State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

# Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 12/18) 

**Notice:** Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

## Definitions

**"Property"** refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

**"Liability Clarification"** refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

**"Technical Assistance"** refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

**"Post-closure modification"** refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

## Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

**Do not use this form if one of the following applies:**

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

**All forms, publications and additional information are available on the internet at:** dnr.wi.gov/topic/Brownfields/Pubs.html.

## Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located.

   See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

## Section 1. Contact and Recipient Information

### Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

| Last Name | First | MI | Organization/ Business Name | | |
|---|---|---|---|---|---|
| Wahl | Scott | | Tyco Fire Products LP | | |
| Mailing Address | | | City | State | ZIP Code |
| 2700 Industrial Parkway South | | | Marinette | WI | 54143 |
| Phone # (include area code) | Fax # (include area code) | | Email | | |
| | | | | | |

The requester listed above: (select all that apply)

- [x] Is currently the owner
- [ ] Is considering selling the Property
- [ ] Is renting or leasing the Property
- [ ] Is considering acquiring the Property
- [ ] Is a lender with a mortgagee interest in the Property
- [ ] Other. Explain the status of the Property with respect to the applicant:

### Contact Information (to be contacted with questions about this request)

☐ Select if same as requester

| Contact Last Name | First | MI | Organization/ Business Name | | |
|---|---|---|---|---|---|
| Verburg | Ben | | Arcadis | | |
| Mailing Address | | | City | State | ZIP Code |
| 126 N Jefferson Street, Suite 400 | | | Milwaukee | WI | 53202 |
| Phone # (include area code) | Fax # (include area code) | | Email | | |
| (414) 276-7742 | | | Ben.Verburg@arcadis.com | | |

### Environmental Consultant (if applicable)

| Contact Last Name | First | MI | Organization/ Business Name | | |
|---|---|---|---|---|---|
| Verburg | Ben | | Arcadis | | |
| Mailing Address | | | City | State | ZIP Code |
| 126 N Jefferson Street, Suite 400 | | | Milwaukee | WI | 53202 |
| Phone # (include area code) | Fax # (include area code) | | Email | | |
| (414) 276-7742 | | | Ben.Verburg@arcadis.com | | |

## Section 2. Property Information

| Property Name | | | FID No. (if known) | | |
|---|---|---|---|---|---|
| Tyco Stanton Street Facility | | | 438005590 | | |
| BRRTS No. (if known) | | | Parcel Identification Number | | |
| 0238581955 | | | | | |
| Street Address | | | City | State | ZIP Code |
| 1 Stanton Street | | | Marinette | WI | 54143 |

| County | Municipality where the Property is located | Property is composed of: | Property Size Acres |
|---|---|---|---|
| Marinette | ◉ City ○ Town ○ Village of Marinette | ○ Single tax parcel ○ Multiple tax parcels | 66 |

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

◉ No ○ Yes

Date requested by: _____

Reason:

_____

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

◉ No. **Include the fee that is required for your request in Section 3, 4 or 5.**

○ Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

**Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:**
**Section 3. Technical Assistance or Post-Closure Modifications;**
**Section 4. Liability Clarification; or Section 5. Specialized Agreement.**

## Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [**Numbers in brackets are for WI DNR Use]**

☐ No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of $350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.

☐ Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**

☒ Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**

☐ Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**

☐ Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**

☐ Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**

☐ Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**

☐ Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**

☐ Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

☐ Schedule a Technical Assistance Meeting - **Include a fee of $700.**

☐ Hazardous Waste Determination - **Include a fee of $700.**

☐ Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

☐ Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**

☐ Include a fee of $300 for sites with residual soil contamination; and

☐ Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

**Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this fo**

## Section 6. Other Information Submitted

Identify all materials that are included with this request.

**Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.**

**Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.**

☐ Phase I Environmental Site Assessment Report - Date: _____

☐ Phase II Environmental Site Assessment Report - Date: _____

☐ Legal Description of Property (required for all liability requests and specialized agreements)
☐ Map of the Property (required for all liability requests and specialized agreements)
Analytical results of the following sampled media: Select all that apply and include date of collection.
☐ Groundwater ☐ Soil ☐ Sediment ☐ Other medium - Describe: _____
Date of Collection: _____
☐ A copy of the closure letter and submittal materials
☐ Draft tax cancellation agreement
☐ Draft agreement for assignment of tax foreclosure judgment
☒ Other report(s) or information - Describe: Interim Site Investigation Report - Tyco Stanton Street Facility

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

◯ Yes - Date (if known): _____
◯ No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

## Section 7. Certification by the Person who completed this form

☐ I am the person submitting this request (requester)
☒ I prepared this request for: Scott Wahl
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Signature

6/15/2020
Date Signed

Project Environmental Specialist
Title

(312) 575-3732
Telephone Number (include area code)

## Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a DNR regional brownfields specialist with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.

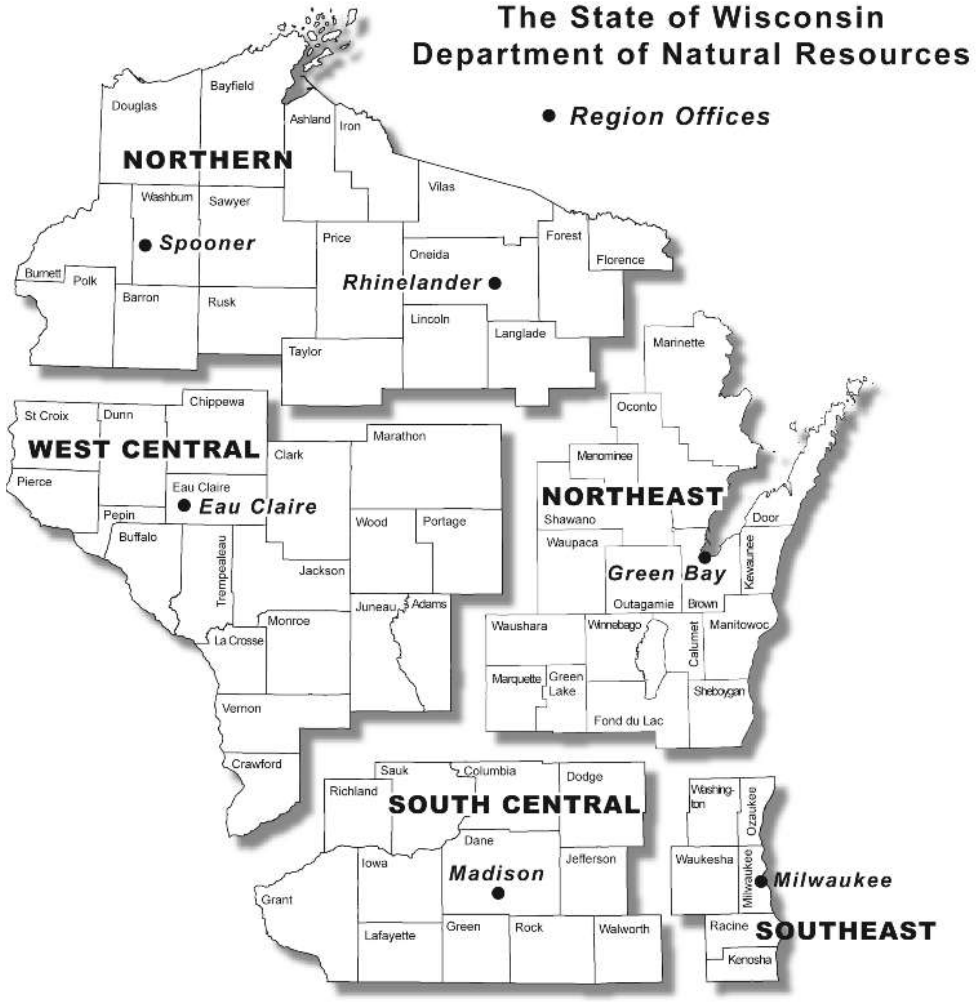
**DNR NORTHERN REGION**
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

