS	<0.0598	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
Vinyl chloride	2.2	0.0014	NS	<0.024	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059 J-	<0.059 J-	NS	<0.060 J-	NS	<0.056	<0.066	NS	<0.061
cis-1,2-Dichloroethene	22	0.21	NS	<0.060	NS	<0.143	<0.146	NS	<0.138	<0.163	NS	<0.149	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
p-Isopropyltoluene	N/A	N/A	NS	<0.060	NS	<0.286	<0.292	NS	<0.276	<0.326	NS	<0.299	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
trans-1,2-Dichloroethene	33	0.42	NS	<0.060	NS	<0.286	<0.292	NS	<0.276	<0.326	NS	<0.299	NS	<0.059	<0.059	NS	<0.060	NS	<0.056	<0.066	NS	<0.061
Lead EPA Method 6020B and/or 6010D - reported in mg/kg																						
Lead	700	2700	**63.7 J+**	NS	**103 J**	NS	NS	**34.0**	NS	NS	**61.1**	NS	**1060**	NS	NS	**8.9**	NS	**258**	NS	NS	**23.1**	NS

Notes:
NE = Not Established
NS = Not Sampled
-- = Not Sampled
< = Less than the laboratory reporting limit
Bold = analyte detected above the laboratory reporting limit but less than regulatory limit
Industrial SRV exceedance
SLV exceedance
mg/kg = milligrams per kilogram (parts per million)
MPCA = Minnesota Pollution Control Agency
SRV = Soil Reference Value
SLV = Soil Leaching Value

Qualifiers (US EPA Qualifier Code):
UJ = Samples marked with this flag were non-detect but contained a representative quality control sample with a relative percent difference (RPD)outside the quality control range, or percent recovery of the analyte was below the QC limits; The associated parent sample is therefore flagged as estimated even though the results were below the laboratory reporting limits.
J = Analyte was positively identified in the sample, but the concentration is an estimated (approximate) value; Samples marked with this flag were designated as estimated based on an associated MS/MSD QC sample that contained lead recovery outside of the QC limits; As a result, the parent sample is considered estimated. This flag was also added to samples where the serial dilution exceeded a percentage with the result greater than 50x the MDL; This value is considered to be estimated also.
J+ = Analyte was positively identified in the sample, but the concentration is believed to be estimated with a potential positive bias; Samples with this flag had an associated MS/MS sample where the RPD was outside the QC limits, resulting in a parent sample detection that is considered estimated with a potential positive bias.

Table 3
Soil Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. 2606-0017
February 2020

Compound/Parameter	MPCA Tier 2 Industrial SRVs 2009	MPCA SLVs 2013	Sample ID, LUI and Date Collected					
			SB-15 (0-1)	SB-15 (12.5-15)	SB-16 (0-1)	SB-16 (12.5-15)	SB-17 (0-1)	SB-17 (11-13)
			12/6/2019	12/6/2019	12/9/2019	12/9/2019	12/10/2019	12/10/2019
			2001005479	2001005479	2001005480	2001005480	2001005481	2001005481
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg								
1,1,1-Trichloroethane	472	55.7	NS	<0.059	NS	<0.061	NS	<0.055
1,1-Dichloroethane	55	.41	NS	<0.059	NS	<0.061	NS	<0.055
1,1-Dichloroethene	60	1.4	NS	<0.059	NS	<0.061	NS	<0.055
1,2-Dichloroethane	6	0.0038	NS	<0.059	NS	<0.061	NS	<0.055
Chloroethane	3000	NE	NS	<0.59	NS	<0.61	NS	<0.55
Ethylbenzene	200	1.1	NS	<0.059	NS	<0.061	NS	<0.055
Tetrachloroethene	131	0.042	NS	<0.059	NS	<0.061	NS	<0.055
Toluene	305	2.5	NS	<0.059	NS	<0.061	NS	<0.055
Trichloroethene	46	0.0023	NS	<0.059	NS	<0.061	NS	<0.055
Vinyl chloride	2.2	0.0014	NS	<0.059	NS	<0.061	NS	<0.055
cis-1,2-Dichloroethene	22	0.21	NS	<0.059	NS	<0.061	NS	<0.055
p-Isopropyltoluene	N/A	N/A	NS	<0.059	NS	<0.061	NS	<0.055
trans-1,2-Dichloroethene	33	0.42	NS	<0.059	NS	<0.061	NS	<0.055
Lead EPA Method 6020B and/or 6010D - reported in mg/kg								
Lead	700	2700	**3.9**	NS	**33.5**	NS	**70.4**	NS

Notes:

NE = Not Established

-- = Not Sampled

< = Less than the laboratory reporting limit

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

Industrial SRV exceedance

SLV exceedance

mg/kg = milligrams per kilogram (parts per million)

MPCA = Minnesota Pollution Control Agency

SRV = Soil Reference Value

SLV = Soil Leaching Value

Qualifiers (US EPA Qualifier Code):

UJ = Samples marked with this flag were non-detect but contained a representative quality control sample with a relative percent difference (RPD)outside the quality control range, or percent recovery of the analyte

J = Analyte was positively identified in the sample, but the concentration is an estimated (approximate) value; Samples marked with this flag were designated as estimated based on an associated MS/MSD QC sample that contained lead recovery outside of the QC limits; As a result, the parent sample is considered estimated. This flag was also added to samples where the serial dilution exceeded a percentage with the result greater than 50x the MDL; This value is considered to be estimated also.

J+ = Analyte was positively identified in the sample, but the concentration is believed to be estimated with a potential positive bias; Samples with this flag had an associated MS/MS sample where the RPD was outside the QC limits, resulting in a parent sample detection that is considered estimated with a potential positive bias.

Table 4
Groundwater Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Exterior Sample ID, Date Collected & MPCA LUI #																		
			GP-1 (7-11')	GP-1 (16-18')	GP-1 (23-25')	GP-2 (7-10)	GP-2 (15-17)	GP-2 (22-24)	GP-3 (8-11)	GP-3 (16-18)	GP-3 (23-25)	GP-4 (5-7)	GP-4 (12-14)	GP-4 (19-21)	GP-4 (26-28)	GP-6 (7-10)	GP-6 (15-17)	GP-6 (22-24)	GP-7 (6-9)	061819-A	GP-7 (14-16)	GP-7 (21-23)
			06/14/2019	06/14/2019	06/14/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/17/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	6/18/2019	06/18/2019	06/18/2019
			2001004837	2001004837	2001004837	2001004838	2001004838	2001004838	2001004839	2001004839	2001004839	2001004840	2001004840	2001004840	2001004840	2001004842	2001004842	2001004842	2001004843	Blind Dup GP-7 (6-9)	2001004843	2001004843
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																						
1,1-Dichloroethane	**75-34-3**	80	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00
1,1-Dichloroethene	**75-35-4**	200	<1.00 UJ-	<1.00	<1.00	<2.00	<2.00	<2.00 UJ-	<2.00	<2.00	<2.00 UJ-	<2.00	<2.00	<2.00	<2.00	<2.00 UJ-/UJ-	<2.00	<2.00	<2.00	<2.00	<2.00 UJ-	<2.00
1,2-Dichloroethane	**107-06-2**	1	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00
Acetone	67-64-1	4000 / 3000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	**75-00-3**	N/A	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00	<4.00	<4.00 UJ-	<4.00	<4.00	<4.00	<4.00	<4.00 UJ-	10	<4.00	<4.00	<4.00	<4.00 UJ-	<4.00
Ethylbenzene	100-41-4	50 / 40	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	**127-18-4**	5 / 4	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-/UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00
Toluene	108-88-3	200 / 70	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	**79-01-6**	0.4	<1.00 UJ-	**3.08**	<1.00	<1.00	**4.47**	<1.00 UJ-	<1.00	**1.09**	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	**5.53 J-/J-**	**3.60**	<1.00	<1.00	<1.00	**1.30 J-**	<1.00
Vinyl chloride	**75-01-4**	0.2	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00
cis-1,2-Dichloroethene	**156-59-2**	6	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	**2.45 J-**	<1.00
p-Isopropyltoluene	99-87-6	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	**156-60-5**	40	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-/UJ-	<1.00	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00
1,4-Dioxane Method EPA 8270D by SIM																						
1,4-Dioxane (SIM)	123-91-1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																						
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Sample ID, Date Collected & MPCA LUI #																		
			GP-8 (5-7)	GP-8 (12-14)	GP-8 (19-21)	GP-9 (6-8)	GP-9 (13-15)	GP-9 (20-22)	061819-B	GP-10 (0-5)	GP-10 (10-12)	GP-10 (17-19)	HA-1	GP-11 (5-10)	GP-11 (15-17)	GP-12 (7-10)	GP-12 (15-17)	GP-12 (22-24)	GP-13 (7-10)	GP-13 (15-17)	GP-13 (22-24)
			06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/18/2019	06/19/2019	06/19/2019	06/19/2019	06/19/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019	06/21/2019
			2001004844	2001004844	2001004844	2001004845	2001004845	2001004845	Blind Dup GP-9 (20-22)	2001004846	2001004846	2001004846	2001004847	2001004848	2001004848	2001004849	2001004849	2001004849	2001004850	2001004850	2001004850
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																					
1,1-Dichloroethane	**75-34-3**	80	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00	**3.87 J-**	**1.31 J-**	**15.7 J-**	**28.4 J-**	<1.00 UJ-	**15.1 J-**	**22.3 J-**	**2.35 J-**
1,1-Dichloroethene	**75-35-4**	200	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00	<2.00	<2.00	<2.00 UJ-	<2.00 UJ-	<2.00	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-
1,2-Dichloroethane	**107-06-2**	1	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-
Acetone	67-64-1	4000 / 3000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	**75-00-3**	N/A	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00	<4.00	<4.00	<4.00 UJ-	<4.00 UJ-	<4.00	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	**4.91 J-**	**6.58 J-**	<4.00 UJ-
Ethylbenzene	100-41-4	50 / 40	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	**127-18-4**	5 / 4	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-
Toluene	108-88-3	200 / 70	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	**79-01-6**	0.4	**1.08 J-**	**1.42 J-**	<1.00 UJ-	<1.00 UJ-	**4.89 J-**	<1.00	<1.00	**23.9**	**5.06 J-**	<1.00 UJ-	<1.00	<1.00 UJ-	**1.31 J-**	<1.00 UJ-	<1.00 UJ-	**1.05 J-**	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-
Vinyl chloride	**75-01-4**	0.2	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-
cis-1,2-Dichloroethene	**156-59-2**	6	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00 UJ-	**1.27 J-**	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-
p-Isopropyltoluene	99-87-6	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	**156-60-5**	40	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00	**1.91**	<1.00 UJ-	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-
1,4-Dioxane Method EPA 8270D by SIM																					
1,4-Dioxane (SIM)	123-91-1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																					
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ND = Not detected above laboratory reporting limits

All results reported in micrograms per liter (ug/L)

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

<1.00

HRL or HBV exceedance

[a] = MDH Health Based Value (HBV)

NA = Not Applicable

ug/L - micrograms per liter (parts per billion)

MDH = Minnesota Department of Health

NE = Not Established

* EPA Treatment Technique Guidance Value

Qualifiers (US EPA Qualifier Code):

UJ- = The analyte was not detected above laboratory quantitation limit, however the quantitation limit is approximate as the preservation did not necessarily achieve the proper pH level of the samples, allowing for the possibility of sample degradation outside of 7-day hold time that represents a preservation qualifier with a potentially low bias; The method 14-day hold time was met, however preservation interference resulted in the estimated value; The resulting non-detect value is considered an estimated result based on this fact.

-/- = Samples with multiple qualifiers separated by a "/" are those where a separate QC issue resulted in the MS/MSD sample, resulting in parent sample being marked as estimated also (in addition to the original estimated flag from improper sample pH); The associated QC sample recovered analyte outside of the QC limits, thus the parent sample is considered estimated for this reason as well.

UJ-- = Same reasoning as "UJ-" flag; Non-detected value resulting from quantitation that is believed to be biased very low.

J- = Detected analyte was properly analyzed within hold time, however the preservation was unable to obtain a low enough sample pH criteria and corrective action was not possible prior to analysis; Detected value therefore represents an estimated value with a potentially low bias.

Table 4
Groundwater Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Sample ID, Date Collected & MPCA LUI #																		
			GP-14 (9-14)	GP-14 (19-21)	GP-14 (26-28)	GP-15 (8-13)	GP-15 (18-20)	GP-15 (25-27)	GP-15 (32-34)	GP-16 (10-15)	GP-16 (20-22)	GP-16 (27-29)	GP-16 (34-36)	062619-A	GP-17 (7-12)	GP-17 (17-19)	GP-17 (24-26)	GP-18 (10-15)	062619-B	GP-18 (20-22)	GP-18 (34-38)
			06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/24/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019	06/26/2019
			2001004851	2001004851	2001004851	2001004852	2001004852	2001004852	2001004852	2001004853	2001004853	2001004853	2001004853	Blind Dup GP-16 (34-36')	2001004854	2001004854	2001004854	2001004855	Blind Dup GP-18 (10-15')	2001004855	2001004855
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																					
1,1-Dichloroethane	**75-34-3**	80	**31.3 J-**	**17.3**	<1.00	<1.00 UJ-	**1.75**	**7.52 J-**	<1.00	<1.00 UJ-	**1.28**	<10.0 UJ-	<1.00 UJ-	<1.00 UJ-	<10.0 UJ--	**4.32**	**1.06**	**1.33 J-**	**1.41 J-**	<1.00 UJ-	<1.00 UJ--
1,1-Dichloroethene	**75-35-4**	200	<20.0 UJ-	<2.00	<2.00	<2.00 UJ-	<2.00	<2.00 UJ-	<2.00	<2.00 UJ-	<2.00	<20.0 UJ-	<2.00 UJ-	<2.00 UJ-	<20.0 UJ--	<2.00	<2.00	<2.00 UJ-	<2.00 UJ-	<2.00 UJ-	<2.00 UJ--
1,2-Dichloroethane	**107-06-2**	1	<10.0 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00	<10.0 UJ-	<1.00 UJ-	<1.00 UJ-	<10.0 UJ--	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ--
Acetone	67-64-1	4000 / 3000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	**75-00-3**	N/A	<40.0 UJ-	<4.00	<4.00	<4.00 UJ-	<4.00	<4.00 UJ-	<4.00	<4.00 UJ-	<4.00	<40.0 UJ-	<4.00 UJ-	<4.00 UJ-	<40.0 UJ--	<4.00	<4.00	<4.00 UJ-	<4.00 UJ-	<4.00 UJ-	<4.00 UJ--
Ethylbenzene	100-41-4	50 / 40	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	**127-18-4**	5 / 4	<10.0 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00	<10.0 UJ-	<1.00 UJ-	<1.00 UJ-	<10.0 UJ--	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ--
Toluene	108-88-3	200 / 70	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	**79-01-6**	0.4	**11.7 J-**	<1.00	<1.00	**2.44 J-**	**4.03**	<1.00 UJ-	**8.03**	**3.25 J-**	**5.45**	<10.0 UJ-	**10.7 J-**	**9.34 J-**	<10.0 UJ--	**4.40**	**1.08**	<1.00 UJ-	<1.00 UJ-	**1.58 J-**	<1.00 UJ--
Vinyl chloride	**75-01-4**	0.2	**20.1 J-**	<1.00	<1.00	**4.27 J-**	**7.24**	<1.00 UJ-	<1.00	**1.21 J-**	**5.53**	<10.0 UJ-	<1.00 UJ-	<1.00 UJ-	<10.0 UJ--	<1.00	<1.00	**11.1 J-**	**12.2 J-**	<1.00 UJ-	<1.00 UJ--
cis-1,2-Dichloroethene	**156-59-2**	6	<10.0 UJ-	<1.00	<1.00	**1.51 J-**	**1.59**	<1.00 UJ-	<1.00	<1.00 UJ-	**2.24**	<10.0 UJ-	<1.00 UJ-	<1.00 UJ-	<10.0 UJ--	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ--
p-Isopropyltoluene	99-87-6	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	**156-60-5**	40	<10.0 UJ-	<1.00	<1.00	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00	<1.00 UJ-	<1.00	<10.0 UJ-	**3.01 J-**	**2.11 J-**	<10.0 UJ--	<1.00	<1.00	<1.00 UJ-	<1.00 UJ-	<1.00 UJ-	<1.00 UJ--
1,4-Dioxane Method EPA 8270D by SIM																					
1,4-Dioxane (SIM)	123-91-1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																					
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Sample ID, Date Collected & MPCA LUI #																				
			GP-19 (4-7)	GP-19 (12-14)	DUP082819	GP-19 (19-21)	GP-20 6-10'	GP-20 15-17'	GP-20 22-24'	GP-20 29-31'	GP-20 34-36'	GP-21 9-12'	GP-21 17-19'	GP-21 24-26'	GP-21 31-34'	GP-22 (10-14)	GP-22 (19-21)	DUP083019	GP-22 (24-28)	GP-23 (6-10)	GP-23 (15-17)	GP-23 (22-24)	GP-23 (29-31)	GP-23 (36-38)
			8/28/2019	8/28/2019	8/28/2019	8/28/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/30/2019	8/30/2019	8/30/2019	8/30/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019
			2001004856	2001004856	Blind Dup GP-19 (12-14)	2001004856	2001004857	2001004857	2001004857	2001004857	2001004857	2001004858	2001004858	2001004858	2001004858	2001004859	2001004859	Blind Dup GP-22 (19-12)	2001004859	2001004867	2001004867	2001004867	2001004867	2001004867
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																								
1,1-Dichloroethane	**75-34-3**	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	**75-35-4**	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	**107-06-2**	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
Acetone	67-64-1	4000 / 3000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<50.0	<50.0	<50.0	<50.0	<50.0
Chloroethane	**75-00-3**	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.00	<5.00	<5.00	<5.00	<5.00
Ethylbenzene	100-41-4	50 / 40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	**127-18-4**	5 / 4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
Toluene	108-88-3	200 / 70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	**79-01-6**	0.4	<0.40	<0.40	<0.40	**0.50**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl chloride	**75-01-4**	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<1.00	<1.00	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	**156-59-2**	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
p-Isopropyltoluene	99-87-6	NE	**2.4**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	**156-60-5**	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00
1,4-Dioxane Method EPA 8270D by SIM																								
1,4-Dioxane (SIM)	123-91-1	1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.25 J-	<0.42 J-	<0.29 J-	<0.36 J-	**1.4 J-**
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																								
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ND = Not detected above laboratory reporting limits

All results reported in micrograms per liter (ug/L)

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

<1.00

HRL or HBV exceedance

[a] = MDH Health Based Value (HBV)

NA = Not Applicable

ug/L - micrograms per liter (parts per billion)

MDH = Minnesota Department of Health

NE = Not Established

* EPA Treatment Technique Guidance Value

Qualifiers (US EPA Qualifier Code):

UJ- = The analyte was not detected above laboratory quantitation limit, however the quantitation limit is approximate as the preservation did not necessarily achieve the proper pH level of the samples, allowing for the possibility of sample degradation outside of 7-day hold time that represents a preservation qualifier with a potentially low bias; The method 14-day hold time was met, however preservation interference resulted in the estimated value; The resulting non-detect value is considered an estimated result based on this fact.

-/- = Samples with multiple qualifiers separated by a "/" are those where a separate QC issue resulted in the MS/MSD sample, resulting in parent sample being marked as estimated also (in addition to the original estimated flag from improper sample pH); The associated QC sample recovered analyte outside of the QC limits, thus the parent sample is considered estimated for this reason as well.

UJ-- = Same reasoning as "UJ-" flag; Non-detected value resulting from quantitation that is believed to be biased very low.

J- = Detected analyte was properly analyzed within hold time, however the preservation was unable to obtain a low enough sample pH criteria and corrective action was not possible prior to analysis; Detected value therefore represents an estimated value with a potentially low bias.

Table 4
Groundwater Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Sample ID, Date Collected & MPCA LUI #																		
			GP-24 (8-12)	GP-24 (17-19)	Dup120419-A	GP-24 (24-26)	GP-24 (31-33)	GP-24 (38-40)	GP-24 (45-47)	GP-25 (7-11)	GP-25 (16-18)	GP-25 (23-25)	GP-25 (30-32)	GP-25 (37-39)	GP-25 (44-46)	GP-26 (6-10)	GP-26 (15-17)	DUP120519-A	GP-26 (22-24)	GP-26 (29-31)	GP-26 (36-38)	GP-26 (41-43)
			12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019
			2001004868	2001004868	Blind Dup GP-24 (17-19)	2001004868	2001004868	2001004868	2001004868	2001004869	2001004869	2001004869	2001004869	2001004869	2001004869	2001004870	2001004870	Blind Dup GP-26 (15-17)	2001004870	2001004870	2001004870	2001004870
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																						
1,1-Dichloroethane	**75-34-3**	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0
1,1-Dichloroethene	**75-35-4**	200	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	**107-06-2**	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	67-64-1	4000 / 3000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	**33.3**
Chloroethane	**75-00-3**	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	50 / 40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**18.4**	<1.0	<1.0	<1.0	<1.0	<1.0	**1.9**
Tetrachloroethene	**127-18-4**	5 / 4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	108-88-3	200 / 70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**101**	<1.0	<1.0	**1.4**	<1.0	<1.0	**15.0**
Trichloroethene	**79-01-6**	0.4	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	**0.53**	**2.4**	**2.5**	<0.40	<0.40	<0.40	<0.40
Vinyl chloride	**75-01-4**	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethene	**156-59-2**	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	99-87-6	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**357**	**1.7**	**2.7**	**2.8**	**1.5**	**2.5**	**40.6**
trans-1,2-Dichloroethene	**156-60-5**	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0
1,4-Dioxane Method EPA 8270D by SIM																						
1,4-Dioxane (SIM)	123-91-1	1	<0.36 J-	<0.23 J-	<0.25 J-	<0.23 J-	**0.24 J-**	**2.4 J-**	<0.33 J-	<0.31 J-	<0.23 J-	<0.29 J-	<0.25 J-	<0.31 J-	<0.26 J-	<0.38 J-	<0.25 J-	<0.25 J-	**2.2 J-**	**0.38 J-**	**2.3 J-**	**7.4 J-**
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																						
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Sample ID, Date Collected & MPCA LUI #																		
			GP-27 (8-12)	GP-27 (17-19)	GP-27 (24-26)	GP-27 (31-33)	GP-27 (38-40)	GP-27 (44-46)	GP-28 (2-6)	GP-28 (11-13)	GP-28 (18-20)	GP-28 (25-27)	GP-28 (30-34)	GP-28 (39-41)	DUP 120619-B	GP-28 (46-48)	GP-29 (2-6)	GP-29 (11-13)	GP-29 (18-20)	GP-29 (25-27)	GP-29 (32-34)	GP-29 (38-41)
			12/9/2019	12/9/2019	12/9/2019	12/9/2019	12/9/2019	12/9/2019	12/6/2019	12/6/2019	12/6/2019	12/6/2019	12/6/2019	12/6/2019	12/6/2019	12/6/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019	12/10/2019
			2001004871	2001004871	2001004871	2001004871	2001004871	2001004871	2001004872	2001004872	2001004872	2001004872	2001004872	2001004872	Blind Dup GP-28 (39-41')	2001004872	2001004873	2001004873	2001004873	2001004873	2001004873	2001004873
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																						
1,1-Dichloroethane	**75-34-3**	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<1.0	<1.0	**2.5**	**3.8**	**9.9**	<1.0
1,1-Dichloroethene	**75-35-4**	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.1**	<1.0
1,2-Dichloroethane	**107-06-2**	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Acetone	67-64-1	4000 / 3000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Chloroethane	**75-00-3**	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	50 / 40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	**127-18-4**	5 / 4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	108-88-3	200 / 70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	**79-01-6**	0.4	<0.40	**1.3**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	**2.8**	**3.1**	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Vinyl chloride	**75-01-4**	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	**0.83**	<0.20
cis-1,2-Dichloroethene	**156-59-2**	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	99-87-6	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**2.1**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	**156-60-5**	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dioxane Method EPA 8270D by SIM																						
1,4-Dioxane (SIM)	123-91-1	1	**1.4 R/J-**	<0.25	<0.25	**0.64**	**5.8**	**0.81**	<0.25 J-	<0.25 J-	<0.25	<0.25 J-	**0.75 J-**	**1.1 J-**	**0.89 UB**	**2.7 J-**	**0.25 J-**	**0.26 J-**	**2.3 J-**	**1.6 J-**	**1.3 J-**	**4.2**
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																						
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ND = Not detected above laboratory reporting limits

All results reported in micrograms per liter (ug/L)

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

<1.00

HRL or HBV exceedance

[a] = MDH Health Based Value (HBV)

NA = Not Applicable

ug/L - micrograms per liter (parts per billion)

MDH = Minnesota Department of Health

NE = Not Established * EPA Treatment Technique Guidance Value

Qualifiers (US EPA Qualifier Code):

UJ- = The analyte was not detected above laboratory quantitation limit, however the quantitation limit is approximate as the preservation did not necessarily achieve the proper pH level of the samples, allowing for the possibility of sample degradation outside of 7-day hold time that represents a preservation qualifier with a potentially low bias; The method 14-day hold time was met, however preservation interference resulted in the estimated value; The resulting non-detect value is considered an estimated result based on this fact.