**DNR NORTHEAST REGION**
Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

**DNR SOUTH CENTRAL REGION**
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

**DNR SOUTHEAST REGION**
Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

**DNR WEST CENTRAL REGION**
Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702




*Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.*

| DNR Use Only | | | |
|---|---|---|---|
| Date Received | Date Assigned | BRRTS Activity Code | BRRTS No. (if used) |
| DNR Reviewer | Comments | | |
| Fee Enclosed? ◯ Yes ◯ No | Fee Amount $ | Date Additional Information Requested | Date Requested for DNR Response Letter |
| Date Approved | Final Determination | | |

ARCADIS Design & Consultancy for natural and built assets

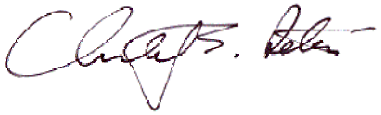
Tyco Fire Products LP

# INTERIM SITE INVESTIGATION REPORT

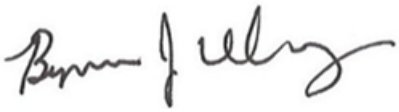
Tyco Stanton Street Facility, Marinette, Wisconsin

BRRTS No. 02-38-581955

June 2020



Christopher S. Peters, PG
Principal Geologist



Benjamin J. Verburg, PE
Principal Engineer

Michael F. Bedard
Project Lead/Associate Vice President

# INTERIM SITE INVESTIGATION REPORT

Stanton Street Facility
Marinette, Wisconsin
BRRTS No. 02-38-581955

Prepared for:
Scott Wahl
Tyco Fire Products LP
1 Stanton Street
Marinette, Wisconsin 54143
Tel 215 362 0700

Prepared by:
Arcadis U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202
Tel 414 276 7742
Fax 414 276 7603

Our Ref:
30015423

Date:
June 15, 2020

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# FIGURES

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| Arcadis | Arcadis U.S., Inc. |
| bgs | below ground surface |
| BRRTS | Bureau of Remediation and Redevelopment Tracking System |
| BWGMPU | Revised Barrier Wall Groundwater Monitoring Plan Update |
| Da | Dalton |
| DC | direct contact |
| EGLE | Michigan Department of Environment, Great Lakes, and Energy |
| GWCTS | groundwater collection and treatment system |
| HAL | Health Advisory Level |
| µg/kg | micrograms per kilogram |
| mg/kg | milligrams per kilogram |
| NAVD | North American Vertical Datum |
| ng/L | nanograms per liter |
| NR | Natural Resources |
| PFAS | per- and poly-fluorinated alkyl substances |
| PFC | perfluorinated compounds |
| PFOA | perfluorooctanoic acid |
| PFOS | perfluorooctanesulfonic acid |
| PVC | polyvinyl chloride |
| QA/QC | quality assurance/quality control |
| RCL | residual contaminant level |
| RCRA | Resource Conservation and Recovery Act |
| Site | Tyco Facility located at 1 Stanton Street in Marinette, Wisconsin |
| Tyco | Tyco Fire Products LP |
| USACE | United States Army Corps of Engineers |
| USEPA | United States Environmental Protection Agency |
| WDHS | Wisconsin Department of Health Services |
| WDNR | Wisconsin Department of Natural Resources |

# EXECUTIVE SUMMARY

On behalf of Tyco Fire Products LP (Tyco), Arcadis U.S., Inc. (Arcadis) conducted site investigation activities to define the nature and extent of per- and poly-fluoroalkyl substances (PFAS) at the Tyco Facility located at 1 Stanton Street in Marinette, Wisconsin (Site) and in neighboring portions of Marinette. Although PFAS has not been manufactured at the Site, some of the site operations have included the handling of PFAS-containing materials. Based on the presence of PFAS-containing materials in the blending operations at the Site, investigations for PFAS have recently been conducted.