-/- = Samples with multiple qualifiers separated by a "/" are those where a separate QC issue resulted in the MS/MSD sample, resulting in parent sample being marked as estimated also (in addition to the original estimated flag from improper sample pH); The associated QC sample recovered analyte outside of the QC limits, thus the parent sample is considered estimated for this reason as well.

UJ-- = Same reasoning as "UJ-" flag; Non-detected value resulting from quantitation that is believed to be biased very low.

J- = Detected analyte was properly analyzed within hold time, however the preservation was unable to obtain a low enough sample pH criteria and corrective action was not possible prior to analysis; Detected value therefore represents an estimated value with a potentially low bias.

Table 4
Groundwater Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Sample ID, Date Collected & MPCA LUI #																
			GP-30 (1-3)	GP-30 (8-10)	GP-30 (15-17)	GP-30 (29-31)	GP-30 (36-38)	GP-31 (2-4)	GP-31 (9-11)	DUP121219	GP-31 (16-18)	GP-32 (1-3)	GP-32 (8-10)	GP-32 (15-17)	GP-32 (21-24)	GP-33 (6-10)	GP-33 (15-17)	GP-33 (21-24)	GP-33 (29-31)
			12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/11/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/12/2019	12/13/2019	12/13/2019	12/13/2019	12/13/2019
			2001004874	2001004874	2001004874	2001004874	2001004874	2001004875	2001004875	Blind Dup GP-31 (9-11)	2001004875	2001004876	2001004876	2001004876	2001004876	2001004877	2001004877	2001004877	2001004877
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																			
1,1-Dichloroethane	**75-34-3**	80	<1.0	**1.7**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	**75-35-4**	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	**107-06-2**	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Acetone	67-64-1	4000 / 3000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<40.0	<20.0	<20.0	<20.0
Chloroethane	**75-00-3**	N/A	<1.0	**2.9**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	50 / 40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Tetrachloroethene	**127-18-4**	5 / 4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Toluene	108-88-3	200 / 70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
Trichloroethene	**79-01-6**	0.4	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	**16.4**	**4.4**	<0.40	<0.40
Vinyl chloride	**75-01-4**	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20
cis-1,2-Dichloroethene	**156-59-2**	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	99-87-6	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	**156-60-5**	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
1,4-Dioxane Method EPA 8270D by SIM																			
1,4-Dioxane (SIM)	123-91-1	1	**1.3 J-**	**12.4 J-**	**1.9 J-**	**5.7 J-**	**10.1 J-**	**0.83 J-**	**1.0 J-**	**1.2 J-**	**1.1**	**1.1 J-**	**0.98**	**0.75 J-**	**2.2 J-**	**0.56 J-**	<0.25	**1.2 J-**	**1.2**
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																			
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Interior Sample ID, Date Collected & MPCA LUI #																	
			SB-1 (4-9)	SB-2 (5-10)	SB-3 (6-11)	SB-4 (6-11)	DUP100419-A	SB-5 (6-11)	SB-6 (6-11)	SB-7 (6-11)	SB-8 (7-10)	SB-8 (15-17)	DUP120219	SB-8 (22-24)	SB-9 (11-14)	SB-9 (16-18)	SB-9 (23-25)	SB-10 (9-12)	SB-10 (17-19)	SB-10 (23-25)	DUP120319
			10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/14/2019	10/4/2019	10/4/2019	10/7/2019	12/2/2019	12/2/2019	12/2/2019	12/2/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019	12/3/2019
			2001004860	2001004861	2001004862	2001004863	Blind Dup SB-4 (6-11)	2001004864	2001004865	2001004866	2001004878	2001004878	Blind Dup SB-8 (15-17)	2001004878	2001004879	2001004879	2001004879	2001004880	2001004880	2001004880	Blind Dup SB-10 (23-25)
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																					
1,1-Dichloroethane	**75-34-3**	80	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**3.2**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	**126**	**5.85**	<1.00	**3.98**
1,1-Dichloroethene	**75-35-4**	200	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,2-Dichloroethane	**107-06-2**	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	**1.01**	<1.00	<1.00	<1.00
Acetone	67-64-1	4000 / 3000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Chloroethane	**75-00-3**	N/A	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<1.0	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	**156**	<5.00	<5.00	<5.00
Ethylbenzene	100-41-4	50 / 40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	**127-18-4**	5 / 4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Toluene	108-88-3	200 / 70	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	**79-01-6**	0.4	**29.9**	**68.0**	**50.1**	**79.2**	**83.4**	**74.7**	**37.8**	**2.6 UB**	**3.35**	<1.00	<1.00	<1.00	**12.3**	<1.00	<1.00	<1.00	**1.17**	<1.00	<1.00
Vinyl chloride	**75-01-4**	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	**4.4 J-**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	**21.8**	<1.00	<1.00	<1.00
cis-1,2-Dichloroethene	**156-59-2**	6	<1.0	<1.0	<1.0	<1.0	<1.0	**1.7**	**2.1**	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	**1.14**	<1.00	<1.00
p-Isopropyltoluene	99-87-6	NE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	**156-60-5**	40	**3.0**	**1.7**	**1.8**	**2.4**	**2.6**	**14.9**	**51.9**	<1.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,4-Dioxane Method EPA 8270D by SIM																					
1,4-Dioxane (SIM)	123-91-1	1	<0.25 J-	**0.30**	<0.24 J-	<0.25	<0.25	<0.25	<0.25	**0.32**	<0.33 J-	<0.38 J-	<0.36 J-	<0.31 J-	<0.42 J-	<0.23 J-	<0.23 J-	**4.5 J-**	**0.47 J-**	<0.23 J-	<0.23 J-
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																					
Lead	7439-92-1	15*	**1.8**	**0.24**	**0.42**	**0.57 J**	<0.10 J	**2.9**	**3.5**	<10.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ND = Not detected above laboratory reporting limits

All results reported in micrograms per liter (ug/L)

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

<1.00

HRL or HBV exceedance

[a] = MDH Health Based Value (HBV)

NA = Not Applicable

ug/L - micrograms per liter (parts per billion)

MDH = Minnesota Department of Health

NE = Not Established * EPA Treatment Technique Guidance Value

Qualifiers (US EPA Qualifier Code):

UJ- = The analyte was not detected above laboratory quantitation limit, however the quantitation limit is approximate as the preservation did not necessarily achieve the proper pH level of the samples, allowing for the possibility of sample degradation outside of 7-day hold time that represents a preservation qualifier with a potentially low bias; The method 14-day hold time was met, however preservation interference resulted in the estimated value; The resulting non-detect value is considered an estimated result based on this fact.

-/- = Samples with multiple qualifiers separated by a "/" are those where a separate QC issue resulted in the MS/MSD sample, resulting in parent sample being marked as estimated also (in addition to the original estimated flag from improper sample pH); The associated QC sample recovered analyte outside of the QC limits, thus the parent sample is considered estimated for this reason as well.

UJ-- = Same reasoning as "UJ-" flag; Non-detected value resulting from quantitation that is believed to be biased very low.

J- = Detected analyte was properly analyzed within hold time, however the preservation was unable to obtain a low enough sample pH criteria and corrective action was not possible prior to analysis; Detected value therefore represents an estimated value with a potentially low bias.

Table 4
Groundwater Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	MDH Health Risk Limit (HRL) µg/L / MDH Health Based Value (HBV) µg/L	Interior Sample ID, Date Collected & MPCA LUI #																
			SB-11 (10-12)	SB-11 (17-19)	SB-11 (24-26)	SB-12 (10-13)	SB-12 (18-20)	SB-12 (21-24)	SB-13 (10-13)	SB-13 (18-20)	SB-13 (34-36)	SB-14 (10-13)	SB-15 (8-11)	SB-15 (16-18)	SB-15 (23-25)	SB-16 (10-13)	SB-16 (18-20)	SB-16 (25-27)	SB-17-(7-13)
			12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/4/2019	12/5/2019	12/5/2019	12/5/2019	12/5/2019	12/6/2019	12/6/2019	12/6/2019	12/9/2019	12/9/2019	12/9/2019	12/10/2019
			2001004881	2001004881	2001004881	2001004882	2001004882	2001004882	2001004883	2001004883	2001004883	2001004884	2001004885	2001004885	2001004885	2001004886	2001004886	2001004886	2001004887
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Detected Compounds Only)- reported in ug/L																			
1,1-Dichloroethane	**75-34-3**	80	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<4.0	<4.0	<4.0	<4.0	<1.0	<1.0	<1.0	**5.5**	<1.0	**2.2**	<2.0
1,1-Dichloroethene	**75-35-4**	200	<4.0	<4.0	<8.0	<4.0	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0	<2.0
1,2-Dichloroethane	**107-06-2**	1	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Acetone	67-64-1	4000 / 3000	<20.0	<20.0	<40.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	**26.4**	<40.0
Chloroethane	**75-00-3**	N/A	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Ethylbenzene	100-41-4	50 / 40	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Tetrachloroethene	**127-18-4**	5 / 4	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Toluene	108-88-3	200 / 70	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Trichloroethene	**79-01-6**	0.4	**6.6**	**5.9**	<0.80	<0.40	**4.1**	<0.40	**2.8**	**0.42**	<0.40	**1.6**	**189**	**20.8**	**4.1**	**2.7**	<0.40	<0.40	<0.80
Vinyl chloride	**75-01-4**	0.2	<0.20	<0.20	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	**0.71**	<0.20	<0.20	<0.40
cis-1,2-Dichloroethene	**156-59-2**	6	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	**1.6**	<1.0	<1.0	**3.1**	<1.0	**1.2**	<2.0
p-Isopropyltoluene	99-87-6	NE	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
trans-1,2-Dichloroethene	**156-60-5**	40	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	**4.2**	<4.0	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
1,4-Dioxane Method EPA 8270D by SIM																			
1,4-Dioxane (SIM)	123-91-1	1	**0.48 J-**	**0.44 J-**	<0.42	<0.26 J-	<0.25 J-	<0.26 J-	<0.42	<0.29 J-	**2.0 J-**	<0.29	<0.31 J-	<0.31 J-	<0.29 J-	**0.41 J-**	**0.32 J-**	**0.27 J-**	<0.31 J-
Dissolved Lead (Pb) Method EPA 6020B and/or 6010D																			
Lead	7439-92-1	15*	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ND = Not detected above laboratory reporting limits

All results reported in micrograms per liter (ug/L)

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

<1.00

HRL or HBV exceedance

[a] = MDH Health Based Value (HBV)

NA = Not Applicable

ug/L - micrograms per liter (parts per billion)

MDH = Minnesota Department of Health

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Qualifiers (US EPA Qualifier Code):

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-/- = Samples with multiple qualifiers separated by a "/" are those where a separate QC issue resulted in the MS/MSD sample, resulting in parent sample being marked as estimated also (in addition to the original estimated flag from improper sample pH); The associated QC sample recovered analyte outside of the QC limits, thus the parent sample is considered estimated for this reason as well.

UJ-- = Same reasoning as "UJ-" flag; Non-detected value resulting from quantitation that is believed to be biased very low.

J- = Detected analyte was properly analyzed within hold time, however the preservation was unable to obtain a low enough sample pH criteria and corrective action was not possible prior to analysis; Detected value therefore represents an estimated value with a potentially low bias.

Table 5
Soil Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	CAS No.	Residential ISV	33x Residential	Industrial ISV	33X Industrial ISV	Summer	Winter		Summer	Winter		Summer	Winter		Summer	Winter			Summer	Winter		
						SV-1 CERT 2206	SV-1	SV-1	SV-1	SV-2	SV-2	SV-2	SV-3	DUP 082319C	SV-3	SV-3	SV-4	SV-4	SV-4	SV-5	SV-5	DUP 120219-A	SV-5
					Date	8/22/2019	8/23/2019	12/4/2019	1/10/2020	8/23/2019	12/5/2019	1/9/2020	8/23/2019	8/23/2019	12/6/2019	1/9/2020	8/23/2019	12/2/2019	1/9/2020	8/23/2019	12/2/2019	12/2/2019	1/9/2020
					LUI #		GS00777	GS00777	GS00777	GS00778	GS00778	GS00778	GS00779	SV-3	GS00779	GS00779	GS00780	GS00780	GS00780	GS00781	GS00781	SV-5	GS00781
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detected Compounds Only																						
1,1,1-Trichloroethane	71-55-6	5200	170000	18000	600000	<1.1	<5.6	<1.9	<1.9	<2.1	<1.9	<1.9	<3.6	<2.1	<1.9	<2.0	<2.1	<2.0	<1.9	<2.1	<2.0	<2.0	<2.0
1,1,2-Trichlorotrifluoroethane	76-13-1	5200	170000	18000	600000	<1.6	<7.9	<2.6	<2.7	<2.9	<2.7	<2.7	<5.1	<2.9	<2.7	<2.8	<2.9	<2.8	<2.7	<2.9	<2.8	<2.8	<2.8
1,1-Dichloroethane	75-34-3	NE	NE	NE	NE	<0.82	<4.2	<1.4	<1.4	<1.5	<1.4	<1.4	<2.7	<1.5	<1.4	<1.5	<1.5	<1.5	<1.4	<1.5	<1.5	<1.5	<1.5
1,2,4-Trimethylbenzene	95-63-6	63	2100	210	7000	<1.0	<5.1	**50.8**	<1.7	**15.5**	**57.9**	<1.7	<3.3	**8.7**	**45.6**	<1.8	**5.6**	**3.0**	<1.7	**3.3**	<1.8	<1.8	<1.8
1,3,5-Trimethylbenzene	108-67-8	63	2100	210	7000	<1.0	<5.1	**16.3**	<1.7	**4.5**	**18.2**	<1.7	<3.3	<1.9	**14.8**	<1.8	**2.1**	<1.8	<1.7	<1.9	<1.8	<1.8	<1.8
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	NE	<1.2	<6.2	<2.0	<2.1	**4.1**	<2.1	<2.1	<4.0	**5.2**	<2.1	<2.2	**6.8**	<2.2	<2.1	**5.8**	<2.2	<2.2	<2.2
2-Butanone (MEK)	78-93-3	5200	170000	18000	600000	<3.0	**64.0**	**10.0**	**15.2**	**40.4**	<5.2	**26.7**	**186**	**219**	<5.2	<5.4	**27.3**	**24.0**	**26.0**	**20.2**	**10.3**	**9.1**	**6.4**
2-Propanol	67-63-0	210	7000	700	23000	<2.5	**34.7**	<4.2	**4.9**	**108**	<4.4	**9.4**	**61.5**	**74.4**	**6.9**	<4.5	**95.1**	**8.7**	**6.3**	**148**	**9.2**	**6.0**	**5.5**
4-Ethyltoluene	622-96-8	NE	NE	NE	NE	<2.5	<12.7	**17.5**	<4.3	**5.6**	**20.2**	<4.3	<8.2	<4.7	**17.5**	<4.5	<4.7	<4.5	<4.4	<4.7	<4.5	<4.5	<4.5
Acetone	67-64-1	32000	1100000	110000	3700000	<2.4	**269**	**55.2**	**84.7**	**154**	**34.8**	**176**	**491**	**524**	**112**	**54.5**	**87.0**	**170**	**203**	**133**	**38.2**	**32.6**	**123**
Benzene	71-43-2	4.6	150	45	1500	<0.32	**7.3**	**61.5**	**6.0**	**17.4**	**48.5**	**11.0**	**45.0**	**67.8**	**117**	**10.6**	**18.2**	**17.2**	**18.8**	**7.7**	**3.7**	**2.5**	**3.7**
Carbon disulfide	75-15-0	830	28000	2800	93000	<0.63	**3.7**	**7.0**	**16.6**	**1.5**	**5.8**	**19.6**	**8.9**	**5.4**	**76.1**	<1.1	**1.2**	**4.9**	**13.9**	**2.6**	**1.7**	<1.1	**2.2**
Chloroethane	75-00-3	4200	140000	14000	470000	<0.54	<2.7	<0.90	<0.92	<1.0	<0.93	<0.92	<1.7	**2.0**	**2.6**	**1.1**	<1.0	<0.96	<0.93	<1.0	<0.96	<0.96	<0.96
Chloroform	67-66-3	100	3300	350	12000	<0.50	**13.4**	<0.83	**2.2**	<0.93	<0.86	<0.85	<1.6	<0.93	<0.86	<0.89	**1.0**	<0.89	<0.86	<0.93	<0.89	<0.89	<0.89
Chloromethane	74-87-3	94	3100	320	11000	<0.42	<2.1	<0.71	<0.72	<0.79	<0.73	<0.72	<1.4	<0.79	<0.73	<0.76	<0.79	<0.76	<0.73	<0.79	<0.76	<0.76	<0.76
Cyclohexane	110-82-7	6300	210000	21000	700000	<1.8	<8.9	<2.9	**5.4**	**15.1**	<3.0	**6.1**	**49.6** JFD52	**84.5** JFD52	<3.0	**30.5**	**13.1**	**6.7**	**7.2**	**6.4**	**4.5**	**3.2**	**4.2**
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	<1.0	<5.1	**2.0**	**2.6**	**2.6**	<1.8	<1.7	<3.3	<1.9	<1.8	<1.8	**2.0**	<1.8	<1.8	**2.1**	<1.8	**1.9**	<1.8
Ethanol	64-17-5	NE	NE	NE	NE	<1.9	**23.3**	**186**	**35.0**	**35.3**	**108**	**24.6**	**34.1**	**24.7**	**144**	**14.4**	**18.1**	**19.3**	**21.5**	**36.1**	**15.6**	**11.6**	**30.3**
Ethyl acetate	141-78-6	73	2400	250	8300	<0.73	<3.7	<1.2	<1.3	<1.4	<1.3	<1.3	<2.4	<1.4	<1.3	<1.3	<1.4	**1.4**	<1.3	<1.4	<1.3	<1.3	<1.3
Ethylbenzene	100-41-4	4.1	140	39	1300	<0.88	**7.0**	**112**	**2.4**	**10.8**	**116**	**3.4**	**7.1** JFD145	**44.3** JFD145	**123**	<1.6	**9.5**	<1.6	**2.4**	**4.4**	<1.6	<1.6	**1.6**
Methylene Chloride	75-09-2	630	21000	2100	70000	<3.5	**1040**	**9.0**	**7.2**	**188**	<6.1	<6.0	**549** JFD123	**132** JFD123	**7.9**	**7.8**	**109**	**12.7**	<6.1	**48.1**	**9.4**	**16.0**	**10.4**
Naphthalene	91-20-3	9.4	310	32	1100	<2.7	<13.5	<4.5	<4.5	**27.8**	<4.6	<4.5	<8.7	<5.0	**7.1**	<4.8	**23.3**	**527**	<4.6	<5.0	<4.8	<4.8	<4.8
Propylene	115-07-1	3100	100000	11000	370000	<0.35	**66.3**	**86.8**	**118**	**91.6**	**26.8**	**84.8**	**401**	**443**	**1120**	<0.63	**166**	**165**	**142**	<0.65	<0.63	<0.63	**34.3**
Styrene	100-42-5	940	31000	3200	110000	<0.87	<4.4	<1.5	<1.5	<1.6	<1.5	<1.5	<2.8	**2.1**	<1.5	<1.6	**1.9**	<1.6	<1.5	<1.6	<1.6	<1.6	<1.6
Tetrachloroethene	127-18-4	3.4	110	33	1100	<0.69	<3.5	**127**	<1.2	**8.4**	**122**	**2.3**	<2.2	<2.6	**178**	**4.1**	**3.9**	**28.0**	<1.2	**1.3**	**26.5**	**23.8**	<1.2
Tetrahydrofuran	109-99-9	2100	70000	7000	230000	<0.60	**10.3**	<1.0	<1.0	**29.1**	<1.0	**1.7**	**28.4**	**28.2**	<1.0	**1.8**	**5.5**	**34.5**	**2.2**	**2.8**	**36.2**	**27.6**	**2.8**
Toluene	108-88-3	4200	140000	14000	470000	<0.77	**26.8**	**1590**	**9.7**	**52.9**	**873**	**12.2**	**45.8**	**51.8**	**1210**	**5.5**	**32.5**	**12.2**	**13.1**	**20.2**	**8.5**	**7.4**	**5.7**
Trichloroethene	79-01-6	2.1	70	7	230	<0.55	**3.7**	<0.92	<0.93	<1.0	<0.95	<0.93	<1.8	**2.1**	**1.3**	<0.98	<1.0	<0.98	<0.95	<1.0	<0.98	<0.98	<0.98
Trichlorofluoromethane	75-69-4	1000	33000	3500	120000	<1.1	**24.7**	**11.7**	**6.8**	**64.5**	**10.0**	**14.3**	<3.7	<2.1	<2.0	<2.1	**15.0**	**6.3**	**4.7**	<2.1	<2.1	<2.1	<2.1
Vinyl chloride	75-01-4	1.7	57	22	730	<0.26	<1.3	<0.44	<0.44	<0.49	<0.45	<0.44	<0.85	**0.98**	<0.45	<0.47	<0.49	<0.47	<0.45	<0.49	<0.47	<0.47	<0.47
cis-1,2-Dichloroethene	156-59-2	NE	NE	NE	NE	<0.81	<4.1	<1.4	<1.4	<1.5	<1.4	<1.4	<2.6	**3.3**	<1.4	<1.5	<1.5	<1.5	<1.4	<1.5	<1.5	<1.5	<1.5
m&p-Xylene	179601-23-1	100	3300	350	12000	<1.8	**30.3**	**363**	**9.6**	**24.4**	**380**	**14.0**	**43.7**	**20.5**	**420**	**4.4**	**26.0**	**5.9**	**8.6**	**18.8**	**5.5**	**5.5**	**7.0**
n-Heptane	142-82-5	420	14000	1400	47000	<0.83	**34.0**	**104**	**4.0**	**7.4**	**93.3**	**8.9**	**18.5**	**26.0**	**170**	**2.9**	**10.4**	**10.5**	**4.7**	**4.3**	**3.8**	**2.7**	**1.7**
n-Hexane	110-54-3	730	24000	2500	83000	<0.72	**61.4**	**104**	**7.6**	**89.7**	**76.2**	**12.1**	**24.9**	**87.9**	**240**	**7.0**	**15.0**	**9.7**	**7.1**	**4.6**	**3.2**	**2.9**	**3.5**
o-Xylene	95-47-6	100	3300	350	12000	<0.88	**12.0**	**129**	**2.8**	**12.3**	**138**	**3.9**	**15.5**	**7.2**	**143**	<1.6	**8.9**	**2.7**	**2.6**	**6.1**	**2.1**	**2.0**	**1.8**
trans-1,2-Dichloroethene*	156-60-5	73	2400*	250	8300	<0.81	<4.1	<1.4	<1.4	**3.9**	<1.4	<1.4	**3.1**	**3.1**	<1.4	<1.5	**10.4**	<1.5	<1.4	<1.5	<1.5	<1.5	<1.5

Notes:

EPA = Environmental Protection Agency

MPCA = Minnesota Pollution Control Agency

ISV = Intrusion Screening Value

EISV = Expedited Intrusion Screening Value

VOCs = Volatile Organic Compounds

NE = Not Established

ND= Not Detected above laboratory reporting limits

ug/m3 = micrograms per meter cubed

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

33X Residential ISV Exceedance

33X Industrial ISV Exceedance

Qualifiers (DSA designation - No EPA Code Available):

JFD# = These samples and there associated pair observed a RPD result that was outside of the 50% QAPP limit previously specified; The # value represents the RPD number for the associated sample analyte.

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV memorandum issued by the Minnesota Department of Health; 33X Residential ISV = 2,400 ug/m3

Table 5
Soil Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	CAS No.	Residential ISV	33x Residential	Industrial ISV	33X Industrial ISV	Sample ID, Date C																
						Summer	Winter	Summer	Winter		Summer	Winter		Summer	Winter		Summer	Winter			Summer	Winter		
						SV-6	SV-6	SV-7	SV-7	SV-7	SV-8	SV-8	SV-8	SV-9	SV-9	SV-9	SV-10	SV-10	DUP 120419-A	SV-10	SV-11	SV-11	SV-11	DUP010920
					Date	8/23/2019	12/2/2019	8/23/2019	12/2/2019	1/9/2020	8/28/2019	12/4/2019	1/10/2020	8/28/2019	12/4/2019	1/10/2020	8/28/2019	12/4/2019	12/4/2019	1/10/2020	8/28/2019	12/4/2019	1/9/2020	01/09/2019
					LUI #	GS00782	GS00782	GS00783	GS00783	GS00783	GS00771	GS00771	GS00771	GS00772	GS00772	GS00772	GS00773	GS00773	SV-10	GS00773	GS00774	GS00774	GS00774	SV-11
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detected Compounds Only																							
1,1,1-Trichloroethane	71-55-6	5200	170000	18000	600000	<2.0	<1.9	<2.2	<1.9	<2.0	<2.0	<2.2	<1.9	<2.0	<2.1	<2.0	<2.0	<1.9	<3.5	<1.9	<2.1	<3.5	<1.9	<2.0
1,1,2-Trichlorotrifluoroethane	76-13-1	5200	170000	18000	600000	<2.8	<2.6	<3.0	<2.6	<2.8	<2.8	<3.0	<2.7	<2.8	<2.9	<2.8	<2.8	<2.7	<4.9	<2.6	<2.9	<4.9	<2.6	<2.8
1,1-Dichloroethane	75-34-3	NE	NE	NE	NE	<1.5	<1.4	<1.6	<1.4	<1.5	<1.5	<1.6	<1.4	<1.5	<1.5	<1.5	<1.5	<1.4	<2.6	<1.4	<1.5	<2.6	<1.4	<1.5
1,2,4-Trimethylbenzene	95-63-6	63	2100	210	7000	**4.0**	<1.7	**3.3**	<1.7	<1.8	**7.2**	**56.4**	<1.7	**9.0**	**68.4**	<1.8	**7.4**	**28.6**	**3.2**	<1.7	**6.3**	**53.2**	**2.6**	**2.6**
1,3,5-Trimethylbenzene	108-67-8	63	2100	210	7000	<1.8	<1.7	<1.9	<1.7	<1.8	**2.7**	**16.7**	<1.7	**3.8**	**20.8**	<1.8	<1.8	**9.3**	<3.1	<1.7	<1.9	**16.9**	<1.7	<1.8
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	NE	**11.8**	<2.0	**9.6**	<2.0	<2.2	<2.2	<2.4	<2.1	<2.2	<2.3	<2.2	<2.2	<2.1	<3.8	<2.0	<2.3	<3.9	<2.0	<2.2
2-Butanone (MEK)	78-93-3	5200	170000	18000	600000	**42.6**	**24.2**	**35.1**	**16.4**	**8.9**	**90.7**	<5.8	**7.7**	**47.7**	**9.4**	**14.9**	**61.1**	**7.7**	**9.5**	**12.8**	**51.7**	**15.7**	**43.8**	**25.4**
2-Propanol	67-63-0	210	7000	700	23000	**184**	**11.4**	**124**	**14.9**	<4.5	**9.8**	<4.8	<4.3	**9.3**	<4.7	<4.4	**9.9**	<4.4	<7.8	**19.6**	**13.0**	**10.1**	**8.0**	<4.5
4-Ethyltoluene	622-96-8	NE	NE	NE	NE	<4.5	<4.2	<4.8	<4.2	<4.5	<4.5	**18.4**	<4.3	**5.5**	**21.6**	<4.4	<4.5	**11.5**	<7.8	<4.2	<4.7	**17.8**	<4.2	<4.5
Acetone	67-64-1	32000	1100000	110000	3700000	**192**	**76.2**	**153**	**114**	**105**	**165**	**62.6**	**14.6**	**185**	**66.0**	**78.9**	**239**	**47.4**	**73.2**	**93.8**	**123**	**91.6**	**266** JFD63	**138** JFD63
Benzene	71-43-2	4.6	150	45	1500	**12.8**	**10.5**	**10.2**	**3.6**	**3.8**	**47.2**	**87.7**	**23.8**	**10.8**	**58.7**	**4.8**	**12.7**	**58.7** JFD128	**12.8** JFD128	**5.3**	**33.2**	**75.4**	**11.9** JFD56	**6.7** JFD56
Carbon disulfide	75-15-0	830	28000	2800	93000	**5.4**	**12.8**	**7.9**	**2.2**	**5.0**	**14.7**	**2.1**	**2.3**	**8.7**	**7.2**	**12.1**	**9.1**	**5.4**	**2.3**	**11.0**	**1.8**	**13.2**	**15.7** JFD72	**7.4** JFD72
Chloroethane	75-00-3	4200	140000	14000	470000	<0.96	<0.90	<1.0	<0.90	<0.96	<0.96	<1.0	<0.92	<0.96	<1.0	<0.95	<0.96	<0.93	<1.7	<0.90	<1.0	<1.7	<0.90	<0.96
Chloroform	67-66-3	100	3300	350	12000	<0.89	<0.83	<0.96	<0.83	<0.89	<0.89	<0.96	<0.85	**2.8**	<0.93	<0.88	**2.0**	<0.86	<1.6	<0.83	<0.93	<1.6	<0.83	<0.89
Chloromethane	74-87-3	94	3100	320	11000	**1.5**	<0.71	<0.81	<0.71	<0.76	<0.76	<0.81	<0.72	<0.76	<0.79	<0.74	<0.76	<0.73	<1.3	<0.71	<0.79	<1.3	<0.71	<0.76
Cyclohexane	110-82-7	6300	210000	21000	700000	**9.7**	**9.4**	**6.8**	**9.7**	**9.6**	**19.0**	<3.4	<3.0	**32.4**	**189**	<3.1	**14.1**	<3.0	<5.5	<2.9	**16.4**	<5.5	**10.1**	**3.2**
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	**2.4**	**1.9**	**2.2**	**2.0**	<1.8	**2.3**	<2.0	<1.7	**3.1**	**2.1**	**3.3**	**2.0**	**1.9**	<3.2	**2.7**	<1.9	<3.2	<1.7	<1.8
Ethanol	64-17-5	NE	NE	NE	NE	**28.0**	**22.3**	**16.9**	**34.6**	**12.0**	**14.2**	**158**	**47.9**	**13.6**	**201**	**30.6**	**12.2**	**78.0** JFD*65	**12.7** JFD*65	**61.3**	**28.1**	**235**	**20.4**	**9.9**
Ethyl acetate	141-78-6	73	2400	250	8300	<1.3	<1.2	<1.4	<1.2	<1.3	<1.3	<1.4	<1.3	<1.3	<1.4	<1.3	<1.3	<1.3	<2.3	<1.2	<1.4	<2.3	<1.2	<1.3
Ethylbenzene	100-41-4	4.1	140	39	1300	**4.8**	**1.7**	**4.2**	**1.6**	<1.6	**76.2**	**126**	**20.3**	**62.3**	**118**	**3.2**	**9.4**	**94.0**	**12.4**	**1.8**	**10.1**	**106**	**5.1**	**3.4**
Methylene Chloride	75-09-2	630	21000	2100	70000	**56.5**	**8.3**	**241**	**6.1**	**17.4**	**63.6**	**10.7**	**9.9**	**40.7**	**29.8**	**30.9**	**42.9**	**18.2**	<11.0	**11.1**	**83.6**	**25.2**	<5.9	<6.4
Naphthalene	91-20-3	9.4	310	32	1100	<4.8	<4.5	<5.2	<4.5	<4.8	<4.8	<5.2	<4.5	<4.8	<5.0	<4.7	<4.8	<4.6	<8.3	<4.5	<5.0	<8.4	<4.5	<4.8
Propylene	115-07-1	3100	100000	11000	370000	**359**	<0.59	**202**	<0.59	**74.9**	**1030** JL132	**256**	<0.60	**114**	**60.3**	**64.9**	**95.7**	**53.9** JFD70	**26.0** JDF70	**57.8**	**301** JL132	**207**	**151** JFD77	**66.7** JFD77
Styrene	100-42-5	940	31000	3200	110000	<1.6	<1.5	<1.7	<1.5	<1.6	**2.5**	<1.7	<1.5	**2.7**	<1.6	<1.5	**2.4**	<1.5	<2.7	<1.5	**2.2**	<2.7	<1.5	<1.6
Tetrachloroethene	127-18-4	3.4	110	33	1100	**10.7**	**29.8**	<2.7	**30.0**	<1.2	**13.9**	**152**	<1.2	**8.0**	**152**	**10.1**	**5.5**	**130** JFD147	**20.0** JFD147	<1.2	**7.8**	**152**	**1.6**	<1.2
Tetrahydrofuran	109-99-9	2100	70000	7000	230000	**4.0**	**47.3**	**3.2**	**39.2**	<1.1	**18.1** JL135	<1.2	<1.0	**19.5**	<1.1	<1.1	<1.1	<1.0	<1.9	**1.3**	**28.0** JL135	<1.9	**2.4**	<1.1
Toluene	108-88-3	4200	140000	14000	470000	**28.8**	**12.9**	**19.4**	**9.7**	**7.4**	**492**	**1800**	**21.2**	**38.5**	**1630**	**10.5**	**42.9**	**1440** JFD163	**147** JFD163	**8.4**	**78.2**	**998**	**13.5**	**8.8**
Trichloroethene	79-01-6	2.1	70	7	230	**10.7**	<0.92	<1.1	<0.92	<0.98	<0.98	<1.1	<0.93	<0.98	<1.0	<0.97	<0.98	<0.95	<1.7	<0.92	<1.0	<1.7	<0.92	<0.98
Trichlorofluoromethane	75-69-4	1000	33000	3500	120000	**13.1**	**11.9**	<2.2	<1.9	<2.1	<2.1	<2.2	<1.9	**13.2**	**2.6**	**12.0**	**10.1**	**3.7**	**4.7**	**8.9**	**4.5**	**4.9**	**3.4**	**3.5**
Vinyl chloride	75-01-4	1.7	57	22	730	<0.47	<0.44	<0.50	<0.44	<0.47	<0.47	<0.50	<0.44	<0.47	<0.49	<0.46	<0.47	<0.45	<0.81	<0.44	<0.49	<0.82	<0.44	<0.47
cis-1,2-Dichloroethene	156-59-2	NE	NE	NE	NE	<1.5	<1.4	<1.6	<1.4	<1.5	<1.5	<1.6	<1.4	<1.5	<1.5	<1.4	<1.5	<1.4	<2.5	<1.4	<1.5	<2.5	<1.4	<1.5
m&p-Xylene	179601-23-1	100	3300	350	12000	**22.9**	**6.3**	**17.6**	**6.4**	**5.5**	**37.6**	**400**	**7.6**	**39.2**	**388**	**12.6**	**41.5**	**303** JFD147	**46.3** JFD147	**6.8**	**37.6**	**348**	**22.4**	**16.5**
n-Heptane	142-82-5	420	14000	1400	47000	**8.1**	**6.9**	**4.4**	**5.0**	**3.4**	**41.7**	**118**	**7.8**	**20.4**	**97.8**	**2.7**	**6.1**	**89.5** JFD148	**13.4** JFD148	**2.8**	**22.9**	**116**	**13.9** JFD*7.6	**6.3** JFD*7.6
n-Hexane	110-54-3	730	24000	2500	83000	**17.8**	**7.6**	**10.7**	**5.0**	**8.1**	**41.0**	**130**	**4.1**	**23.2**	**97.6**	**7.1**	**11.6**	**98.1** JFD75	**23.1** JFD75	**5.0**	**29.8**	**125**	**13.2** JFD*8.1	**5.1** JFD*8.1
o-Xylene	95-47-6	100	3300	350	12000	**5.7**	**2.1**	**5.8**	**4.0**	**2.5**	**14.6**	**143**	**2.5**	**11.5**	**145**	**3.2**	**12.4**	**103** JFD*90	**12.8** JFD*90	**1.7**	**11.6**	**126**	**7.2**	**4.6**
trans-1,2-Dichloroethene*	156-60-5	73	2400*	250	8300	**12.0**	<1.4	<1.6	<1.4	<1.5	<1.5	<1.6	<1.4	<1.5	<1.5	<1.4	<1.5	<1.4	<2.5	<1.4	<1.5	<2.5	<1.4	<1.5

Notes:

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VOCs = Volatile Organic Compounds

NE = Not Established

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ug/m3 = micrograms per meter cubed

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

33X Residential ISV Exceedance

33X Industrial ISV Exceedance

Qualifiers (DSA designation - No E

JFD# = These samples ar

50% QAPP limit p

associated sampl

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV memorandum issued by the Minnesota Department o

Table 5
Soil Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	CAS No.	Residential ISV	33x Residential	Industrial ISV	33X Industrial ISV	ollected and LUI #																
						Summer		Winter		Summer	Winter		Summer		Winter		Summer	Winter		Summer	Winter	Summer	Winter
						SV-12	DUP 082819	SV-12	SV-12	SV-13	SV-13	SV-13	SV-14	SV-14	SV-14	SV-14	SV-15	SV-15	SV-15	SV-16	SV-16	SV-17	SV-17
					Date	8/28/2019	8/28/2019	12/4/2019	1/9/2020	8/28/2019	12/3/2019	1/9/2020	8/28/2019	8/30/2019	12/2/2019	1/9/2020	8/29/2019	12/4/2019	1/9/2020	10/28/2019	12/3/2019	10/28/2019	12/4/2019
					LUI #	GS00775	SV-12	GS00775	GS00775	GS00776	GS00776	GS00776	GS00797	GS00797	GS00797	GS00797	GS00798	GS00798	GS00798	GS00909	GS00909	GS00910	GS00910
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detected Compounds Only																							
1,1,1-Trichloroethane	71-55-6	5200	170000	18000	600000	<2.1	<2.1	<1.9	<1.9	<2.1	<1.9	<1.9	<32.0	<2.0	<1.9	<2.2	<1.9	<1.9	<2.0	<2.0	<1.9	<1.9	<26.4
1,1,2-Trichlorotrifluoroethane	76-13-1	5200	170000	18000	600000	<2.9	<2.9	<2.6	<2.7	<2.9	<2.7	<2.7	<44.9	<2.8	<2.6	<3.0	<2.7	<2.6	<2.8	<2.9	<2.7	<2.7	<37.1
1,1-Dichloroethane	75-34-3	NE	NE	NE	NE	<1.5	<1.5	<1.4	<1.4	<1.5	<1.4	<1.4	<23.7	<1.5	<1.4	<1.6	<1.4	<1.4	<1.5	<1.5	<1.4	<1.4	<19.6
1,2,4-Trimethylbenzene	95-63-6	63	2100	210	7000	**7.1**	**8.1**	**48.5**	**1.9**	**9.7**	<1.7	<1.7	<28.8	**7.8**	<1.7	<1.9	**22.1**	**56.4**	<1.8	**37.0**	<1.7	**8.4**	**72.8**
1,3,5-Trimethylbenzene	108-67-8	63	2100	210	7000	**3.7**	**4.2**	**16.1**	<1.7	**4.9**	<1.7	<1.7	<28.8	**2.2**	<1.7	<1.9	**5.9**	**17.8**	<1.8	**13.4**	<1.7	**2.5**	<23.7
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	NE	<2.3	<2.3	<2.0	<2.1	<2.3	<2.1	<2.1	<35.1	<2.2	<2.0	<2.4	<2.1	<2.0	<2.2	**8.3**	<2.1	**3.9**	<29.0
2-Butanone (MEK)	78-93-3	5200	170000	18000	600000	**94.1** JFD55	**53.4** JFD55	**33.9**	**18.2**	**34.6**	**18.1**	**13.3**	<86.4	**25.5**	**14.0**	**8.1**	**29.6**	**10.8**	**7.5**	**8.5**	**12.8**	**12.2**	<71.3
2-Propanol	67-63-0	210	7000	700	23000	**13.1**	**12.4**	**5.5**	**6.4**	**18.6**	**5.6**	**7.5**	<72.0	**10.6**	**4.8**	<4.8	**5.7**	**12.6**	**4.6**	**36.6**	**5.9**	**24.3**	<59.4
4-Ethyltoluene	622-96-8	NE	NE	NE	NE	<4.7	**4.9**	**18.4**	<4.4	**5.6**	<4.3	<4.4	<72.0	<4.4	<4.2	<4.8	**6.8**	**19.0**	<4.5	**8.3**	<4.4	<4.4	<59.4
Acetone	67-64-1	32000	1100000	110000	3700000	**267** JFD54	**154** JFD54	**241**	**143**	**133**	**72.9**	**113**	**109**	**77.5**	**57.9**	**66.8**	**144**	**43.2**	**96.5**	**96.2**	**43.5**	**57.2**	**175**
Benzene	71-43-2	4.6	150	45	1500	**109**	**70.4**	**80.7**	**34.7**	**82.8**	**26.8**	**18.2**	**12.9**	**5.3**	**5.2**	**2.9**	**5.9**	**66.6**	**2.2**	**26.0**	**12.9**	**57.1**	**116**
Carbon disulfide	75-15-0	830	28000	2800	93000	**3.7**	**1.4**	**3.5**	**1.3**	**5.2**	**51.2**	**11.2**	<18.2	**2.2**	**1.8**	**1.8**	**5.4**	**5.4**	**1.7**	<1.2	**7.1**	**17.0**	**41.3**
Chloroethane	75-00-3	4200	140000	14000	470000	<1.0	<1.0	<0.90	<0.93	<1.0	<0.92	<0.93	<15.4	<0.95	<0.90	<1.0	<0.93	<0.90	<0.96	<0.98	<0.93	<0.93	<12.7
Chloroform	67-66-3	100	3300	350	12000	<0.93	<0.93	<0.83	<0.86	**3.7**	<0.85	<0.86	<14.3	<0.88	<0.83	<0.96	<0.86	<0.83	<0.89	<0.91	<0.86	<0.86	<11.8
Chloromethane	74-87-3	94	3100	320	11000	<0.79	<0.79	<0.71	<0.73	<0.79	<0.72	**0.84**	<12.1	<0.74	<0.71	<0.81	**0.80**	<0.71	<0.76	<0.77	<0.73	<0.73	<10.0
Cyclohexane	110-82-7	6300	210000	21000	700000	**39.8**	**31.6**	<2.9	**14.5**	**48.3**	**12.6**	**11.6**	<50.4	**7.8**	**4.0**	**4.5**	**9.0**	<2.9	**5.5**	**31.2**	**10.0**	**47.0**	<41.6
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	<1.9	<1.9	<1.7	<1.8	<1.9	<1.7	<1.8	<29.1	**1.9**	<1.7	<2.0	**2.6**	<1.7	**1.9**	**28.1**	**51.4**	**161**	<24.0
Ethanol	64-17-5	NE	NE	NE	NE	**20.1** JFD*7.7	**12.4** JFD*7.7	**159**	**19.5**	**14.7**	**11.0**	**22.3**	<55.3	**13.7**	**8.7**	**18.8**	**22.3**	**155**	**17.2**	**64.0**	**10.1**	**53.0**	**213**
Ethyl acetate	141-78-6	73	2400	250	8300	<1.4	<1.4	**3.0**	<1.3	<1.4	<1.3	<1.3	<21.1	<1.3	<1.2	<1.4	<1.3	<1.2	<1.3	<1.3	<1.3	<1.3	<17.4
Ethylbenzene	100-41-4	4.1	140	39	1300	**14.4**	**13.2**	**121**	**3.4**	**16.7**	**2.1**	**2.2**	<25.4	**8.2**	**1.7**	**2.7**	**8.1**	**123**	**2.1**	**17.3**	<1.5	**16.4**	**133**
Methylene Chloride	75-09-2	630	21000	2100	70000	**46.4**	**39.9**	**10.2**	**6.4**	**43.9**	<6.0	<6.1	<102	**14**	**11.9**	**10.6**	**23.8**	**29.0**	**7.2**	**31.6**	**6.3**	**32.1**	<83.9
Naphthalene	91-20-3	9.4	310	32	1100	<5.0	<5.0	<4.5	<4.6	<5.0	<6.9	<4.6	<76.6	<4.7	<4.5	<5.2	<4.6	<4.5	<4.8	<4.9	<14.1	<4.6	<63.2
Propylene	115-07-1	3100	100000	11000	370000	<0.65	<0.65	<0.59	<0.61	**473**	<0.60	**135**	**84.1** JL132	**29.8**	<0.59	**24.7**	**42.2**	**42.2**	**19.3**	**117**	**178**	**93.1**	**505**
Styrene	100-42-5	940	31000	3200	110000	**3.7**	**3.4**	<1.5	<1.5	**3.8**	<1.5	<1.5	<24.9	**2**	<1.5	<1.7	<1.5	<1.5	<1.6	<1.6	<1.5	<1.5	<20.6
Tetrachloroethene	127-18-4	3.4	110	33	1100	<1.3	**4.4**	**137**	**26.7**	<1.3	**43.4**	<1.2	<19.8	<1.2	**40.0**	<1.3	<1.2	**158**	<1.2	**45.9**	**31.8**	**38.0**	**169**
Tetrahydrofuran	109-99-9	2100	70000	7000	230000	**32.7** JFD187	<1.1 JFD187	<1.0	**2.3**	**34.0**	**28.8**	**1.1**	<17.3	**9.1**	**19.8**	<1.2	**3.6**	<1.0	**2.2**	<1.1	**29.2**	<1.0	<14.3
Toluene	108-88-3	4200	140000	14000	470000	**89.6**	**60.1**	**1230**	**14.6**	**90.4**	**19.8**	**12.2**	**59.8**	**30.4**	**10.1**	**6.9**	**11.8**	**1160**	**6.0**	**91.6**	**12.1**	**186**	**1200**
Trichloroethene	79-01-6	2.1	70	7	230	<1.0	<1.0	<0.92	<0.95	<1.0	<0.93	<0.95	<15.7	<0.97	<0.92	<1.1	<0.95	<0.92	<0.98	<1.0	<0.95	<0.95	<13.0
Trichlorofluoromethane	75-69-4	1000	33000	3500	120000	<2.1	<2.1	<1.9	<2.0	**7.1**	**3.8**	**2.7**	<32.8	<2.0	<1.9	<2.2	<2.0	<1.9	<2.1	**41.6**	**22.8**	<2.0	<27.1
Vinyl chloride	75-01-4	1.7	57	22	730	<0.49	<0.49	<0.44	<0.45	<0.49	<0.44	<0.45	<7.5	<0.46	<0.44	<0.50	<0.45	<0.44	<0.47	<0.95	<0.45	<0.90	<6.2
cis-1,2-Dichloroethene	156-59-2	NE	NE	NE	NE	<1.5	<1.5	<1.4	<1.4	<1.5	<1.4	<1.4	<23.2	<1.4	<1.4	<1.6	<1.4	<1.4	<1.5	<1.5	<1.4	<1.4	<19.2
m&p-Xylene	179601-23-1	100	3300	350	12000	**49.2**	**48.4**	**403**	**13.3**	**66.7**	**6.8**	**7.8**	**63.1**	**34.9**	**6.6**	**12.3**	**25.8**	**401**	**9.0**	**55.5**	**5.0**	**55.0**	**483**
n-Heptane	142-82-5	420	14000	1400	47000	**36.6**	**31.7**	**131**	**7.4**	**20.0**	**12.6**	**8.2**	<24.0	**6.2**	**3.1**	<1.6	<1.4	**121**	<1.5	**22.6**	**6.8**	**27.9**	**143**
n-Hexane	110-54-3	730	24000	2500	83000	**60.3**	**46.7**	**121**	**11.2**	**34.8**	**24.5**	**15.7**	<20.6	**5.6**	**3.8**	**3.3**	**7.1**	**104**	**2.5**	**35.7**	**12.2**	**39.1**	**138**
o-Xylene	95-47-6	100	3300	350	12000	**14.1**	**14.6**	**141**	**5.3**	**20.6**	**2.0**	**2.1**	<25.4	**13.5**	**2.9**	**3.5**	**13.1**	**140**	**2.4**	**13.3**	**2.2**	**19.5**	**170**
trans-1,2-Dichloroethene*	156-60-5	73	2400*	250	8300	<1.5	<1.5	<1.4	<1.4	<1.5	<1.4	<1.4	<23.2	<1.4	<1.4	<1.6	**3.1**	<1.4	<1.5	<1.5	<1.4	<1.4	<19.2