Site investigation activities have been conducted in accordance with work plans prepared on behalf of Tyco and approved by the Wisconsin Department of Natural Resources (WDNR). This report presents the results of investigation activities conducted at the Site and in neighboring portions of Marinette and data received for those activities on or before December 31, 2019. The completed investigations evaluated the nature and extent of PFAS in groundwater, soil, and surface water. Groundwater sampling for PFAS was first performed in 2018, and PFAS was detected in shallow groundwater. A shallow soil and expanded groundwater sampling event was performed in November and December 2019, respectively, and included wells located outside of the hydraulic barrier wall, which had been constructed around the Site as part of an ongoing investigation, remediation, and monitoring program under United States Environmental Protection Agency (USEPA) guidance. The second sampling event included three bedrock wells (MW003D, MW013D, and MW102D). The sampling results showed that PFAS is present in shallow bedrock groundwater.

In May 2016, the USEPA issued a drinking water Lifetime Health Advisory Level (HAL) for the individual and combined values for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) of 70 nanograms per liter (ng/L), or parts per trillion. In June 2019, the Wisconsin Department of Health Services (WDHS) recommended a groundwater enforcement drinking water standard of 20 ng/L for PFOA and PFOS, individually and combined. Use of a drinking water standard for groundwater at the Site may not be appropriate. However, as an initial method of evaluating groundwater data, delineation of combined site-related PFOA and PFOS concentrations exceeding 20 ng/L is being conducted. Although 20 ng/L is a proposed criterion and not presently an enforceable drinking water standard, it is included in this report for discussion purposes.

The data and evaluations presented in this Interim Site Investigation Report are part of an ongoing process to identify the nature and extent of PFAS in the environmental media at the Site and will be used to evaluate additional potential remedial actions. Key points based on the site investigation activities conducted at the Site through December 31, 2019 include the following:

- The groundwater data collected to date for overburden and bedrock monitoring wells demonstrate that PFAS are present at the Site, and that concentrations are highest in shallow groundwater within the hydraulic containment barrier. Because concentrations exceeding the USEPA HAL and the WDHS recommended enforcement standard were detected outside of the barrier, additional delineation is anticipated as a component of the Comprehensive Site Investigation Work Plan (under development). Work to evaluate and delineate PFAS in shallow bedrock is currently planned for 2020, as proposed in the Near-Term Bedrock Groundwater Evaluation Work Plan, submitted May 1, 2020.

- While prior investigations by others (e.g., Jacobs 2020) have shown that essentially all overburden groundwater inside the containment barrier is captured, overburden groundwater outside of the wall flows around the barrier to the Menominee River.
- PFOA and PFOS results for surface water samples collected to date by WDNR, the City of Marinette, and the City of Menominee were below the WDNR surface water quality guidelines (420 ng/L for PFOA and 11 ng/L for PFOS for bodies of water that are used for drinking water purposes).
- PFOA and PFOS results for eight soil samples collected at the Site in November 2019 were well below the WDNR non-industrial (1,260 micrograms per liter [µg/kg]) and industrial (16,400 µg/kg) direct contact residual contaminant levels for soil by at least two orders of magnitude.

The following tasks are still in progress and results will be reported at a later date:

- Near-term bedrock groundwater evaluation (Work Plan dated May 1, 2020)
- Development and implementation of a Comprehensive Site Investigation Work Plan

After site investigation activities are completed, a Comprehensive Site Investigation Report, anticipated for submittal in the first quarter of 2021, will be prepared pursuant to Wisconsin Administrative Code Natural Resources 716 requirements. Overall conclusions and recommendations will be provided in that report.