Notes:

EPA = Environmental Protection Agency

MPCA = Minnesota Pollution Control Agency

ISV = Intrusion Screening Value

EISV = Expedited Intrusion Screening Value

VOCs = Volatile Organic Compounds

NE = Not Established

ND= Not Detected above laboratory reporting limits

ug/m3 = micrograms per meter cubed

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

33X Residential ISV Exceedance

33X Industrial ISV Exceedance

Qualifiers (DSA designation - No E

JFD# = These samples ar

50% QAPP limit p

associated sample

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV memorandum issued by the Minnesota Department o

Table 5
Soil Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	CAS No.	Residential ISV	33x Residential	Industrial ISV	33X Industrial ISV	Summer	Winter	Summer	Winter	Summer	Dup 10/28/19	Winter	DUP 120519	Summer	Winter	Summer	Winter	Summer	Winter	Winter	Winter	QA/QC	QA/QC
						SV-18	SV-18	SV-19	SV-19	SV-20		SV-20		SV-21	SV-21	SV-22	SV-22	SV-22	SV-23	SV-23	SV-23	Dup011020	Equipment Blank	Trip blank
					Date	10/28/2019	12/4/2019	10/28/2019	12/4/2019	10/28/2019	10/28/2019	12/5/2019	12/5/2019	10/28/2019	12/5/2019	10/28/2019	12/5/2019	1/10/2020	10/28/2019	12/4/2019	1/10/2020	1/10/2020	1/10/2020	1/10/2020
					LUI #	GS00911	GS00911	GS00912	GS00912	GS00913	SV-20	GS00913	SV-20	GS00915	GS00915	GS00916	GS00916	GS00916	GS00917	GS00917	GS00917	SV-23		
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detected Compounds Only																							
1,1,1-Trichloroethane	71-55-6	5200	170000	18000	600000	<2.0	<1.9	**2.0**	**85.0**	<2.0	<2.0	**3.2**	<4.1	<2.0	<1.9	<1.9	<1.9	<1.9	<1.9	<19.3	<1.9	<2.0	<2.0	<1.1
1,1,2-Trichlorotrifluoroethane	76-13-1	5200	170000	18000	600000	<2.8	<2.7	<2.7	<39.3	**5.4**	<2.8	<3.9	<5.7	<2.8	<2.6	<2.6	<2.7	<2.7	<2.7	<27.1	<2.7	<2.8	<2.8	<1.6
1,1-Dichloroethane	75-34-3	NE	NE	NE	NE	<1.5	<1.4	<1.4	<20.7	<1.5	<1.5	**2.2**	<3.0	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<14.3	<1.4	<1.5	<1.5	<0.82
1,2,4-Trimethylbenzene	95-63-6	63	2100	210	7000	**3.6**	**73.0**	**3.7**	**70.1**	**4.9**	**4.0**	<2.5	<3.7	**6.8**	<1.7	**2.1**	<1.7	<1.7	**7.9**	**59.0**	<1.7	<1.8	<1.8	<1.0
1,3,5-Trimethylbenzene	108-67-8	63	2100	210	7000	**2.2**	**23.2**	<1.7	<25.2	**2.4**	**2.0**	<2.5	<3.7	**3.0**	<1.7	<1.7	<1.7	<1.7	**3.5**	**18.5**	<1.7	<1.8	<1.8	<1.0
1,3-Dichlorobenzene	541-73-1	NE	NE	NE	NE	**6.1**	<2.1	**9.0**	<30.7	**6.1**	**4.9**	<3.0	<4.5	**5.2**	<2.0	**5.5**	<2.1	<2.1	**5.9**	<21.2	<2.1	<2.2	<2.2	<1.2
2-Butanone (MEK)	78-93-3	5200	170000	18000	600000	**32.4**	**27.8**	**21.5**	<75.6	**11.7**	**12.7**	**41.2**	**30.3**	<5.4	**13.9**	**9.5**	**14.5**	<5.1	<5.2	<52.2	**13.6**	**6.4**	<5.4	<3.0
2-Propanol	67-63-0	210	7000	700	23000	**97.4**	<4.4	**93.3**	<63.0	**56.6** JFD56.1	**31.8** JFD56.1	<6.2	<9.2	**74.5**	**5.9**	**88.3**	<4.4	<4.3	**63.9**	<43.5	**7.4**	<4.5	<4.5	<2.5
4-Ethyltoluene	622-96-8	NE	NE	NE	NE	<4.4	**24.6**	<4.4	<63.0	<4.4	<4.5	<6.2	<9.2	<4.5	<4.2	<4.2	<4.4	<4.3	<4.4	<43.5	<4.3	<4.5	<4.5	<2.5
Acetone	67-64-1	32000	1100000	110000	3700000	**171**	**57.6**	**172**	**127**	**63.7**	**65.9**	**158**	**128**	**28.9**	**45.6**	**72.7**	**33.4**	**11.0**	**35.9**	**202**	**137** JFD127	**30.5** JFD137	**27.4**	<6.0
Benzene	71-43-2	4.6	150	45	1500	**30.7**	**126**	**24.4**	**89.8**	**32.7**	**25.4**	**20.9** JFD82	**8.7** JFD82	**12.9**	**4.9**	**19.6**	**9.6**	**6.5**	**14.0**	**67.0**	**10.4**	**7.8**	**0.73**	<0.32
Carbon disulfide	75-15-0	830	28000	2800	93000	**16.5**	**11.0**	**6.2**	**18.4**	**30.0** JFD106.1	**19.2** JFD106.1	**9.3**	**3.0**	<1.1	**2.7**	**4.9**	**3.5**	**13.0**	<1.1	**12.2**	**8.4**	**3.3**	<1.1	<0.63
Chloroethane	75-00-3	4200	140000	14000	470000	<0.95	<0.93	<0.93	<13.5	**5.3** JFD138	<0.96 JFD138	**3.3**	**2.2**	<0.96	<0.90	<0.90	<0.93	<0.92	<0.93	<9.3	<0.92	<0.96	<0.96	<0.54
Chloroform	67-66-3	100	3300	350	12000	<0.88	<0.86	**11.5**	<12.5	<0.88	<0.89	<1.2	<1.8	**1.9**	<0.83	**3.7**	**1.2**	<0.85	<0.86	<8.6	<0.85	<0.89	<0.89	<0.50
Chloromethane	74-87-3	94	3100	320	11000	<0.74	<0.73	<0.73	<10.6	<0.74	<0.76	<1.0	<1.5	<0.76	<0.71	<0.71	<0.73	<0.72	<0.73	<7.3	<0.72	<0.76	<0.76	<0.42
Cyclohexane	110-82-7	6300	210000	21000	700000	**51.1**	<3.0	**32.6**	<44.1	**57.2**	**54.0**	**5.9**	<6.4	**32.4**	**8.0**	**32.9**	**7.0**	**3.2**	<3.0	<30.4	**9.0**	**6.5**	**7.1**	<1.8
Dichlorodifluoromethane	75-71-8	NE	NE	NE	NE	**2.1**	**6.6**	**56.5**	<25.5	<1.8	**2.7**	<2.5	<3.7	**2.7**	**1.7**	**2.7**	<1.8	**2.6**	**2.5**	<17.6	**11.6**	**12.8**	<1.8	<1.0
Ethanol	64-17-5	NE	NE	NE	NE	**128**	**202**	**109**	**268**	**84.8**	**50.9**	<4.7	**13.4**	**91.3**	**10.3**	**117**	**5.8**	**9.6**	**87.0**	**125**	**39.2** JFD51	**23.3** JDF51	**23.5**	<1.9
Ethyl acetate	141-78-6	73	2400	250	8300	**2.2**	<1.3	<1.3	<18.5	**2.0**	<1.3	<1.8	<2.7	**1.6**	<1.2	**1.9**	<1.3	<1.3	<1.3	<12.8	<1.3	<1.3	<1.3	<0.73
Ethylbenzene	100-41-4	4.1	140	39	1300	**14.6**	**145**	**18.1**	**138**	**22.4**	**22.7**	<2.2	<3.2	**19.0**	<1.5	**9.7**	**1.6**	<1.5	**10.4**	**132**	**8.6**	**10.9**	<1.6	<0.88
Methylene Chloride	75-09-2	630	21000	2100	70000	**27.4**	**8.1**	**27.4**	<89.0	**27.6**	**28.2**	**15.0** JFD54	**222** JFD54	**29.8**	**7.1**	**23.5**	**7.3**	**21.0**	**38.5**	<61.4	**7.2**	**12.4**	**26.3**	<3.5
Naphthalene	91-20-3	9.4	310	32	1100	<4.7	<4.6	<4.6	<67.0	<4.7	<4.8	<6.6	<9.8	<4.8	<4.5	<4.5	<4.6	<4.5	<4.6	<46.3	<4.5	<4.8	<4.8	<2.7
Propylene	115-07-1	3100	100000	11000	370000	**211**	<0.61	**236**	**362**	**532**	**460**	<0.86	**86.7**	**22.7**	**22.0**	**130**	**80.2**	**109**	<0.61	<6.1	<0.60	<0.63	**2.4**	<0.35
Styrene	100-42-5	940	31000	3200	110000	<1.5	<1.5	<1.5	<21.8	<1.5	<1.6	<2.1	<3.2	<1.6	<1.5	<1.5	<1.5	<1.5	<1.5	<15.1	<1.5	<1.6	<1.6	<0.87
Tetrachloroethene	127-18-4	3.4	110	33	1100	**31.0**	**189**	**33.9**	**179**	**40.4**	**35.6**	**20.3**	**12.5**	**32.2**	**16.4**	**20.8**	**20.4**	<1.2	**22.9**	**145**	<1.2	<1.2	**3.8**	<0.69
Tetrahydrofuran	109-99-9	2100	70000	7000	230000	<1.1	<1.0	<1.0	<15.1	<1.1	<1.1	**26.5**	**19.9**	<1.1	**30.6**	<1.0	**13.2**	<1.0	**8.5**	<10.4	<1.0	<1.1	<1.1	<0.60
Toluene	108-88-3	4200	140000	14000	470000	**168**	**1210**	**186**	**1280**	**201**	**195**	**13.7**	**16.0**	**179**	**7.6**	**126**	**7.4**	**5.8**	**130**	**1210**	**11.1**	**9.2**	**2.5**	<0.77
Trichloroethene	79-01-6	2.1	70	7	230	**19.5**	<0.95	**281**	**445**	**51.2**	**48.0**	**1.5**	<2.0	<0.98	<0.92	<0.92	<0.95	<0.93	<0.95	<9.5	<0.93	<0.98	<0.98	<0.55
Trichlorofluoromethane	75-69-4	1000	33000	3500	120000	<2.0	<2.0	**3.3**	<28.7	**3.1**	<2.1	<2.8	<4.2	<2.1	<1.9	**2.5**	<2.0	<1.9	<2.0	<19.8	<1.9	<2.1	<2.1	<1.1
Vinyl chloride	75-01-4	1.7	57	22	730	<0.92	<0.45	<0.90	**17.3**	**559**	**695**	**35.3**	**28.6**	<0.94	<0.44	<0.87	<0.45	<0.44	<0.90	<4.5	<0.44	<0.47	<0.47	<0.26
cis-1,2-Dichloroethene	156-59-2	NE	NE	NE	NE	<1.4	**10.5**	<1.4	<20.3	**10.6**	**13.9**	<2.0	<3.0	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<14.0	<1.4	<1.5	<1.5	<0.81
m&p-Xylene	179601-23-1	100	3300	350	12000	**44.1**	**479**	**55.0**	**484**	**65.2**	**60.6**	<4.4	<6.5	**62.2**	**4.8**	**29.0**	**5.3**	<3.0	**32.3**	**440**	**9.2**	**8.2**	<3.2	<1.8
n-Heptane	142-82-5	420	14000	1400	47000	**30.8**	**138**	**26.8**	**141**	**197**	**294**	**5.4**	**3.9**	**25.3**	**2.7**	**23.1**	**3.1**	**1.6**	**24.1**	**133**	**10.0**	**8.2**	<1.5	<0.83
n-Hexane	110-54-3	730	24000	2500	83000	**52.1**	**131**	**34.4**	**124**	**79.7**	**84.3**	**17.5** JFD63	**30.3** JFD63	**29.0**	**5.6**	**29.7**	**4.1**	**6.0**	**33.7**	**108**	**14.9**	**15.0**	**3.0**	<0.72
o-Xylene	95-47-6	100	3300	350	12000	**15.9**	**179**	**19.6**	**165**	**22.5**	**21.1**	<2.2	<3.2	**22.7**	**1.7**	**10.7**	**1.7**	<1.5	**11.9**	**150**	**2.5**	**2.2**	<1.6	<0.88
trans-1,2-Dichloroethene*	156-60-5	73	2400*	250	8300	<1.4	<1.4	<1.4	<20.3	**2.6**	**2.5**	<2.0	<3.0	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<14.0	<1.4	<1.5	<1.5	<0.81

Notes:

EPA = Environmental Protection Agency

MPCA = Minnesota Pollution Control Agency

ISV = Intrusion Screening Value

EISV = Expedited Intrusion Screening Value

VOCs = Volatile Organic Compounds

NE = Not Established

ND= Not Detected above laboratory reporting limits

ug/m3 = micrograms per meter cubed

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

33X Residential ISV Exceedance

33X Industrial ISV Exceedance

Qualifiers (DSA designation - No E

JFD# = These samples ar

50% QAPP limit p

associated sampl

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV memorandum issued by the Minnesota Department o

Table 6
Sub-Slab Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	33X Industrial ISV	33X Industrial EISV	Offices										Quality Control Offices					Coating 3						
			SS-1	SS-2	061119 A	SS-2	SS-3	SS-4	SS-5	SS-6	SS-6	SS-7	SS-8	SS-8	DUP091619-A	SS-9	SS-9	SS-10	061219	SS-10	SS-10	SS-10	SS-10-2	SS-10-2
		Date	06/11/19	06/11/19	06/11/19	9/16/2019	06/11/19	06/11/19	06/11/19	06/11/19	9/16/2019	06/11/19	06/11/19	9/16/2019	9/16/2019	06/11/19	9/16/2019	06/12/19	06/12/19	9/16/2019	10/3/2019	10/7/2019	12/23/2019	12/26/2019
		LUI #	GS00699	GS00690	SS-2	GS00690	GS00689	GS00686	GS00688	GS00687	GS00687	GS00685	GS00700	GS00700	SS-8	GS00701	GS00701	GS00712	SS-10	GS00712	GS00712	GS00712	GS00712	GS00712
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detected Compounds Only																								
1,1,1-Trichloroethane	600000	1800000	<430	<110	<110	<2.1	<340	<440	<380	<44	<2.0	<280	<430	<2.1	<2.0	<4600	<650	<1600	<1100	<2.1	<2.2	<62.3	**3.5**	<332
1,1-Dichloroethane	NE	NE	<320	<81	<81	<1.6	<250	<320	<280	<32	<1.5	<210	<320	<1.5	<1.5	<3400	<482	<1200	<810	<1.5	<1.6	<46.2	<1.6	<246
1,1-Dichloroethene	23000	70000	<310	<79	<79	<1.5	<250	<320	<280	<32	<1.5	<210	<310	<1.5	<1.5	<3300	<472	<1200	<790	<1.5	<1.6	<45.2	<1.6	<241
1,2,4-Trimethylbenzene	7000	21000	NS	NS	NS	**6.7**	NS	NS	NS	NS	**4.7**	NS	NS	**4.1**	**3.3**	NS	<585	NS	NS	**44.3**	**3.6**	<56.0	**3.6**	<299
1,2-Dichloroethane	130	1300	<320	<81	<81	<0.78	<250	<320	<280	<32	<0.75	<210	<320	<0.77	<0.75	<3400	<241	<1200	<810	<0.77	<0.80	<23.1	<0.80	<123
1,3,5-Trimethylbenzene	7000	21000	NS	NS	NS	<1.9	NS	NS	NS	NS	<1.8	NS	NS	**2.6**	<1.8	NS	<585	NS	NS	**11.7**	<1.9	<56.0	<1.9	<299
1,3-Dichlorobenzene	NE	NE	NS	NS	NS	<2.3	NS	NS	NS	NS	**2.5**	NS	NS	<2.3	<2.2	NS	<714	NS	NS	<2.3	<2.4	<68.4	<2.4	<365
2-Butanone (MEK)	600000	1800000	NS	NS	NS	<5.7	NS	NS	NS	NS	**15.6**	NS	NS	<5.6	<5.5	NS	<1760	NS	NS	**31.8**	<5.8	<168	<5.8	<898
2-Propanol	23000	70000	NS	NS	NS	**50.8**	NS	NS	NS	NS	**38.5**	NS	NS	**58.6** JFD*43	**15.6** JFD*43	NS	<1460	NS	NS	<4.7	**5.4**	<140	<4.8	<748
4-Ethyltoluene	NE	NE	NS	NS	NS	<4.8	NS	NS	NS	NS	<4.6	NS	NS	<4.7	<4.6	NS	<1460	NS	NS	**6.0**	<4.8	<140	<4.8	<748
4-Methyl-2-pentanone (MIBK)	370000	1100000	NS	NS	NS	<7.9	NS	NS	NS	NS	<7.6	NS	NS	<7.8	<7.6	NS	<2440	NS	NS	**46.9**	<8.1	<233	<8.1	<1240
Acetone	3700000	11000000	NS	NS	NS	**46.1**	NS	NS	NS	NS	**199**	NS	NS	**38.8** JFD*23.6	**15.2** JFD*23.6	NS	<1410	NS	NS	**253**	**11.0**	<135	**29.9**	<721
Benzene	1500	11000	NS	NS	NS	**1.1**	NS	NS	NS	NS	**1.7**	NS	NS	**1.4**	**1.3**	NS	<190	NS	NS	**2.1**	<0.63	<18.2	**2.0**	<97.2
Carbon disulfide	93000	280000	NS	NS	NS	<1.2	NS	NS	NS	NS	**1.2**	NS	NS	<1.2	**1.2**	NS	<371	NS	NS	<1.2	<1.2	<35.5	<1.2	<189
Chloroethane	470000	1400000	<510	<130	<130	<1.0	<410	<530	<460	<53	<0.98	<340	<510	<1.0	<0.98	<5500	<314	<2000	<1300	<1.0	<1.0	<30.1	<1.0	<160
Chloroform	12000	37000	NS	NS	NS	**37.9**	NS	NS	NS	NS	<0.91	NS	NS	<0.93	<0.91	NS	<290	NS	NS	<0.93	**4.4**	<27.8	**29.4**	<148
Chloromethane	11000	32000	NS	NS	NS	<0.80	NS	NS	NS	NS	**0.96**	NS	NS	**0.99**	**0.91**	NS	<246	NS	NS	**1.2**	<0.81	<23.6	<0.81	<126
Cyclohexane	700000	2100000	NS	NS	NS	**14.8**	NS	NS	NS	NS	<3.2	NS	NS	**11.7** JFD*8.5	<3.2 JFD*8.5	NS	<1020	NS	NS	**11.3**	<3.4	<98.2	**8.1**	<524
Dichlorodifluoromethane	NE	NE	NS	NS	NS	**2.0**	NS	NS	NS	NS	**2.0**	NS	NS	**2.3**	**1.9**	NS	<591	NS	NS	**2.1**	<2.0	<56.7	**2.1**	<302
Ethanol	NE	NE	NS	NS	NS	**78.1**	NS	NS	NS	NS	**230**	NS	NS	**46.4** JFD82.1	**19.4** JFD82.1	NS	<1120	NS	NS	**38.3**	**10.0**	<108	**34.1**	<574
Ethyl acetate	8300	25000	NS	NS	NS	<1.4	NS	NS	NS	NS	<1.3	NS	NS	<1.4	<1.3	NS	<429	NS	NS	<1.4	<1.4	<41.1	<1.4	<219
Ethylbenzene	1300	13000	NS	NS	NS	**2.8**	NS	NS	NS	NS	**2.5**	NS	NS	**1.7**	<1.6	NS	<517	NS	NS	**20.0**	**1.9**	<49.5	**5.0**	<264
Methyl-tert-butyl ether	13000	130000	NS	NS	NS	<7.0	NS	NS	NS	NS	<6.7	NS	NS	<6.8	<6.7	NS	<2140	NS	NS	**9.1**	<7.1	<205	<7.1	<1100
Methylene Chloride	70000	210000	NS	NS	NS	**55.7**	NS	NS	NS	NS	**41.6**	NS	NS	**41.7**	**31.8**	NS	<2070	NS	NS	**38.9**	**17.9**	<198	**30.4**	<1060
Naphthalene	1100	3200	NS	NS	NS	<5.1	NS	NS	NS	NS	<4.9	NS	NS	<5.0	<4.9	NS	<1560	NS	NS	<5.0	<5.2	<149	**6.2**	<796
Propylene	370000	1100000	NS	NS	NS	<0.66	NS	NS	NS	NS	<0.64	NS	NS	**7.2**	**6.3**	NS	<205	NS	NS	**11.4**	<0.68	<19.6	**4.6**	<105
Styrene	110000	320000	NS	NS	NS	<1.6	NS	NS	NS	NS	<1.6	NS	NS	<1.6	<1.6	NS	<507	NS	NS	<1.6	<1.7	<48.6	**1.9**	<259
Tetrachloroethene	1100	5300	<530	<140	<140	**19.5**	<420	<540	<470	<54	**16.8**	<350	<530	**26.7** JFD67.7	**13.2** JFD67.7	<5700	<403	<2000	<1300	**23.9**	**4.1**	<77.4	**8.1**	<206
Tetrahydrofuran	230000	700000	NS	NS	NS	**4.1**	NS	NS	NS	NS	**2.4**	NS	NS	**5.2**	**3.7**	NS	<351	NS	NS	<1.1	**1.2**	<33.7	**9.0**	<180
Toluene	470000	1400000	NS	NS	NS	**7.4**	NS	NS	NS	NS	**9.6**	NS	NS	**19.3**	**13.0**	NS	<449	NS	NS	**6.8**	<1.5	<43.0	**3.3**	<229
Trichloroethene	230	700	**560**	**3400 JFD61**	**6400 JFD61**	**702**	**260**	**290**	<380	**1100**	**41.5**	<280	**3900**	**38.8**	**37.5**	**55000**	**169000**	**100000**	**120000**	**13200**	**7910**	**7490**	**48200**	**41000**
Trichlorofluoromethane	120000	370000	NS	NS	NS	<2.2	NS	NS	NS	NS	<2.1	NS	NS	**16.7**	**15.0**	NS	<668	NS	NS	<2.1	<2.2	<64.0	<2.2	<341
Vinyl chloride	730	7300	<200	<51	<51	<0.49	<160	<200	<180	<20	<0.48	<130	<200	<0.49	<0.48	<2100	<152	<770	<510	<0.49	<0.50	<14.6	<0.50	<77.8
cis-1,2-Dichloroethene	NE	NE	<310	<79	<79	<1.5	<250	<320	<280	<32	<1.5	<210	<310	<1.5	<1.5	<3300	**833**	<1200	<790	**4.8**	**5.5**	<45.2	**3.5**	<241
cis-1,3-Dichloropropene	830	7000	NS	NS	NS	<1.8	NS	NS	NS	NS	<1.7	NS	NS	<1.7	<1.7	NS	<541	NS	NS	<1.7	<1.8	<51.8	<1.8	<276
m&p-Xylene	12000	37000	NS	NS	NS	**11.1**	NS	NS	NS	NS	**10.6**	NS	NS	**8.0**	**5.3**	NS	<1040	NS	NS	**82.7**	**9.1**	**105**	**16.2**	<530
n-Heptane	47000	140000	NS	NS	NS	<1.6	NS	NS	NS	NS	**4.1**	NS	NS	<1.6	**2.6**	NS	<488	NS	NS	**6.6**	**2.0**	<46.7	**1.8**	<249
n-Hexane	83000	250000	NS	NS	NS	**5.0**	NS	NS	NS	NS	**4.9**	NS	NS	**3.9**	**2.9**	NS	<419	NS	NS	**6.3**	**1.9**	<40.2	**3.4**	<214
o-Xylene	12000	37000	NS	NS	NS	**5.8**	NS	NS	NS	NS	**4.3**	NS	NS	**4.1**	**2.7**	NS	<517	NS	NS	**65.9**	**6.5**	**50.7**	**7.8**	<264
trans-1,2-Dichloroethene*	8300*	25000	**23000**	**7600**	**11000**	**226**	**16000**	**22000**	**20000**	**3200**	**63.3**	**22000**	**19000**	**90.6**	**85.4**	**320000**	**278000**	**78000**	**76000**	**6410**	**7190**	**4720**	**13800**	**11300**

Notes:

EPA = Environmental Protection Agen
MPCA = Minnesota Pollution Control Agency
ISV = Intrusion Screening Value
EISV = Expedited Intrusion Screening Value
VOCs = Volatile Organic Compounds
NE = Not Established
ND= Not Detected above laboratory reporting limits
ug/m3 = micrograms per meter cubed

Qualifiers (DSA designation - No EPA Code Available):

JFD# = These samples and there associated pair observed a RPD result that was outside of the 50% QAPP limit previously specified; The # value represents the RPD number for the associated sample analyte.

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

33X Industrial ISV Exceedance

33X Industrial EISV Exceedance

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV memorandum issued by the Minnesota Department of Health; 33X Industrial ISV = 8,300 ug/m3

Table 6
Sub-Slab Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	33X Industrial ISV	33X Industrial EISV	Main Coating							Main Coating							Main Coating				
			SS-11	SS-11	SS-11	SS-11	SS-11-2	DUP122319	SS-11-2	SS-12	SS-12	SS-12	SS-12	SS-12-2	SS-12-2	SS-13	SS-13	SS-13	SS-13-2	SS-13-2
		Date	06/11/19	9/16/2019	10/3/2019	10/7/2019	12/23/2019	12/23/2019	12/26/2019	06/11/19	9/16/2019	10/3/2019	10/7/2019	12/23/2019	12/26/2019	06/11/19	9/16/2019	10/3/2019	12/23/2019	12/26/2019
		LUI #	GS00702	GS00702	GS00702	GS00702	GS00702	SS-11	GS00702	GS00703	GS00703	GS00703	GS00703	GS00703	GS00703	GS00704	GS00704	GS00704	GS00704	GS00704
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detec																				
1,1,1-Trichloroethane	600000	1800000	<6900	<664	<548	<517	**5.4**	**5.1**	<64.6	<8000	<43.1	**3.8**	<65.9	**8.7**	<320	<420	<2.0	<2.3	**3.5**	<22.4
1,1-Dichloroethane	NE	NE	<5100	<492	<407	<383	<1.6	<1.6	<47.9	<5900	<31.9	<1.7	<48.9	<1.5	<237	<310	<1.5	<1.7	<1.7	<16.6
1,1-Dichloroethene	23000	70000	<5000	<482	<398	<375	<1.6	<1.6	<46.9	<5800	<31.3	<1.7	<47.9	<1.5	<232	<310	<1.5	<1.7	<1.7	<16.3
1,2,4-Trimethylbenzene	7000	21000	NS	<598	<494	<465	**7.6**	**9.3**	<58.1	NS	**266**	**1190**	**1020**	**30.2**	<288	NS	**48.6**	**13.5**	**30.6**	<20.2
1,2-Dichloroethane	130	1300	<5100	<246	<203	<191	<0.80	<0.80	<23.9	<5900	<15.9	<0.85	<24.4	<0.77	<118	<310	<0.74	<0.86	<0.86	<8.3
1,3,5-Trimethylbenzene	7000	21000	NS	<598	<494	<465	**3.7**	**4.5**	<58.1	NS	**91.2**	**228**	**312**	**10.2**	<288	NS	**16.4**	**4.2**	**12.3**	<20.2
1,3-Dichlorobenzene	NE	NE	NS	<730	<603	<568	**2.9**	**3.1**	<71.0	NS	<47.3	<2.5	<72.5	**2.4**	<351	NS	<2.2	<2.6	**2.7**	<24.6
2-Butanone (MEK)	600000	1800000	NS	<1800	<1480	<1400	**11.3**	**11.1**	<175	NS	<116	**7.7**	<178	**10.8**	<864	NS	**6.3**	**7.1**	**22.2**	<60.6
2-Propanol	23000	70000	NS	<1500	<1240	<1160	**10.8**	**9.0**	<146	NS	<97.0	**53.1**	<148	**12.8**	<720	NS	**18.7**	**56.2**	**77.3**	<50.5
4-Ethyltoluene	NE	NE	NS	<1500	<1240	<1160	<4.8	<4.8	<146	NS	<97.0	**97.8**	<148	**8.2**	<720	NS	**7.3**	<5.2	**7.0**	<50.5
4-Methyl-2-pentanone (MIBK)	370000	1100000	NS	<2490	<2060	<1940	<8.1	<8.1	<242	NS	<161	<8.6	**404**	<7.8	<1200	NS	**8.1**	**9.1**	<8.7	<84.0
Acetone	3700000	11000000	NS	<1440	<1190	<1120	**78.0**	**75.2**	<140	NS	<93.5	**79.6**	<143	**54.3**	<694	NS	**105**	**63.7**	**205**	**222**
Benzene	1500	11000	NS	<194	<161	<151	**3.9**	**3.8**	<18.9	NS	<12.6	<0.67	<19.3	**1.6**	<93.6	NS	**0.65**	<0.68	**1.0**	<6.6
Carbon disulfide	93000	280000	NS	<379	<313	<295	**10.1**	**35.1**	<36.8	NS	<24.6	<1.3	<37.6	<1.2	<182	NS	**3.1**	<1.3	<1.3	<12.8
Chloroethane	470000	1400000	<8300	<321	<265	<250	<1.0	<1.0	<31.2	<9600	<20.8	<1.1	<31.8	<1.0	<154	<510	<0.96	<1.1	<1.1	<10.8
Chloroform	12000	37000	NS	<297	<245	<231	**16.1**	**17.0**	<28.9	NS	<19.2	**4.9**	<29.5	**6.2**	<143	NS	<0.89	<1.0	<1.0	<10.0
Chloromethane	11000	32000	NS	<251	<207	<196	<0.81	<0.81	<24.4	NS	<16.3	<0.87	<24.9	<0.79	<121	NS	<0.76	<0.88	<0.88	<8.5
Cyclohexane	700000	2100000	NS	<1050	<864	<815	**9.3**	**7.9**	<102	NS	<67.9	**7.4**	<104	**3.9**	<504	NS	**10.4**	**5.4**	**8.1**	<35.4
Dichlorodifluoromethane	NE	NE	NS	<604	<499	<470	**2.6**	**2.7**	<58.8	NS	<39.2	<2.1	<60.0	**2.3**	<291	NS	**2.1**	<2.1	<2.1	<20.4
Ethanol	NE	NE	NS	<1150	<948	<894	**161**	**181**	**251**	NS	**99.6**	**396**	<114	**80.0**	<553	NS	**28.9**	**305**	**527**	**271**
Ethyl acetate	8300	25000	NS	<439	<362	<341	<1.4	<1.4	<42.7	NS	<28.4	<1.5	<43.5	<1.4	<211	NS	<1.3	<1.5	<1.5	<14.8
Ethylbenzene	1300	13000	NS	**775**	**597**	<411	**139**	**170**	**162**	NS	**143**	**990**	**684**	**49.9**	<254	NS	**19.2**	**5.8**	**52.6**	<17.8
Methyl-tert-butyl ether	13000	130000	NS	<2190	<1810	<1700	<7.1	<7.1	<213	NS	<142	<7.5	<217	<6.8	<1050	NS	<6.6	<7.7	<7.7	<73.9
Methylene Chloride	70000	210000	NS	<2110	<1740	<1640	**21.3**	**28.9**	<205	NS	<137	**20.5**	<210	**25.3**	<1020	NS	**24.7**	**27.7**	**29.6**	<71.3
Naphthalene	1100	3200	NS	<1590	<1310	<1240	**5.5**	<5.2	<155	NS	<103	<5.5	<158	<5.0	<766	NS	<4.8	<5.6	<5.6	<53.7
Propylene	370000	1100000	NS	<209	<173	<163	**44.4**	**42.4**	**55.1**	NS	<13.6	<0.72	<20.8	**12.4**	<101	NS	<0.63	**4.1**	<0.74	<7.1
Styrene	110000	320000	NS	<518	<428	<403	**1.7**	<1.7	<50.4	NS	<33.6	<1.8	<51.4	<1.6	<249	NS	<1.6	<1.8	<1.8	<17.5
Tetrachloroethene	1100	5300	<8500	<412	<340	<642	**25.5**	**30.0**	<40.1	<9900	**111**	**225**	**243**	**73.7**	<198	**110**	**56.2**	**15.8**	**9.5**	<13.9
Tetrahydrofuran	230000	700000	NS	<359	<296	<279	**12.2**	**9.1**	<34.9	NS	<23.3	**2.9**	<35.6	**23.2**	<173	NS	**5.3**	**1.6**	**11.1**	<12.1
Toluene	470000	1400000	NS	<458	<378	<357	**10.7**	**10.6**	<44.6	NS	<29.7	**24.0**	<45.5	**24.9**	<221	NS	**9.9**	**4.4**	**8.1**	<15.5
Trichloroethene	230	700	**39000**	**63000**	**34200**	**34500**	**69400**	**65900**	**50400**	**70000**	**4560**	**9030**	**19400**	**46900**	**44000**	**38000**	**1870**	**557**	**680**	**280**
Trichlorofluoromethane	120000	370000	NS	<682	<563	<531	<2.2	<2.2	<66.3	NS	<44.2	<2.3	<67.7	<2.1	<328	NS	<2.1	<2.4	<2.4	<23.0
Vinyl chloride	730	7300	<3200	<156	<128	<121	<0.50	<0.50	<15.1	<3700	<10.1	<0.54	<15.4	<0.49	<74.9	<200	<0.47	<0.55	<0.55	<5.3
cis-1,2-Dichloroethene	NE	NE	<5000	**1530**	**720**	**792**	**75.8**	**81.7**	**105**	<5800	**32.5**	**20.0**	<47.9	**9.4**	<232	<310	<1.5	<1.7	<1.7	<16.3
cis-1,3-Dichloropropene	830	7000	NS	<552	<456	<430	<1.8	<1.8	<53.7	NS	<35.8	<1.9	<54.8	<1.7	<266	NS	<1.7	<1.9	<1.9	<18.6
m&p-Xylene	12000	37000	NS	**2710**	**2040**	**1220**	**370**	**466**	**545**	NS	**662**	**4600**	**3180**	**188**	<510	NS	**98.4**	**27.0**	**174**	**41.4**
n-Heptane	47000	140000	NS	<498	<412	<388	**13.9**	**11.3**	<48.5	NS	<32.3	<1.7	<49.5	**6.4**	<240	NS	**4.2**	**3.4**	**4.0**	<16.8
n-Hexane	83000	250000	NS	<428	<354	<333	**5.5**	**5.8**	<41.7	NS	<27.8	**3.2**	<42.5	**4.0**	<206	NS	**3.3**	**4.4**	**3.5**	<14.5
o-Xylene	12000	37000	NS	**1010**	**642**	**412**	**89.0**	**116**	**113**	NS	**342**	**2090**	**1760**	**75.0**	<254	NS	**51.0**	**14.9**	**87.9**	**19.7**
trans-1,2-Dichloroethene*	8300*	25000	**410000**	**584000**	**216000**	**194000**	**46900**	**47300**	**33100**	**530000**	**23800**	**13200**	**7110**	**22300**	**17600**	**60000**	**3310**	**205**	**329**	**272**