# 1 INTRODUCTION

On behalf of Tyco Fire Products LP (Tyco), Arcadis U.S., Inc. (Arcadis) conducted site investigation activities for the Tyco Facility located at 1 Stanton Street in Marinette, Wisconsin (Site) (**Figure 1**). This Interim Site Investigation Report presents the results of the investigation activities conducted at the Site and in neighboring portions of Marinette to define the nature and extent of per- and poly-fluorinated alkyl substances (PFAS) related to the Site. Site investigation activities are being conducted in response to correspondence from the Wisconsin Department of Natural Resources (WDNR) dated August 16, 2018, requiring additional investigation of PFAS in the area of the Site.

The purpose of this Interim Site Investigation Report is to summarize investigation activities conducted and data received on or before December 31, 2019, in accordance with a January 23, 2020 request from WDNR. After additional site investigations are completed, a Comprehensive Site Investigation Report, which will encompass previously completed and remaining planned investigation activities for the Site, is anticipated to be submitted in first quarter of 2021 and will be completed pursuant to Wisconsin Administrative Code Natural Resources (NR) 716 requirements. NR 712 submittal certifications are included in **Appendix A**.

## 1.1 Scope of Investigation

Since 2018, Tyco has conducted site investigation activities to evaluate the presence of PFAS at the Site and in neighboring portions of Marinette. These activities to evaluate PFAS were completed under WDNR Bureau of Remediation and Redevelopment Tracking System (BRRTS) No. 02-38-581955. The primary focus of the investigation and evaluation activities was perfluorooctanoic acid (PFOA) and/or perfluorooctanesulfonic acid (PFOS). Soil and groundwater investigation activities were conducted in accordance with the following work plans submitted to WDNR:

- PFAS Sampling Procedures and Low-flow Groundwater Purging for Monitoring Wells and Treatment System Influent (Arcadis 2018a), submitted to the United States Environmental Protection Agency (USEPA) and WDNR on March 1, 2018 and approved by USEPA on April 5, 2018
- Site Investigation Work Plan (Arcadis 2018c), submitted to WDNR on August 1, 2018 and approved by WDNR on March 25, 2019
- Groundwater Sampling Work Plan (Arcadis 2019b), submitted to WDNR on March 19, 2019 and approved by WDNR on March 25, 2019

The investigation activities included installation of piezometers and collection of soil and groundwater samples for laboratory analysis. WDNR independently conducted surface water sampling in the Menominee River as part of a statewide investigation of PFAS in surface water (WDNR 2019). WDNR surface water sampling results are included in this report. The investigation findings were used to evaluate the nature and extent of PFAS in groundwater, soil, and surface water.

Tasks still in progress as of December 31, 2019, and the data obtained from that work, will be reported in the subsequent Comprehensive Site Investigation Report. These tasks include the following:

- Near-term bedrock groundwater evaluation, which includes the installation of additional shallow bedrock groundwater monitoring wells, collection of continuous water-level data, and sampling of monitoring wells for PFAS analysis (Near-Term Bedrock Groundwater Evaluation Work Plan dated May 1, 2020; Arcadis 2020b).
- Development of a Comprehensive Site Investigation Work Plan that will identify data gaps and investigation scope to complete the site characterization for affected media.

## 1.2 Objectives of Investigation

The objective of the ongoing site investigation is to delineate the nature and extent of PFAS in environmental media on the Site and in neighboring portions of Marinette. The primary objective of the initial investigation activities completed to date was to preliminarily assess site conditions to better inform the development of the forthcoming Comprehensive Site Investigation Work Plan. The primary objective of this Interim Site Investigation Report, in turn, is to describe the initial investigation activities completed, present the results of these activities, and provide recommendations for the Comprehensive Site Investigation Work Plan. The information obtained from the initial site investigation activities provides insight into the nature, extent, and transport of PFAS as follows:

- Assessment of horizontal and vertical distribution of PFAS in on-site groundwater
- Refinement of horizontal delineation of PFAS in on-site soils
- Evaluation of PFAS concentrations in off-site surface water

The site investigation data collected and presented in this report are part of an ongoing process to identify the nature and extent of PFAS in groundwater, soil, and surface water as a result of historical and ongoing operations at the Site.