Notes: **Qualifiers (DSA designation - No E**

EPA = Environmental Protection Agen JFD# = These samples an

MPCA = Minnesota Pollution Control Agency 50% QAPP limit pl

ISV = Intrusion Screening Value associated sample

EISV = Expedited Intrusion Screening Value

VOCs = Volatile Organic Compounds

NE = Not Established

ND= Not Detected above laboratory reporting limits

ug/m3 = micrograms per meter cubed

Bold = analyte detected above the laboratory reporting limit but less th

33X Industrial ISV Exceedance

33X Industrial EISV Exceedance

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV

Table 6
Sub-Slab Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	33X Industrial ISV	33X Industrial EISV	Sample ID, Date Collected & MPCA LUI #																	
			Main Coating							Main Coating							Shipping and Receiving				
			SS-14	SS-14	SS-14	DUP100319	SS-14	SS-14-2	SS-14-2	SS-15	SS-15	DUP091619-B	SS-15	SS-15	SS-15-2	SS-15-2	SS-16	SS-17	SS-18	061119 B	SS-18
		Date	06/11/19	9/16/2019	10/3/2019	10/3/2019	10/7/2019	12/23/2019	12/26/2019	06/11/19	9/16/2019	9/16/2019	10/3/2019	10/7/2019	12/23/2019	12/26/2019	06/11/19	06/11/19	06/11/19	06/11/19	9/17/2019
		LUI #	GS00706	GS00706	GS00706	SS-14	GS00706	GS00706	GS00706	GS00705	GS00705	SS-15	GS00705	GS00705	GS00705	GS00705	GS00707	GS00708	GS00709	SS-18	GS00709
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detec																					
1,1,1-Trichloroethane	600000	1800000	<2200	<2.0	<2.4	<2.3	<62.3	<2.4	<2.0	<280	<2.2	**2.9**	**3.6**	<59.9	**2.9**	<20.8	**99**	**470**	**630**	**460**	**28.8**
1,1-Dichloroethane	NE	NE	<1600	<1.5	<1.8	<1.7	<46.2	<1.8	<1.5	<210	<1.6	<1.5	<1.6	<44.4	<2.0	<15.4	**17**	<32	**15**	**8.2**	<1.5
1,1-Dichloroethene	23000	70000	<1600	<1.5	<1.7	<1.7	<45.2	<1.8	<1.5	<210	<1.6	<1.5	<1.6	<43.5	<1.9	<15.1	<32	<32	<24	<7.9	<1.5
1,2,4-Trimethylbenzene	7000	21000	NS	**9.2**	**34.7**	**31.5**	**111**	**5.9**	**3.0**	NS	**55.3**	**55.4**	**32.9**	<53.9	**7.9**	**28.9**	NS	NS	NS	NS	**10.2**
1,2-Dichloroethane	130	1300	<1600	<0.74	<0.88	<0.86	<23.1	<0.90	<0.74	<210	<0.81	<0.77	<0.80	<22.2	<0.99	<7.7	<32	<32	<24	<8.1	<0.74
1,3,5-Trimethylbenzene	7000	21000	NS	**3.2**	**17.0**	**16.0**	**57.7**	**2.6**	<1.8	NS	**21.6**	**22.8**	**13.8**	<53.9	**4.1**	<18.7	NS	NS	NS	NS	**2.8**
1,3-Dichlorobenzene	NE	NE	NS	<2.2	<2.6	<2.6	<68.4	<2.7	<2.2	NS	<2.4	<2.3	<2.4	<65.9	<2.9	<22.8	NS	NS	NS	NS	<2.2
2-Butanone (MEK)	600000	1800000	NS	<5.4	<6.4	<6.3	<168	**8.1**	**6.8**	NS	<5.9	<5.6	<5.8	<162	**10.5**	<56.1	NS	NS	NS	NS	**17.2**
2-Propanol	23000	70000	NS	**32.4**	**8.3**	**8.3**	<140	**14.7**	**8.6**	NS	**28.9** JFD*13.1	**15.8** JFD*13.1	**8.5**	<135	**6.7**	<46.8	NS	NS	NS	NS	**42.7**
4-Ethyltoluene	NE	NE	NS	<4.5	**5.7**	<5.2	<140	<5.5	<4.5	NS	**6.3**	**6.0**	<4.8	<135	<6.0	<46.8	NS	NS	NS	NS	<4.5
4-Methyl-2-pentanone (MIBK)	370000	1100000	NS	**13.4**	**22.1**	**28.8**	<233	<9.1	<7.5	NS	<8.2	<7.8	<8.1	<225	<10.0	<77.8	NS	NS	NS	NS	<7.5
Acetone	3700000	11000000	NS	**95.8**	**21.7**	**18.4**	<135	**90.0**	**27.8**	NS	**41.5**	**32.8**	**19.6**	<130	**40.4**	<45.1	NS	NS	NS	NS	**80.3**
Benzene	1500	11000	NS	**13.5**	<0.70	<0.68	<18.2	<0.71	**1.1**	NS	**0.71**	**0.63**	<0.63	<17.6	**1.2**	<6.1	NS	NS	NS	NS	**6.2**
Carbon disulfide	93000	280000	NS	**1.5**	<1.4	<1.3	<35.5	<1.4	<1.1	NS	<1.3	<1.2	<1.2	<34.2	<1.5	<11.8	NS	NS	NS	NS	<1.1
Chloroethane	470000	1400000	<2600	<0.96	<1.2	<1.1	<30.1	<1.2	<0.96	<340	<1.1	<1.0	<1.0	<28.9	<1.3	<10.0	<53	<53	<40	<13	<0.96
Chloroform	12000	37000	NS	<0.89	**4.0**	**5.8**	<27.8	**13.7**	**11.8**	NS	<0.98	<0.93	**2.4**	<26.8	**2.8**	<9.3	NS	NS	NS	NS	**10.7**
Chloromethane	11000	32000	NS	<0.76	<0.90	<0.88	<23.6	<0.92	**1.6**	NS	**1.3**	<0.79	<0.81	<22.7	<1.0	<7.9	NS	NS	NS	NS	<0.76
Cyclohexane	700000	2100000	NS	<3.2	**9.9**	<3.7	<98.2	**8.4**	**7.6**	NS	**5.8**	<3.3	<3.4	<94.5	**7.0**	<32.7	NS	NS	NS	NS	<3.2
Dichlorodifluoromethane	NE	NE	NS	**2.0**	**3.0**	<2.1	<56.7	**2.5**	**2.3**	NS	**2.2**	**2.1**	<2.0	<54.5	<2.4	<18.9	NS	NS	NS	NS	**2.5**
Ethanol	NE	NE	NS	**49.4**	**27.8**	**28.2**	<108	**238**	**248**	NS	**37.3** JFD61.3	**19.8** JFD61.3	**15.7**	<104	**44.1**	**105**	NS	NS	NS	NS	**87.0**
Ethyl acetate	8300	25000	NS	<1.3	<1.6	<1.5	<41.1	**4.4**	<1.3	NS	<1.5	<1.4	<1.4	<39.6	<1.8	<13.7	NS	NS	NS	NS	<1.3
Ethylbenzene	1300	13000	NS	**38.3**	**26.1**	**22.0**	**130**	**6.2**	**3.4**	NS	**14.9**	**14.7**	**8.6**	<47.7	**4.9**	<16.5	NS	NS	NS	NS	**6.3**
Methyl-tert-butyl ether	13000	130000	NS	<6.6	<7.9	<7.7	<205	<8.0	<6.6	NS	<7.2	<6.8	<7.1	<198	<8.8	<68.4	NS	NS	NS	NS	<6.6
Methylene Chloride	70000	210000	NS	**23.2**	**51.2** JFD*31.1	**20.1** JFD*31.1	<198	**60.1**	<6.4	NS	**49.1** JFD59	**90.2** JFD59	**17.3**	<191	**33.1**	<66.0	NS	NS	NS	NS	**35.3**
Naphthalene	1100	3200	NS	<4.8	<5.7	<5.6	<149	**5.9**	<4.8	NS	<5.3	<5.0	<5.2	<144	**7.4**	<49.7	NS	NS	NS	NS	<4.8
Propylene	370000	1100000	NS	<0.63	<0.75	<0.74	<19.6	<0.77	<0.63	NS	**4.3** JFD147	<0.65 JFD147	**3.9**	<18.9	<0.84	<6.5	NS	NS	NS	NS	**16.0**
Styrene	110000	320000	NS	<1.6	<1.9	<1.8	<48.6	**2.0**	<1.6	NS	<1.7	<1.6	<1.7	<46.8	<2.1	<16.2	NS	NS	NS	NS	**2.9**
Tetrachloroethene	1100	5300	<2700	**14.9**	**30.6**	**26.0**	**92.3**	**2.8**	**3.1**	**180**	**31.5**	**33.1**	**16.7**	<74.5	**3.5**	<12.9	<54	<54	**7.2**	**12**	**6.8**
Tetrahydrofuran	230000	700000	NS	**3.4**	**2.4**	**2.0**	<33.7	**9.6**	**7.9**	NS	**2.8**	<1.1	<1.2	<32.4	**11.0**	<11.2	NS	NS	NS	NS	**3.9**
Toluene	470000	1400000	NS	**9.4**	**11.1**	**9.3**	<43.0	**4.2**	**3.5**	NS	**6.1**	**4.2**	**2.3**	<41.4	**4.1**	<14.3	NS	NS	NS	NS	**27.7**
Trichloroethene	230	700	**23000**	**210**	**5400**	**3970**	**7890**	**535**	**471**	**23000**	**2790**	**3000**	**4730**	**7580**	**560**	**636**	**88**	**170**	**1200**	**900**	**270**
Trichlorofluoromethane	120000	370000	NS	<2.1	**5.0**	<2.4	<64.0	<2.5	<2.1	NS	<2.3	<2.1	<2.2	<61.6	**2.8**	<21.3	NS	NS	NS	NS	<2.1
Vinyl chloride	730	7300	<1000	<0.47	<0.56	<0.55	<14.6	<0.57	<0.47	<130	<0.51	<0.49	<0.50	<14.0	<0.62	<4.9	<20	<20	<15	<5.1	<0.47
cis-1,2-Dichloroethene	NE	NE	<1600	<1.5	<1.7	<1.7	<45.2	<1.8	<1.5	**300**	<1.6	<1.5	<1.6	<43.5	<1.9	<15.1	<32	<32	<24	<7.9	<1.5
cis-1,3-Dichloropropene	830	7000	NS	<1.7	<2.0	<1.9	<51.8	<2.0	<1.7	NS	<1.8	<1.7	<1.8	<49.8	<2.2	<17.3	NS	NS	NS	NS	<1.7
m&p-Xylene	12000	37000	NS	**42.4**	**116**	**100**	**560**	**12.2**	**7.9**	NS	**73.8**	**72.2**	**45.1**	**167**	**19.1**	**56.7**	NS	NS	NS	NS	**26.1**
n-Heptane	47000	140000	NS	**25.0**	**9.2** JFD*5.4	**3.8** JFD*5.4	<46.7	**3.0**	<1.5	NS	**1.9**	<1.6	<1.6	<45.0	**2.7**	<15.6	NS	NS	NS	NS	**8.5**
n-Hexane	83000	250000	NS	**5.6**	**10.4** JFD*7.8	**2.6** JFD*7.8	<40.2	**6.2**	<1.3	NS	**4.2** JFD*5.2	**9.4** JFD*5.2	**2.1**	<38.7	**3.9**	<13.4	NS	NS	NS	NS	**4.8**
o-Xylene	12000	37000	NS	**10.7**	**66.0**	**60.1**	**341**	**8.2**	**3.8**	NS	**64.3**	**68.8**	**47.5**	**116**	**12.4**	**29.9**	NS	NS	NS	NS	**10.4**
trans-1,2-Dichloroethene*	8300*	25000	**150000**	**1340**	**1030**	**910**	**1130**	**66.0**	**89.2**	**11000**	**2940** JFD68.5	**1440** JFD6.85	**517**	**877**	**28.1**	**28.0**	**3400**	**3500**	**2400 JFD90**	**910 JFD90**	**81.8**

Notes: **Qualifiers (DSA designation - No E**

EPA = Environmental Protection Agen
MPCA = Minnesota Pollution Control Agency
ISV = Intrusion Screening Value
EISV = Expedited Intrusion Screening Value
VOCs = Volatile Organic Compounds
NE = Not Established
ND= Not Detected above laboratory reporting limits
ug/m3 = micrograms per meter cubed

JFD# = These samples an
50% QAPP limit pr
associated sample

Bold = analyte detected above the laboratory reporting limit but less th

33X Industrial ISV Exceedance

33X Industrial EISV Exceedance

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV

Table 6
Sub-Slab Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	33X Industrial ISV	33X Industrial EISV	Coating 2						Coating 2							Cold Forming					Chemical Storage			
			SS-19	SS-19	SS-19	SS-19	Duplicate 10/7/19	SS-19-2	SS-20	SS-20	SS-20	SS-20	SS-20-2	DUP122619 CERT#1030	DUP122619	SS-21	SS-22	SS-22	SS-23	SS-23	SS-24	SS-24	SS-25	SS-25
		Date	06/11/19	9/17/2019	10/3/2019	10/7/2019	10/7/2019	12/26/2019	06/11/19	9/17/2019	10/3/2019	10/7/2019	12/26/2019	12/26/2019	12/26/2019	06/12/19	06/12/19	9/17/2019	06/12/19	9/17/2019	06/12/19	9/17/2019	06/12/19	9/17/2019
		LUI #	GS00710	GS00710	GS00710	GS00710	SS-19	GS00710	GS00711	GS00711	GS00711	GS00711	GS00711	SS-20-2	SS-20-2	GS00713	GS00715	GS00715	GS00714	GS00714	GS00716	GS00716	GS00717	GS00717
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detec																								
1,1,1-Trichloroethane	600000	1800000	**1100**	**8.1**	**2.5**	<60.9	<62.3	<69.9	**230**	**3.0**	<1.9	<2.0	<21.5	<1.1	<22.0	**16**	<27	<2.0	<49	<59.9	<2700	<63.3	<220	<64.6
1,1-Dichloroethane	NE	NE	**18**	<1.5	<1.5	<45.2	<46.2	<51.8	<40	<1.5	<1.4	<1.5	<16.0	<0.82	<16.3	<8.1	<20	<1.5	<36	<44.4	<2000	<46.9	<160	<47.9
1,1-Dichloroethene	23000	70000	<16	<1.5	<1.5	<44.2	<45.2	<50.8	<40	<1.5	<1.4	<1.5	<15.6	<0.81	<16.0	<7.9	<20	<1.5	<36	<43.5	<2000	<45.9	<160	<46.9
1,2,4-Trimethylbenzene	7000	21000	NS	**22.8**	**19.6**	<54.8	<56.0	<62.9	NS	**6.7**	<1.7	**26.0**	<19.4	<1.0	<19.8	NS	NS	**7.8**	NS	<53.9	NS	<56.9	NS	<58.1
1,2-Dichloroethane	130	1300	<16	<0.77	<0.77	<22.6	<23.1	<25.9	<40	<0.77	<0.72	<0.74	<8.0	<0.41	<8.1	<8.1	<20	<0.75	<36	<22.2	<2000	<23.4	<160	<23.9
1,3,5-Trimethylbenzene	7000	21000	NS	**6.3**	**4.5**	<54.8	<56.0	<62.9	NS	**2.2**	<1.7	**10.4**	<19.4	<1.0	<19.8	NS	NS	**2.4**	NS	<53.9	NS	<56.9	NS	<58.1
1,3-Dichlorobenzene	NE	NE	NS	<2.3	<2.3	<67.0	<68.4	<76.9	NS	<2.3	<2.1	<2.2	<23.7	<1.2	<24.2	NS	NS	<2.2	NS	<65.9	NS	<69.5	NS	<71.0
2-Butanone (MEK)	600000	1800000	NS	**11.9**	<5.6	<165	<168	<189	NS	<5.6	<5.2	<5.4	<58.2	<3.0	<59.4	NS	NS	**24.2**	NS	<162	NS	<171	NS	<175
2-Propanol	23000	70000	NS	**14.2**	<4.7	<137	<140	<158	NS	**7.2**	**51.4**	**24.7**	<48.5	<2.5	<49.5	NS	NS	**131**	NS	<135	NS	<142	NS	<146
4-Ethyltoluene	NE	NE	NS	<4.7	<4.7	<137	<140	<158	NS	<4.7	<4.4	<4.5	<48.5	<2.5	<49.5	NS	NS	<4.6	NS	<135	NS	<142	NS	<146
4-Methyl-2-pentanone (MIBK)	370000	1100000	NS	**22.4**	**24.0**	<228	<233	<262	NS	**148**	**67.6**	**14.1**	<80.7	<4.2	<82.4	NS	NS	**12.1**	NS	<225	NS	<237	NS	<242
Acetone	3700000	11000000	NS	**110**	**21.1**	<132	<135	**371**	NS	**18.3**	**8.8**	**14.2**	<46.8	<2.4	**48.6**	NS	NS	**420**	NS	<130	NS	<137	NS	<140
Benzene	1500	11000	NS	**1.2**	<0.61	<17.8	<18.2	<20.5	NS	<0.61	<0.57	**0.64**	<6.3	<0.32	<6.4	NS	NS	**2.2**	NS	<17.6	NS	<18.5	NS	<18.9
Carbon disulfide	93000	280000	NS	<1.2	<1.2	<34.8	<35.5	<39.9	NS	<1.2	<1.1	<1.1	<12.3	<0.63	<12.5	NS	NS	<1.2	NS	<34.2	NS	<36.1	NS	<36.8
Chloroethane	470000	1400000	<26	<1.0	<1.0	<29.4	<30.1	<33.8	<66	<1.0	<0.93	<0.96	<10.4	<1.3	<10.6	<13	<33	<0.98	<59	<28.9	<3300	<30.6	<260	<31.2
Chloroform	12000	37000	NS	**1.9**	<0.93	<27.2	<27.8	<31.2	NS	**1.9**	<0.86	<0.89	<9.6	<0.50	<9.8	NS	NS	**70.4**	NS	<26.8	NS	**104**	NS	<28.9
Chloromethane	11000	32000	NS	<0.79	<0.79	<23.1	<23.6	<26.5	NS	<0.79	<0.73	<0.76	<8.1	<0.42	<8.3	NS	NS	**2.6**	NS	<22.7	NS	<23.9	NS	<24.4
Cyclohexane	700000	2100000	NS	**18.5**	**6.3**	<96.1	<98.2	<110	NS	**12.2**	<3.0	<3.2	<34.0	<1.8	<34.6	NS	NS	<3.2	NS	<94.5	NS	<99.8	NS	<102
Dichlorodifluoromethane	NE	NE	NS	**2.6**	<1.9	<55.4	<56.7	<63.6	NS	**2.4**	<1.8	<1.8	<19.6	<1.0	<20.0	NS	NS	**2.6**	NS	<54.5	NS	<57.6	NS	<58.8
Ethanol	NE	NE	NS	**35.3**	**23.5**	<105	<108	**3050**	NS	**20.9**	**279**	**31.8**	**113**	<1.9	**170**	NS	NS	**193**	NS	<104	NS	<109	NS	<112
Ethyl acetate	8300	25000	NS	<1.4	<1.4	<40.2	<41.1	<46.2	NS	<1.4	<1.3	<1.3	<14.2	<0.73	<14.5	NS	NS	<1.3	NS	<39.6	NS	<41.8	NS	<42.7
Ethylbenzene	1300	13000	NS	**54.5**	**12.1**	<48.5	<49.5	<55.6	NS	**82.7**	**11.8**	**28.5**	<17.1	<0.88	<17.5	NS	NS	**4.4**	NS	<47.7	NS	**68.8**	NS	<51.4
Methyl-tert-butyl ether	13000	130000	NS	<6.8	<6.8	<201	<205	<231	NS	<6.8	<6.4	<6.6	<71.0	<3.7	<72.5	NS	NS	<6.7	NS	<198	NS	<209	NS	<213
Methylene Chloride	70000	210000	NS	**35.1**	**14.0**	<194	<198	<222	NS	**74.3**	**11.1**	**11.5**	<68.5	<3.5	<69.9	NS	NS	**41.1**	NS	<191	NS	<201	NS	<205
Naphthalene	1100	3200	NS	<5.0	<5.0	<146	<149	<168	NS	<5.0	<4.6	<4.8	<51.6	<2.7	<52.7	NS	NS	<4.9	NS	<144	NS	<152	NS	<155
Propylene	370000	1100000	NS	**5.7**	<0.65	<19.2	<19.6	<22.0	NS	<0.65	<0.61	<0.63	<6.8	<0.35	<6.9	NS	NS	<0.64	NS	<18.9	NS	<20.0	NS	**30.9**
Styrene	110000	320000	NS	<1.6	<1.6	<47.5	<48.6	<54.6	NS	<1.6	<1.5	<1.6	<16.8	<0.87	<17.1	NS	NS	<1.6	NS	<46.8	NS	<49.4	NS	<50.4
Tetrachloroethene	1100	5300	**30**	**14.5**	**1.4**	<75.7	<77.4	<43.4	<68	**16.8**	<1.2	**10.1**	<13.4	<0.69	<13.6	<14	<34	**28.9**	<61	<37.2	<3400	**479**	**40**	<40.1
Tetrahydrofuran	230000	700000	NS	<1.1	**1.1**	<32.9	<33.7	<37.8	NS	<1.1	**1.0**	<1.1	<11.6	<0.60	<11.9	NS	NS	**8.4**	NS	<32.4	NS	<34.2	NS	<34.9
Toluene	470000	1400000	NS	**11.0**	**5.8**	<42.1	<43.0	<48.3	NS	**4.4**	<1.3	**9.5**	<14.9	<0.77	<15.2	NS	NS	**15.0**	NS	<41.4	NS	<43.7	NS	<44.6
Trichloroethene	230	700	**3800**	**510**	**989**	**1210**	**1100**	**2590**	**830**	**542**	**607**	**876**	**185**	<0.55	**185**	**220**	**1600**	**1570**	**830**	**4170**	**25000**	**65400**	**18000**	**4380**
Trichlorofluoromethane	120000	370000	NS	<2.1	<2.1	<62.6	<64.0	<71.8	NS	<2.1	<2.0	<2.1	<22.1	<1.1	<22.6	NS	NS	**7.1**	NS	<61.6	NS	<65.0	NS	<66.3
Vinyl chloride	730	7300	<10	<0.49	<0.49	<14.3	<14.6	<16.4	<26	<0.49	<0.45	<0.47	<5.0	<0.26	<5.1	<5.1	<13	<0.48	<23	<14.0	<1300	<14.8	<100	<15.1
cis-1,2-Dichloroethene	NE	NE	<16	<1.5	**2.5**	<44.2	<45.2	<50.8	<40	<1.5	<1.4	<1.5	<15.6	<0.81	<16.0	<7.9	<20	<1.5	<36	<43.5	<2000	<45.9	<160	<46.9
cis-1,3-Dichloropropene	830	7000	NS	<1.7	<1.7	<50.7	<51.8	<58.1	NS	<1.7	<1.6	<1.7	<17.9	<0.92	<18.3	NS	NS	<1.7	NS	<49.8	NS	<52.6	NS	<53.7
m&p-Xylene	12000	37000	NS	**259**	**63.5**	**97.4**	**99.9**	<112	NS	**405**	**57.9**	**144**	<34.3	<1.8	<35.0	NS	NS	**19.1**	NS	<95.6	NS	**232**	NS	<103
n-Heptane	47000	140000	NS	<1.6	<1.6	<45.7	<46.7	<52.5	NS	<1.6	<1.4	<1.5	<16.2	<0.83	<16.5	NS	NS	**36.0**	NS	<45.0	NS	<47.5	NS	<48.5
n-Hexane	83000	250000	NS	**3.4**	**1.8**	<39.3	<40.2	<45.1	NS	**5.5**	<1.2	<1.3	<13.9	<0.72	<14.2	NS	NS	**4.8**	NS	<38.7	NS	<40.8	NS	<41.7
o-Xylene	12000	37000	NS	**94.2**	**29.9**	<48.5	<49.5	<55.6	NS	**157**	**21.9**	**70.7**	<17.1	<0.88	<17.5	NS	NS	**7.3**	NS	<47.7	NS	**119**	NS	<51.4
trans-1,2-Dichloroethene*	8300*	25000	**1600**	**2070**	**2480**	**2930**	**3180**	**3050**	**3800**	**754**	**2160**	**954**	**612**	<0.81	**596**	**460**	**2600**	**2210**	**4700**	**36300**	**220000**	**31000**	**3400**	**3270**

Notes: **Qualifiers (DSA designation - No E**

EPA = Environmental Protection Agen
MPCA = Minnesota Pollution Control Agency
ISV = Intrusion Screening Value
EISV = Expedited Intrusion Screening Value
VOCs = Volatile Organic Compounds
NE = Not Established
ND= Not Detected above laboratory reporting limits
ug/m3 = micrograms per meter cubed

JFD# = These samples an
50% QAPP limit pr
associated sample

Bold = analyte detected above the laboratory reporting limit but less th

33X Industrial ISV Exceedance

33X Industrial EISV Exceedance

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV r

Table 6
Sub-Slab Vapor Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	33X Industrial ISV	33X Industrial EISV	Locker Room			Northwest Die Cast							Coining		Lunch Room			Shipping and Receiving				East Die Cast		Gravity Cast
			SS-26	SS-26	SS-27	SS-28	SS-29	SS-30	SS-30	SS-31	SS-32	SS-33	SS-34	SS-34	SS-35	DUP082319-A	SS-35	SS-36	DUP082319-B	SS-36	Dup 10/10/19	SS-37	SS-37	SS-38
		Date	8/23/2019	9/16/2019	8/23/2019	8/23/2019	8/23/2019	8/23/2019	10/10/2019	8/23/2019	8/23/2019	8/23/2019	8/23/2019	10/10/2019	8/23/2019	8/23/2019	9/16/2019	8/23/2019	8/23/2019	10/10/2019	10/10/2019	8/23/2019	10/10/2019	10/10/2019
		LUI #	GS00718	GS00718	GS00719	GS00720	GS00762	GS00763	GS00763	GS00764	GS00765	GS00766	GS00767	GS00767	GS00768	DUP082319-A	GS00768	GS00769	DUP082319-B	GS00768	SS-36	GS00770	GS00770	GS00872
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Detec																								
1,1,1-Trichloroethane	600000	1800000	**7.5**	<2.0	**20.3**	**16.5**	**16.5**	**25.4**	<2.1	**19.6**	**6.0**	**7.0**	**4.4**	<2.2	<2.0	<2.0	<2.0	**996**	**1160**	**370**	**343**	<2.2	<2.0	<2.0
1,1-Dichloroethane	NE	NE	<1.4	<1.5	<1.5	<1.5	<1.5	<1.5	<1.6	<1.7	<1.6	<1.5	<1.5	<1.7	<1.5	<1.5	<1.5	<1.5	<1.5	<7.7	<7.8	**7.1**	**5.9**	<1.5
1,1-Dichloroethene	23000	70000	<1.4	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.6	<1.6	<1.5	<1.5	<1.6	<1.5	<1.5	<1.5	<1.5	<1.5	<7.5	<7.7	<1.6	<1.5	<1.5
1,2,4-Trimethylbenzene	7000	21000	<1.7	<1.8	<1.8	<1.9	**2.0**	**9.3**	<1.9	<2.0	<1.9	<1.9	<1.9	**2.4**	<1.8	<1.8	**2.6**	<1.8	<1.9	<9.3	<9.5	**36.4**	**19.8**	**5.1**
1,2-Dichloroethane	130	1300	<0.72	<0.74	<0.74	<0.77	<0.74	<0.74	<0.78	<0.83	<0.80	<0.77	<0.77	<0.83	<0.74	<0.74	<0.74	<0.74	<0.77	<3.8	<3.9	<0.83	<0.75	<0.75
1,3,5-Trimethylbenzene	7000	21000	<1.7	<1.8	<1.8	<1.9	<1.8	**2.7**	<1.9	<2.0	<1.9	<1.9	<1.9	<2.0	<1.8	<1.8	<1.8	<1.8	<1.9	<9.3	<9.5	**24.0**	**14.9**	<1.8
1,3-Dichlorobenzene	NE	NE	**3.1**	<2.2	<2.2	**7.7**	**5.2**	**5.7**	<2.3	<2.5	**3.0**	**3.8**	<2.3	<2.5	<2.2	<2.2	<2.2	<2.2	<2.3	<11.4	<11.6	<2.5	<2.2	<2.2
2-Butanone (MEK)	600000	1800000	**25.9**	**6.2**	**6.5**	**29.7**	**31.4**	**15.4**	<5.7	<6.1	**26.0**	**8.7**	**6.2**	<6.1	**7.6**	**6.6**	<5.4	**8.6** JFD*16	**25.0** JFD*16	<28.0	<28.5	**36.6**	<5.5	**7.1**
2-Propanol	23000	70000	**64.4**	<4.5	**30.7**	**168**	**88.8**	**61.0**	**18.3**	**31.0**	**76.2**	**96.8**	**23.8**	**14.0**	**1220**	**1090**	**77.5**	**39.8** JFD*23	**17.1** JFD*23	<23.4	**29.2**	**47.9**	**8.0**	**43.9**
4-Ethyltoluene	NE	NE	<4.4	<4.5	<4.5	<4.7	<4.5	<4.5	<4.8	<5.0	<4.8	<4.7	<4.7	<5.0	<4.5	<4.5	<4.5	<4.5	<4.7	<23.4	<23.8	**7.3**	<4.6	<4.6
4-Methyl-2-pentanone (MIBK)	370000	1100000	<7.2	<7.5	<7.5	**15.1**	<7.5	<7.5	<7.9	<8.4	<8.1	<7.8	<7.8	<8.4	<7.5	<7.5	<7.5	**91.9** JFD*75	**17.2** JFD*75	<38.9	<39.5	<8.4	<7.6	<7.6
Acetone	3700000	11000000	**137**	**39.4**	**57.3**	**270**	**191**	**72.8**	**56.0**	**36.1**	**194**	**46.4**	**36.3**	**62.5**	**443**	**421**	**32.9**	**56.7** JFD122	**234** JFD122	**50.0**	**79.8**	**193**	**46.9**	**63.8**
Benzene	1500	11000	**2.4**	**1.2**	**2.7**	**24.9**	**4.1**	**24.8**	<0.62	**6.4**	**10.3**	**3.9**	**11.9**	**2.3**	**1.4**	**1.7**	**1.9**	**3.4**	**2.8**	<3.0	<3.1	**42.2**	**7.6**	**2.2**
Carbon disulfide	93000	280000	**1.6**	<1.1	**1.7**	**1.7**	**2.6**	**3.2**	<1.2	**1.4**	**2.5**	**6.1**	<1.2	<1.3	<1.1	<1.1	<1.1	**1.2**	<1.2	<5.9	<6.0	**9.0**	<1.2	<1.2
Chloroethane	470000	1400000	<0.93	<0.96	<0.96	<1.0	<0.96	<0.96	<1.0	<1.1	<1.0	<1.0	<1.0	<1.1	<0.96	<0.96	<0.96	<0.96	<1.0	<5.0	<5.1	**10.0**	<0.98	<0.98
Chloroform	12000	37000	**7.6**	<0.89	**3.7**	**6.9**	**8.6**	**5.9**	**6.6**	**4.1**	**10.6**	**2.3**	**4.4**	<1.0	**1.8**	**2.1**	<0.89	**24.7**	**25.5**	**9.6**	**9.1**	<1.0	<0.91	<0.91
Chloromethane	11000	32000	<0.73	<0.76	<0.76	**2.5**	<0.76	**3.3**	<0.80	<0.85	**1.4**	<0.79	**1.1**	<0.85	<0.76	<0.76	<0.76	<0.76	<0.79	<3.9	<4.0	<0.85	<0.77	<0.77
Cyclohexane	700000	2100000	**5.4**	<3.2	<3.2	**9.7**	**11.0**	**21.8**	<3.3	**6.4**	**12.1**	**7.6**	**7.3**	**5.0**	**8.9**	**6.2**	<3.2	**9.1**	**8.3**	<16.4	<16.6	**46.6**	**22.0**	**20.6**
Dichlorodifluoromethane	NE	NE	**37500**	**60.6**	**1130**	**187**	**379**	**2130**	**2.9**	**18100**	**2930**	**27200**	**103**	<2.0	**299**	**332**	**80.0**	**7.7**	**8.7**	<9.4	<9.6	**169**	**8.3**	**3.0**
Ethanol	NE	NE	**347**	**20.1**	**119**	**230**	**227**	**78.3**	**7.8**	**30.0**	**165**	**71.0**	**31.7**	**18.4**	**61.2**	**52.8**	**30.7**	**75.8**	**96.4**	**24.2**	**39.2**	**131**	**9.0**	**150**
Ethyl acetate	8300	25000	<1.3	<1.3	<1.3	<1.4	<1.3	<1.3	<1.4	<1.5	<1.4	<1.4	<1.4	<1.5	<1.3	<1.3	<1.3	<1.3	**12.4**	<6.9	<7.0	<1.5	<1.3	<1.3
Ethylbenzene	1300	13000	<1.5	<1.6	<1.6	**1.8**	<1.6	**12.2**	<1.7	<1.8	**1.8**	<1.7	<1.7	<1.8	<1.6	<1.6	<1.6	**1.7**	<1.7	<8.3	<8.4	**21.8**	**4.7**	**3.0**
Methyl-tert-butyl ether	13000	130000	<6.4	<6.6	<6.6	<6.8	<6.6	<6.6	<7.0	<7.4	<7.1	<6.8	<6.8	<7.4	<6.6	<6.6	<6.6	<6.6	<6.8	<34.2	<34.8	<7.4	<6.7	<6.7
Methylene Chloride	70000	210000	**136**	**52.2**	**171**	**220**	**76.3**	**58.1**	**8.0**	**479**	**106**	**102**	**99.6**	**10.1**	**97.3**	**123**	**43.2**	**128**	**82.2**	<33.0	<33.5	**118**	**7.1**	**8.3**
Naphthalene	1100	3200	<4.6	<4.8	<4.8	<5.0	<4.8	**63.0**	<5.1	<5.4	<5.2	<5.0	<5.0	<5.4	<4.8	<4.8	<4.8	<4.8	<5.0	<24.9	<25.3	<5.4	<4.9	<4.9
Propylene	370000	1100000	<0.61	**3.5**	<0.63	**4.6**	<0.63	<0.63	<0.66	<0.71	<0.68	<0.65	**3.3**	<0.71	**4.2** JFD148	<0.63 JFD148	**2.7**	**2.5**	**2.6**	<3.3	<3.3	**6030**	**64.1**	<0.64
Styrene	110000	320000	<1.5	<1.6	<1.6	**1.9**	<1.6	<1.6	<1.6	<1.7	<1.7	<1.6	<1.6	<1.7	<1.6	<1.6	<1.6	<1.6	<1.6	<8.1	<8.2	**2.7**	<1.6	<1.6
Tetrachloroethene	1100	5300	**1.6**	**17.4**	**5.4**	**17.5**	**27.6**	**41.4**	**9.8**	**32.1**	**41.4**	**19.8**	**35.6**	<1.4	<1.2	<1.2	**15.9**	**32.1**	**34.3**	**15.9**	**14.6**	<1.4	<1.3	<1.3
Tetrahydrofuran	230000	700000	**5.4**	<1.1	**9.3**	**12.6**	**10.5**	**16.7**	<1.1	**12.9**	**15.6**	**11.7**	**15.2**	<1.2	**14.1** JFD77	**6.3** JFD77	**1.1**	**13.4**	**12.0**	<5.6	<5.7	**34.3**	<1.1	**1.8**
Toluene	470000	1400000	**2.9**	**9.6**	**3.2**	**5.0**	**4.6**	**9.1**	**5.8**	**4.4**	**6.9**	**4.7**	**4.0**	**8.8**	**2.8**	**2.8**	**4.0**	**3.2**	**4.4**	<7.2	**10.8**	**70.1**	**18.4**	**10.9**
Trichloroethene	230	700	**65.0**	**12.1**	**268**	**21.4**	**24.0**	**42.0**	**13.0**	**103**	**118**	**236**	**1920**	**9.8**	**54.8**	**58.2**	**35.8**	**184**	**197**	**100**	**93.3**	**26.0**	**7.4**	**7.2**
Trichlorofluoromethane	120000	370000	**9.6**	<2.1	**88.9**	<2.1	**3.6**	**2.3**	<2.2	<2.3	<2.2	**2.3**	<2.1	<2.3	<2.1	<2.1	<2.1	**16.4**	**16.2**	<10.7	<10.8	<2.3	<2.1	<2.1
Vinyl chloride	730	7300	<0.45	<0.47	<0.47	<0.49	<0.47	<0.47	<0.49	<0.53	<0.50	<0.49	<0.49	<0.53	<0.47	<0.47	<0.47	<0.47	**1.4**	<2.4	<2.5	**22100**	**226**	<0.48
cis-1,2-Dichloroethene	NE	NE	<1.4	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.6	<1.6	<1.5	<1.5	<1.6	<1.5	<1.5	<1.5	<1.5	<1.5	<7.5	<7.7	**50.6**	**3.7**	<1.5
cis-1,3-Dichloropropene	830	7000	<1.6	<1.7	<1.7	<1.7	<1.7	<1.7	<1.8	<1.9	<1.8	<1.7	<1.7	<1.9	<1.7	<1.7	<1.7	<1.7	<1.7	<8.6	<8.8	<1.9	<1.7	<1.7
m&p-Xylene	12000	37000	<3.1	**4.6**	<3.2	**7.1**	**4.7**	**36.0**	<3.4	**3.8**	**5.8**	**6.7**	**4.4**	<3.6	**3.3**	**3.5**	**7.0**	**8.8**	**7.5**	<16.5	<16.8	**25.3**	**16.0**	**12.9**
n-Heptane	47000	140000	<1.4	<1.5	<1.5	<1.6	<1.5	**8.4**	<1.6	<1.7	<1.6	<1.6	<1.6	**3.8**	<1.5	<1.5	<1.5	<1.5	<1.6	<7.8	<7.9	**39.5**	**42.9**	**47.3**
n-Hexane	83000	250000	**5.3**	**32.5**	**5.5**	**7.7**	**4.2**	**11.0**	**89.4**	**11.0**	**4.5**	**4.5**	**4.2**	**103**	**3.7**	**4.5**	**3.8**	**4.4**	**3.4**	**53.0** JFD76	**118** JFD76	**60.6**	**98.9**	**47.9**
o-Xylene	12000	37000	**3.0**	**2.1**	<1.6	**3.7**	**3.0**	**16.4**	<1.7	<1.8	**2.4**	**3.1**	<1.7	**1.8**	<1.6	<1.6	**3.6**	**6.1**	**5.7**	<8.3	<8.4	**13.3**	**7.7**	**7.0**
trans-1,2-Dichloroethene*	8300*	25000	**72.7**	**46.3**	**164**	**9.8**	<1.5	**8.6**	<1.5	**7.0**	**7.5**	**37.5**	**60.1**	**6.1**	**170**	**183**	**19.3**	**5.7**	**6.3**	**8.5**	**10.9**	**28.6**	**4.0**	**46.3**

Notes: **Qualifiers (DSA designation - No E**

EPA = Environmental Protection Agen
MPCA = Minnesota Pollution Control Agency
ISV = Intrusion Screening Value
EISV = Expedited Intrusion Screening Value
VOCs = Volatile Organic Compounds
NE = Not Established
ND= Not Detected above laboratory reporting limits
ug/m3 = micrograms per meter cubed

JFD# = These samples an
50% QAPP limit pr
associated sample

Bold = analyte detected above the laboratory reporting limit but less th

33X Industrial ISV Exceedance

33X Industrial EISV Exceedance

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV r

Table 7
Ambient-Indoor Air Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Parameter	Industrial ISV	33X Industrial ISV	Sample ID																																
			Exterior									Crawl Space						Interior																		
			AA-1	AA-1	AA-2	AA-2	AA-9	AA-9	AA-10	AA-11	Dup 2 10/9/19	AA-3	AA-4	AA-5	AA-6	AA-7	AA-8	IA-1	IA-2	IA-3	IA-4	IA-5	IA-6	IA-7	IA-8	IA-9	DUP100219	IA-10	IA-11	IA-12	Dup 10/9/19	IA-13	IA-14	IA-15
Date			06/12/19	09/17/2019	06/12/19	09/17/2019	10/4/2019	10/10/2019	10/10/2019	10/10/2019	10/10/2019	06/12/19	06/12/19	06/12/19	06/12/19	06/12/19	06/12/19	09/17/2019	09/17/2019	09/17/2019	10/3/2019	10/3/2019	10/3/2019	10/3/2019	10/3/2019	10/3/2019	10/2/2019	10/3/2019	10/10/2019	10/10/2019	10/9/2019	10/10/2019	10/10/2019	10/10/2019
LUI #			GS00691	GS00691	GS00693	GS00693	GS00841	GS00868	GS00869	GS00870		GS00692	GS00694	GS00695	GS00696	GS00697	GS00698	GS00859	GS00860	GS00861	GS00842	GS00843	GS00844	GS00845	GS00846	GS00847		GS00848	GS00862	GS00863		GS00865	GS00866	GS00867
Paired With											AA-11							SS-6	SS-35	SS-26	SS-15	SS-14	SS-13	SS-12	SS-11	SS-10	IA-9	SS-19	SS-38	SS-34	IA-12	SS-37	SS-30	SS-36
Location			Northeast exterior		Southwest exterior		West Exterior	NW Exterior	NE Exterior	SW Exterior	Duplicate AA-11	Crawl Space	Crawl Space	Craw Space	Crawl Space	Crawl Space	Crawl Space	Offices	Lunch Room	Locker Room	Main Coating	Main Coating	Main Coating	Main Coating	Main Coating	Coating 3	Duplicate IA-9	Coating 2	Gravity Cast	Coining	Duplicate IA-12	East Die Cast	NW Die Cast	Shipping
Volatile Organic Compounds (VOCs) reported in ug/m3 - TO-15 - Modified List - Detected Compounds Only																																			
1,1,1-Trichloroethane	18000	600000	<1.1	<1.8	<1.1	<1.7	<1.9	<1.7	<1.8	<1.9	<1.8	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.7	<1.7	<1.7	<1.6	<1.8	<1.7	<1.9	<1.8	<1.7	<1.8	<1.8	<1.8	<1.9	<1.9	<1.9	<1.9	<1.9
1,1-Dichloroethane	N/A	N/A	**0.17**	<1.3	<0.81	<1.3	<1.4	<1.2	<1.3	<1.4	<1.3	<0.81	<0.81	<0.81	<0.81	**0.38**	<0.81	<1.3	<1.3	<1.3	<1.2	<1.3	<1.3	<1.4	<1.3	<1.3	<1.3	<1.3	<1.3	<1.4	<1.4	<1.4	<1.4	<1.4
1,1-Dichloroethene	700	23000	<0.79	<1.3	<0.79	<1.2	<1.4	<1.2	<1.3	<1.4	<1.3	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<1.2	<1.2	<1.2	<1.2	<1.3	<1.2	<1.4	<1.3	<1.2	<1.3	<1.3	<1.3	<1.4	<1.4	<1.4	<1.4	<1.4
1,2,4-Trimethylbenzene	210	7000	NS	<1.6	NS	<1.5	<1.7	<1.5	<1.6	<1.7	<1.6	NS	NS	NS	NS	NS	NS	**2.1**	<1.5	<1.5	**2.4**	**2.0**	**2.9**	**6.9**	**8.5**	<1.5	<1.6	<1.6	**4.5**	**78.0**	**74.7**	**2.7**	<1.7	**20.3**
1,2-Dichloroethane	3.8	130	<0.81	<0.66	<0.81	<0.62	<0.69	<0.61	<0.66	<0.69	<0.66	**0.36**	<0.81	<0.81	<0.81	<0.81	<0.81	<0.64	<0.64	<0.64	<0.60	<0.66	<0.62	<0.70	<0.66	<0.64	<0.66	<0.65	<0.66	<0.69	<0.69	<0.69	<0.69	<0.69
1,3,5-Trimethylbenzene	210	7000	NS	<1.6	NS	<1.5	<1.7	<1.5	<1.6	<1.7	<1.6	NS	NS	NS	NS	NS	NS	<1.5	<1.5	<1.5	<1.5	<1.6	**1.7**	**2.8**	**3.6**	<1.5	<1.6	<1.6	<1.6	**21.9**	**20.9**	<1.7	<1.7	**4.7**
2-Propanol	700	23000	NS	<4.0	NS	<3.8	<4.2	<3.7	<4.0	<4.2	<4.0	NS	NS	NS	NS	NS	NS	**69.1**	**20.4**	**7.4**	**132**	**40.5**	**155**	**97.7**	**115**	**61.8**	**55.0**	**100**	<4.0	**498**	**303**	<4.2	<4.2	**13.4**
4-Ethyltoluene	N/A	NE	NS	<4.0	NS	<3.8	<4.2	<3.7	<4.0	<4.2	<4.0	NS	NS	NS	NS	NS	NS	<3.9	<3.9	<3.9	<3.6	<4.0	<3.8	<4.3	<4.0	<3.9	<4.0	<4.0	<4.0	**12.4**	**11.6**	<4.2	<4.2	**6.1**
Acetone	110000	3700000	NS	**11.6**	NS	**9.7**	**9.7**	**5.2**	**6.7**	**5.5**	**5.9**	NS	NS	NS	NS	NS	NS	**71.8**	**34.9**	**78.6**	**24.5**	**13.7**	**27.1**	**24.8**	**15.1**	**18.3**	**15.8**	**27.9**	**13.2**	<4.0	**14.9**	**21.4**	**21.3**	**46.9**
Benzene	45	1500	NS	<0.52	NS	<0.49	**2.0**	<0.48	<0.52	<0.55	<0.52	NS	NS	NS	NS	NS	NS	**0.53**	**2.3**	**1.5**	**1.1**	**0.70**	**0.73**	**0.69**	**0.61**	**0.59**	**0.59**	**1.1**	**0.76**	**1.4**	**1.4**	**1.9**	**1.3**	**0.96**
Chloroethane	14000	470000	<1.3	<0.86	<1.3	<0.81	<0.90	<0.80	<0.86	<0.90	<0.86	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<0.83	<0.83	<0.83	<0.78	**0.88**	<0.81	<0.92	<0.86	<0.83	<0.86	<0.85	<0.86	<0.90	<0.90	<0.90	<0.90	<0.90
Chloromethane	320	11000	NS	**1.3**	NS	**1.3**	<0.71	**0.97**	**0.82**	**0.71**	<0.68	NS	NS	NS	NS	NS	NS	**1.8**	**1.2**	**1.7**	**1.1**	**2.5**	**1.2**	**1.1**	<0.68	**0.91**	**0.92**	**1.1**	**0.78**	**0.99**	**0.90**	**0.76**	**0.75**	**0.79**
Cyclohexane	21000	700000	NS	<2.8	NS	<2.7	<2.9	<2.6	<2.8	<2.9	<2.8	NS	NS	NS	NS	NS	NS	<2.7	<2.7	<2.7	<2.6	**3.1**	**12.8**	**6.7**	<2.8	**7.7**	**6.6**	<2.8	<2.8	**5.1**	<2.9	<2.9	<2.9	<2.9
Dichlorodifluoromethane	N/A	NE	NS	**2.5**	NS	**2.3**	**2.4**	**2.9**	**2.5**	**2.5**	**2.5**	NS	NS	NS	NS	NS	NS	**2.6**	**2.5**	**2.5**	**2.7**	**2.8**	**2.9**	**2.9**	**2.8**	**2.8**	**2.8**	**3.3**	**2.4**	**2.3**	**2.1**	**2.7**	**2.4**	**2.4**
Ethanol	N/A	NE	NS	**8.4**	NS	**6.5**	**5.8**	**3.0**	**5.3**	<3.2	**3.1**	NS	NS	NS	NS	NS	NS	**135**	**432**	**68.8**	**786**	**396**	**1100**	**631**	**889**	**534**	**422**	**799**	**20.2**	**48.8**	**47.8**	**40.1**	**44.2**	**314**
Ethyl acetate	250	8300	NS	<1.2	NS	<1.1	<1.2	<1.1	<1.2	<1.2	<1.2	NS	NS	NS	NS	NS	NS	**1.3**	**2.9**	<1.1	<1.1	<1.2	**1.9**	<1.3	<1.2	<1.1	<1.2	<1.2	<1.2	<1.2	<1.2	**1.7**	<1.2	**15.6**
Ethylbenzene	39	1300	NS	<1.4	NS	<1.3	<1.5	<1.3	<1.4	<1.5	<1.4	NS	NS	NS	NS	NS	NS	<1.4	<1.4	<1.4	<1.3	<1.4	<1.3	<1.5	**1.6** JL131	<1.4	<1.4	<1.4	<1.4	**8.9**	**8.7**	<1.5	<1.5	<1.5
Methylene Chloride	2100	70000	NS	**17.1**	NS	**12.2**	**6.1**	**10.5**	**54.8**	<5.9	<5.7	NS	NS	NS	NS	NS	NS	**12.9**	**18.2**	**8.2**	**6.3**	<5.7	<5.4	**8.8**	<5.7	<5.5	**6.3**	<5.6	**8.2**	**7.3**	**8.0**	**7.2**	**6.4**	**7.1**
Naphthalene	32	1100	NS	<4.3	NS	<4.0	<4.5	<4.0	<4.3	<4.5	<4.3	NS	NS	NS	NS	NS	NS	<4.1	<4.1	<4.1	<3.9	**4.7**	<4.0	<4.5	<4.3	<4.1	<4.3	<4.2	<4.3	<4.5	<4.5	<4.5	<4.5	<4.5
Propylene	11000	370000	NS	**1.0**	NS	<0.53	**2.8**	**0.65**	<0.56	<0.59	<0.56	NS	NS	NS	NS	NS	NS	<0.54	**12.8**	<0.54	<0.51	<0.56	<0.53	<0.60	<0.56	<0.54	<0.56	<0.55	<0.56	<0.59	<0.59	**5.8**	**5.8**	<0.59
Tetrachloroethene	33	1100	**0.47**	**2.8**	**1.2**	**3.5**	<1.2	<1.0	<1.1	<1.2	<1.1	**3.0**	**0.30**	**8.7**	<1.4	**0.36**	**0.26**	**1.2**	**1.3**	**2.0**	<1.0	<1.1	<1.0	<1.2	<1.1	<1.1	<1.1	<1.1	<1.1	<1.2	<1.2	<1.2	<1.2	<1.2
Tetrahydrofuran	7000	230000	NS	<0.97	NS	<0.91	<1.0	<0.89	<0.97	<1.0	<0.97	NS	NS	NS	NS	NS	NS	<0.93	<0.93	**1.0**	<0.88	<0.97	<0.91	<1.0	<0.97	<0.93	<0.97	<0.95	<0.97	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	14000	470000	NS	<1.2	NS	**1.3**	<1.3	<1.1	**3.7**	<1.3	<1.2	NS	NS	NS	NS	NS	NS	**2.0**	**4.0**	**2.5**	**1.8**	**1.7**	**1.3**	**2.7**	**1.3**	<1.2	<1.2	<1.2	**1.4**	**17.3**	**17.2**	**1.6**	**1.9**	**1.7**
Trichloroethene	7	230	**1.1**	<0.88	<1.1	<0.83	<0.92	<0.81	<0.88	<0.92	<0.88	**11**	**17**	**23**	<1.1	**17**	**16**	**5.2**	**1.9**	**2.5**	**71.2**	**52.2**	**50.9**	**49.5**	**14.9**	**14.5**	**15.0**	**10.4**	**1.0**	**2.1**	**1.9**	**2.0**	<0.92	**27.6**
Trichlorofluoromethane	3500	120000	NS	<1.8	NS	<1.7	<1.9	<1.7	<1.8	<1.9	<1.8	NS	NS	NS	NS	NS	NS	<1.8	<1.8	<1.8	**2.2**	<1.8	**2.0**	**2.4**	**3.0**	**2.0**	**1.9**	<1.8	<1.8	**2.1**	**1.9**	<1.9	<1.9	<1.9
Vinyl chloride	22	730	**0.11**	<0.42	<0.51	<0.40	<0.44	<0.39	<0.42	<0.44	<0.42	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.40	<0.40	<0.40	<0.38	<0.42	<0.40	<0.44	<0.42	<0.40	<0.42	<0.41	<0.42	<0.44	<0.44	<0.44	<0.44	<0.44
cis-1,2-Dichloroethene	N/A	NE	<0.79	<1.3	<0.79	<1.2	<1.4	<1.2	<1.3	<1.4	<1.3	<0.79	<0.79	<0.79	<0.79	<0.79	<0.79	<1.2	<1.2	<1.2	<1.2	<1.3	<1.2	<1.4	<1.3	<1.2	<1.3	<1.3	<1.3	<1.4	<1.4	<1.4	<1.4	<1.4
m&p-Xylene	350	12000	NS	<2.8	NS	<2.7	<3.0	<2.6	<2.8	<3.0	<2.8	NS	NS	NS	NS	NS	NS	<2.7	<2.7	<2.7	**3.0**	**2.9**	**3.5**	**6.7**	**11.2**	<2.7	<2.8	**2.8**	<2.8	**38.9**	**38.2**	<3.0	<3.0	**5.2**
n-Heptane	1400	47000	NS	**2.5**	NS	<1.3	<1.4	<1.2	<1.3	<1.4	<1.3	NS	NS	NS	NS	NS	NS	**2.3**	**2.2**	**21.9**	**9.3**	**14.2**	**61.5**	**30.0**	**9.9**	**32.5**	**26.7**	**3.6**	**6.5**	**21.6**	**22.2**	<1.4	<1.4	**16.3**
n-Hexane	2500	83000	NS	**1.6**	NS	**1.2**	<1.2	<1.1	**12.6**	<1.2	<1.2	NS	NS	NS	NS	NS	NS	**1.3**	**2.2**	**1.3**	**1.2**	<1.2	<1.1	**1.4**	<1.2	<1.1	<1.2	<1.1	<1.2	**1.5**	**1.8**	<1.2	<1.2	<1.2
o-Xylene	350	12000	NS	<1.4	NS	<1.3	<1.5	<1.3	<1.4	<1.5	<1.4	NS	NS	NS	NS	NS	NS	<1.4	<1.4	<1.4	<1.3	<1.4	<1.3	**2.7**	**5.2**	<1.4	<1.4	<1.4	<1.4	**18.0**	**17.7**	<1.5	<1.5	**1.7**
trans-1,2-Dichloroethene	250	8300*	**60**	**31.6**	**3.7**	<1.2	<1.4	<1.2	**3.7**	<1.4	<1.3	**110**	**130**	**160**	**1.4**	**140**	**140**	**3.9**	**11.3**	**504**	**746**	**422**	**390**	**212**	**128**	**250**	**250**	**72.0**	**66.4**	**4.9**	**5.0**	**51.5**	**1.9**	**446**

Notes:

EPA = Environmental Protection Age
MPCA = Minnesota Pollution Control Agency
ISV = Intrusion Screening Value
EISV = Expedited Intrusion Screening Value
VOCs = Volatile Organic Compounds
NE = Not Established
ND= Not Detected above laboratory reporting limits
ug/m3 = micrograms per meter cubed
Bold = analyte detected above the laboratory reporting limit but less than regulatory limit
33X Industrial ISV Exceedance
33X Industrial EISV Exceedance

Qualifiers (DSA designation - No EPA Code Available):

JFD# = These samples and there associated pair observed a RPD result that was outside of the 50% QAPP limit previously specified; The # value represents the RPD number for the associated sample analyte.

* Water Gremlin is aware of the Site-specific trans-1,2-Dichloroethene ISV memorandum issued by the Minnesota Department of Health; 33X Industrial ISV = 8,300 ug/m3

Table 8
Sediment Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. 2606-0017
February 2020

Compound/Parameter	CAS No.	MPCA Level I SQT	MPCA Level II SQT	RI - Sample ID, Date Collected & Location								
				SED-1	SED-2	SED-3	062019-13	SED-4	SED-5	SED-6	SED-7	SED-8
				06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
				County Ditch 14	County Ditch 14	County Ditch 14	County Ditch 14	County Ditch 14	County Ditch 14	LD00362	LD00363	LD00364
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg												
1,1,1-Trichloroethane	71-55-6	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
1,1-Dichloroethane	75-34-3	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
1,1-Dichloroethene	75-35-4	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
1,2-Dichloroethane	107-06-2	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
Chloroethane	75-00-3	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
cis-1,2-Dichloroethene	156-59-2	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
Tetrachloroethene	127-18-4	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
trans-1,2-Dichloroethene	156-60-5	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
Trichloroethene	79-01-6	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
Vinyl chloride	75-01-4	NE	NE	<1.57 UJ	<1.50	<1.71	<1.70	<1.68	<0.351	<0.464	<0.263	<0.334
Lead EPA Method 6020 - reported in mg/kg												
Lead	7439-92-1	36	130	**113**	**66.2**	**77.7**	**87.7**	**81.7**	**7.01**	**215**	**1060**	**71.2**

Compound/Parameter	CAS No.	MPCA Level I SQT	MPCA Level II SQT	SRI - Sample ID, Date Collected & MPCA LUI #													
				SED-9	SED-10	SED-11	SED-12	SED-13	SED-14	SED-15	SED-16	SED-17	SED-18	SED-19	SED-20	SED-21	SED-22
				10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019				
				10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/24/2019	10/24/2019	10/24/2019	10/24/2019
				LD00368	LD00369	LD00370	LD00371	LD00372	LD00373	LD00374	LD00375	LD00376	LD00377	LD00378	LD00379	LD00380	LD00381
Volatile Organic Compounds (VOCs) EPA Method 8260B (Modified List) - reported in mg/kg																	
1,1,1-Trichloroethane	71-55-6	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethane	75-34-3	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethene	75-35-4	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichloroethane	107-06-2	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	75-00-3	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	156-59-2	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	127-18-4	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	156-60-5	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	79-01-6	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vinyl chloride	75-01-4	NE	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead EPA Method 6020 - reported in mg/kg																	
Lead	7439-92-1	36	130	**103**	**374**	**546**	**137**	**98.4**	**91.7**	**51.7**	**77.3**	**21.4**	**3.1**	**15.3**	**9.9**	**42.8**	**45.3**

Notes:
NE = Not Established
NS = Not Sampled
< = Less than the reporting limit
Bold = analyte detected above the laboratory reporting limit but less than regulatory limit
mg/kg = PPM
MPCA = Minnesota Pollution Control Agency
SQT = Sediment Quality Targets
Level I SQT exceedance
Level II SQT exceedance

Qualifiers (US EPA Qualifier Code):
UJ = Samples marked with this flag were non-detect but contained a representative quality control sample with a relative percent difference (RPD)outside the quality control range, or percent recovery of the analyte was below the QC limits; The associated parent sample is therefore flagged as estimated even though the results were below the laboratory reporting limits.

Table 9
Surface Water Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. 2606-0017
February 2020

Compound/Parameter	CAS No.	Tier I Surface Water Screening Criteria (non ORVW or OIRW waters)	RI - Sample ID, Date Collected & Location						
			SW-1	SW-2	SW-3	SW-4	062019-A	SW-5	SW-6
			06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019	06/20/2019
			S015-354	S015-355	S015-356	S015-357	Blind Dup SW-4	S015-358	S015-359
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Modified List) - reported in ug/L									
1,1,1-Trichloroethane	71-55-6	200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethane	75-34-3	47	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
1,1-Dichloroethene	75-35-4	7	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
1,2-Dichloroethane	107-06-2	3.5	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Chloroethane	75-00-3	NE	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00
cis-1,2-Dichloroethene	156-59-2	70	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Tetrachloroethene	127-18-4	3.8	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
trans-1,2-Dichloroethene	156-60-5	100	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Trichloroethene	79-01-6	5	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Vinyl chloride	75-01-4	0.17	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Lead EPA Method 6020 - reported in (ug/L)									
Lead	7439-92-1	6.72	<1.00	<1.00	<1.00	**11.6**	**12.5**	**12.2**	**3.74**

Compound/Parameter	CAS No.	Tier I Surface Water Screening Criteria (non ORVW or OIRW waters)	SRI - Sample ID, Date Collected & MPCA LUI #																	
			SW-7	SW-8	DUP 102319	SW-9	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16	SW-17	DUP-2	SW-18	SW-19	SW-20	Downspout 1	Downspout 2
			10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/23/2019	10/24/2019	10/24/2019	10/24/2019	10/24/2019	10/24/2019	10/21/2019	10/21/2019
			S016-198	S016-199	SW-8 Duplicate	S016-200	S016-201	S016-202	S016-203	S016-204	S016-205	S016-206	S016-207	S016-208	SW-17 Duplicate	S016-209	S016-210	S016-211	S016-212	S016-213
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Modified List) - reported in ug/L																				
1,1,1-Trichloroethane	71-55-6	200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethane	75-34-3	47	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethene	75-35-4	7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichloroethane	107-06-2	3.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	75-00-3	NE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	156-59-2	70	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	127-18-4	3.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	156-60-5	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	79-01-6	5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vinyl chloride	75-01-4	0.17	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead EPA Method 6020 - reported in (ug/L)			**Lead EPA Method 6020 - reported in ug/L**																	
Lead	7439-92-1	6.72	**26.4**	**88.1** JFD59	**44.6** JFD59	**52.0**	**0.56**	**0.44**	**1.0**	**0.58**	**0.56**	**0.34**	**0.32**	**640** JFD53	**517** JFD53	**0.61**	**0.12**	**0.3**	**1.6**	**2.7**

Notes

All results reported in micrograms per liter (ug/L)

Bold = analyte detected above the laboratory reporting limit but less than regulatory limit

Tier I Surface Water Screening Criteria Exceedance

MDH = Minnesota Department of Health

[a] = MDH Health Based Value (HBV)

NA = Not Applicable

ND = Not detected above method detection limits

NE = Not Established

OIRW = Outstanding International Resource Waters

ORVW = Outstanding Resource Value Waters

Qualifiers (DSA designation - No EPA Code Available):

JFD# = These samples and there associated pair observed a RPD result that was outside of the 50% QAPP limit previously specified; The # value represents the RPD number for the associated sample analyte.

Table 10
QA/QC Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	Groundwater Trip Blanks													Soil Trip Blanks												
		HCL TRIP BLANK	TRIP BLANK Water	TRIP BLANK Water	TRIP BLANK Water	HCL Trip Blank	TRIP BLANK Water	HCL TRIP BLANK	Trip Blank	HCL Trip Blank	HCL Trip Blank	HCL Trip Blank	TRIP BLANK	TB WT	MEOH TRIP BLANK	TRIP BLANK Soil	TRIP BLANK Soil	TRIP BLANK Soil	MEOH Trip Blank	TRIP BLANK Soil	MeOH Blank	MeOH Trip Blank	TRIP BLANK	Trip Blank	Trip Blank	TB SL	Trip Blank	MeOH Trip Blank	TRIP BLANK
		06/14/2019	06/19/2019	06/18/2019	06/20/2019	06/21/2019	06/26/2019	8/28/2019	8/29/2019	10/4/2019	10/7/2019	12/2/2019	12/4/2019	12/10/2019	06/14/2019	06/18/2019	06/19/2019	06/20/2019	06/24/2019	06/26/2019	12/2/2019	10/4/2019	12/04/2019	12/5/2019	12/6/2019	12/10/2019	12/11/2019	12/11/2019	12/12/2019
		Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds (VOCs) - EPA Method 8260B (Modified List) - reported in ug/L																													
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1-Trichloroethane	**71-55-6**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichlorotrifluoroethane	76-13-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	**75-34-3**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	<0.20	<0.050
1,1-Dichloroethene	**75-35-4**	<1.00	<2.00	<2.00	<2.00	<2.00	<2.00	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloropropene	563-58-6	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<2.50	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.625	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2,3-Trimethylbenzene	526-73-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<1.00	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.625	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2,4-Trimethylbenzene	95-63-6	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dibromo-3-chloropropane	96-12-8	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<25.0	<10.0	<5.00	<10.0	<4.0	NS	NS	NS	NS	NS	NS	<1.25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dibromoethane (EDB)	106-93-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	95-50-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethene	**107-06-2**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	78-87-5	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3,5-Trimethylbenzene	108-67-8	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropane	142-28-9	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	106-46-7	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
2,2-Dichloropropane	594-20-7	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.125	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
2-Butanone (MEK)	78-93-3	NS	NS	NS	NS	NS	NS	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0	NS	NS	NS	NS	NS	NS	<1.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Chlorotoluene	95-49-8	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
4-Chlorotoluene	106-43-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
4-Methyl-2-pentanone (MIBK)	108-10-1	NS	NS	NS	NS	NS	NS	<5.0	<5.0	<5.0	<5.0	<10.0	<5.0	<5.0	NS	NS	NS	NS	NS	NS	<1.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Acetone	67-64-1	NS	NS	NS	NS	NS	NS	<20.0	<20.0	<20.0	<20.0	<50.0	<20.0	<20.0	NS	NS	NS	NS	NS	NS	<1.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Allyl chloride	107-05-1	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<5.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	71-43-2	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.0500	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromobenzene	108-86-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.625	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromochloromethane	74-97-5	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromodichloromethane	75-27-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	75-25-2	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromomethane	74-83-9	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<5.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.625	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	56-23-5	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	108-90-7	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane	**75-00-3**	<1.00	<4.00	<4.00	<4.00	<4.00	<4.00	<1.0	<1.0	<4.0	<1.0	<5.00	<1.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<4.0	<1.0	<5.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	<0.20	<0.050
Chloromethane	74-87-3	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<2.50	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.625	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	124-48-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<10.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromomethane	74-95-3	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	75-71-8	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<5.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorofluoromethane	75-43-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Diethyl ether (Ethyl ether)	60-29-7	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.125	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	100-41-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexachloro-1,3-butadiene	87-68-3	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<4.0	<1.0	NS	NS	NS	NS	NS	NS	<1.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl-tert-butyl ether	1634-04-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.0500	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	<0.20	<0.050
Methylene Chloride	75-09-2	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<5.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Naphthalene	91-20-3	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<5.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.625	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Styrene	100-42-5	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.625	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethene	**127-18-4**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrahydrofuran	109-99-9	NS	NS	NS	NS	NS	NS	<10.0	<10.0	<10.0	<10.0	<5.00	<10.0	<10.0	NS	NS	NS	NS	NS	NS	<0.625	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Toluene	108-88-3	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethene	**79-01-6**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.40	<0.40	<0.40	**0.79**	<1.00	<0.40	<0.40	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.0500	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	75-69-4	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<5.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.125	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl chloride	**75-01-4**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<0.20	<0.20	<0.20	<0.20	<1.00	<0.20	<0.20	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.020	<0.050 J-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Xylene (Total)	1330-20-7	NS	NS	NS	NS	NS	NS	<3.0	<3.0	<3.0	<3.0	<3.00	<3.0	<3.0	NS	NS	NS	NS	NS	NS	<0.325	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
cis-1,2-Dichloroethene	**156-59-2**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	10061-02-6	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.125	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
n-Butylbenzene	104-51-8	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.625	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
n-Propylbenzene	103-65-1	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
p-Isopropyltoluene	99-87-6	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
sec-Butylbenzene	135-98-8	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.625	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
tert-Butylbenzene	98-06-6	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethene	**156-60-5**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.00	<1.0	<1.0	<0.250	<0.250	<0.250	<0.250	<0.100	<0.100	<0.250	<0.050	<0.050	<0.050	<0.050	<0.20	<0.050	<0.20	<0.050
trans-1,3-Dichloropropene	542-75-6	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	<1.00	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<0.250	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Method EPA 8270D by SIM																													
1,4-Dioxane (SIM)	123-91-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead EPA Method 6020 - reported in (ug/L)																													
Lead	7439-92-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead, Dissolved	7439-92-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ug/L is equivalent to PPB

mg/kg = PPM

Detections are shown in boldface

NS = Not Sampled

J- = Detected value represents an estimated value with a potentially low bias.

Table 10
QA/QC Analytical Results Summary
Water Gremlin
4400 Otter Lake Road
White Bear Township, MN
Wenck Project No. B2606-0017
February 2020

Compound/Parameter	CAS No.	Rinsate Samples																									
		RINSATE #1	RINSATE #2	RINSATE #3	RINSATE #4	RINSATE #5	RINSATE #6	RINSATE #7	RINSATE	Rinsate GP-22	Rinsate Macro Core	Rinsate Temp Well	FIELD BLANK #1	RINSATE BAILER	RINSATE SED. CORE	Field Blank #2	Rinsate Builder	Rinsate Core	Rinsate Macro Core	Rinsate SP-15	Rinsate120419-B	Rinsate 120419-A	Rinsate 120619-A	Rinsate 120619-B	Rinsate 120919 A	Rinsate 120919 B	Rinsate 121019-A	Rinsate121319-A	Rinsate121319-B
		06/18/2019	06/18/2019	06/20/2019	6/26/2019	6/26/2019	6/26/2019	6/26/2019	8/28/2019	8/30/2019	10/7/2019	10/7/2019	10/23/2019	10/23/2019	10/23/2019	10/24/2019	10/24/2019	10/24/2019	12/02/2019	12/02/2019	12/04/2019	12/04/2019	12/6/2019	12/6/2019	12/9/2019	12/9/2019	12/10/2019	12/13/2019	12/13/2019
		Macro Core	SP-15 Screen	Shovel	SP-15 Screen	Macro Core	SP-15 Screen	Macro Core	SP-15 Screen	SP-15 Screen	Macro Core	Temp Well		Bailer	Sediment Core		Bailer	Sediment Core	Macro Core	SP-15 Screen	Dual Tube	SP-15 Screen	SP-15 Screen	Dual Tube	SP-15 Screen	Dual Tube	Hand Probe	Dual Tube	SP-15
Volatile Organic Compounds (VOCs) - EPA Method 8																													
1,1,1,2-Tetrachloroethane	630-20-6	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	**71-55-6**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	79-34-5	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	79-00-5	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichlorotrifluoroethane	76-13-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	**75-34-3**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	**75-35-4**	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloropropene	563-58-6	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichlorobenzene	87-61-6	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-Trichloropropane	96-18-4	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<2.50	<2.50	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
1,2,3-Trimethylbenzene	526-73-8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<1.00	<1.00	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	120-82-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	95-63-6	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromo-3-chloropropane	96-12-8	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<10.0	<10.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<4.0	<4.0	<4.0
1,2-Dibromoethane (EDB)	106-93-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	95-50-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	**107-06-2**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	78-87-5	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
1,3,5-Trimethylbenzene	108-67-8	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	541-73-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichloropropane	142-28-9	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	106-46-7	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-Dichloropropane	594-20-7	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
2-Butanone (MEK)	78-93-3	NS	NS	NS	NS	NS	NS	NS	<5.0	<5.0	<5.0	<5.0	NS	NS	NS	NS	NS	NS	<10.0	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chlorotoluene	95-49-8	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4-Chlorotoluene	106-43-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4-Methyl-2-pentanone (MIBK)	108-10-1	NS	NS	NS	NS	NS	NS	NS	<5.0	<5.0	<5.0	<5.0	NS	NS	NS	NS	NS	NS	<10.0	<10.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acetone	67-64-1	NS	NS	NS	NS	NS	NS	NS	<20.0	<20.0	<20.0	<20.0	NS	NS	NS	NS	NS	NS	<50.0	<50.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
Allyl chloride	107-05-1	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Benzene	71-43-2	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	108-86-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromochloromethane	74-97-5	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	75-27-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	75-25-2	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Bromomethane	74-83-9	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Carbon tetrachloride	56-23-5	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	108-90-7	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	**75-00-3**	<4.00	<4.00	<4.00	<4.00	<4.00	<4.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	67-66-3	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Chloromethane	74-87-3	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<2.50	<2.50	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dibromochloromethane	124-48-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<10.0	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromomethane	74-95-3	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Dichlorodifluoromethane	75-71-8	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorofluoromethane	75-43-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Diethyl ether (Ethyl ether)	60-29-7	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Ethylbenzene	100-41-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachloro-1,3-butadiene	87-68-3	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0
Isopropylbenzene (Cumene)	98-82-8	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methyl-tert-butyl ether	1634-04-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	75-09-2	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Naphthalene	91-20-3	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Styrene	100-42-5	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	**127-18-4**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrahydrofuran	109-99-9	NS	NS	NS	NS	NS	NS	NS	<10.0	<10.0	<10.0	<10.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<10.0	<10.0	<100	<100	<10.0	<10.0	<10.0	<10.0	<10.0
Toluene	108-88-3	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	**79-01-6**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<0.40	<0.40	<0.40	<0.40	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Trichlorofluoromethane	75-69-4	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<5.00	<5.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	**75-01-4**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<0.20	<0.20	<0.20	<0.20	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Xylene (Total)	1330-20-7	NS	NS	NS	NS	NS	NS	NS	<3.0	<3.0	<3.0	<3.0	NS	NS	NS	NS	NS	NS	<3.00	<3.00	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
cis-1,2-Dichloroethene	**156-59-2**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropene	10061-02-6	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
n-Butylbenzene	104-51-8	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0
n-Propylbenzene	103-65-1	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
p-Isopropyltoluene	99-87-6	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
sec-Butylbenzene	135-98-8	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
tert-Butylbenzene	98-06-6	NS	NS	NS	NS	NS	NS	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	**156-60-5**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NS	<1.0	<1.0	<1.0	<1.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<1.0	<1.0	<4.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropene	542-75-6	NS	NS	NS	NS	NS	NS	NS	<4.0	<4.0	<4.0	<4.0	NS	NS	NS	NS	NS	NS	<1.00	<1.00	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Method EPA 8270D by SIM																													
1,4-Dioxane (SIM)	123-91-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.24	NS	NS	NS	NS	NS	NS	<0.23 J-	<0.23 J-	<0.23 J-	NS	<0.25 J-	<0.25 J-	<0.23	<0.25	<0.25 J-	<0.23 J-	<0.29 J-
Lead EPA Method 6020 - reported in (ug/L)																													
Lead	7439-92-1	NS	NS	<1.00	NS	**0.00139**	NS	**0.00285**	NS	NS	NS	NS	<0.10	**1.1**	**0.37**	**0.18**	<0.10	**1.2**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead, Dissolved	7439-92-1	NS	NS	NS	NS	NS	NS	NS	NS	NS	<10.0	<10.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

ug/L is equivalent to PPB

mg/kg = PPM

Detections are shown in boldface

NS = Not Sampled

Responsive partner.
Exceptional outcomes.