# 2 SITE BACKGROUND

A description of the Site, regional and site-specific geology and hydrogeology, and previous investigation activities is provided in this section.

## 2.1 Site Description and History

The Site is an active manufacturing facility in the northeastern portion of the City of Marinette, adjacent to the Menominee River (**Figure 1**). The Site is bordered by the Menominee River to the north; the 6th Street Slip and City of Marinette property to the east; Water Street, City of Marinette property, Marinette School District property, and residential properties to the south; and Marinette Marine to the west.

The Site consists of approximately 66 acres including a manufacturing area on the west side; the former Salt Vault, the former 8th Street Slip, and an undeveloped area to the east referred to as the Wetlands Area; and an office building and parking lot on the south side.

The Site was initially used for lumber mill operations, sawdust disposal, and lumber storage. In 1915, manufacturing operations began and included cattle feed, refrigerants, and specialty chemicals. The Site was used to manufacture an arsenic-based agricultural herbicide between 1957 and 1977. A byproduct of the manufacturing was a salt containing arsenic (up to two percent by weight) that was stockpiled at the Site. Arsenic subsequently entered soil and groundwater at the Site and sediment in the Menominee River. By 1978, the Site ceased production of the arsenic-based herbicide and has produced only fire extinguishers and fire suppression systems since 1983.

Current processes at the Site involve blending, packaging, storage, shipping, and handling of PFAS-containing materials. Based on the presence of PFAS-containing materials in the blending operations at the Site, soil and groundwater investigations for PFAS have recently been conducted. The sampling completed and analytical results for surface water, soil, and groundwater are discussed in this Interim Site Investigation Report.

## 2.2 Geology, Hydrogeology, and Physical Setting

The land surface within the Site is generally flat, much of it paved or covered by industrial buildings. Surface water on the Site drains to the Menominee River.

As reported in the Revised Barrier Wall Groundwater Monitoring Plan Update (BWGMPU; CH2M HILL 2015), the Site overlies approximately 35 to 45 feet of unconsolidated materials, comprising fill, alluvium or lakebed sediments, and till. The upper fill layer consists of sand and gravel with cinders, woodchips, brick, and glass. Alluvial deposits consisting of fine- to coarse-grained sand and gravel with varying amounts of silt underlie the fill layer. Underlying this alluvium is a layer of silty sand to sandy silt lacustrine deposits. This predominantly silt lacustrine layer transitions to a compacted glacial till deposit consisting of denser sandy silt and clay. Dolomitic bedrock is generally encountered beneath the unconsolidated deposits at a depth of approximately 40 feet below ground surface (bgs). In borings completed at the Site, the bedrock surface is overlain by 5 feet or more of dense till, which provides hydraulic confinement between the bedrock and shallow groundwater.

The water table in the vicinity of the Site is typically less than 5 feet bgs, generally occurring within the shallow fill materials. Groundwater in the fill and alluvial deposits is hydraulically connected, while the glacial till acts as an aquitard (CH2M HILL 2015). The bedrock underlying the till appears to be confined, and bedrock groundwater may be predominantly controlled by fracture flow. Some boreholes completed in uppermost bedrock (e.g., more than 10 to 15 feet below the rock surface) encountered fractured and weathered rock with moderate permeability (CH2M HILL 2015). Other locations attempted in shallow rock encountered no open fractures and could not be completed as wells.

## 2.3 Previous Investigations and Remedial Actions

Investigations and remedial actions primarily to address arsenic impacts in soil and groundwater began in 1974 and were continued by Tyco after it acquired the Site in 1990. Tyco implemented several corrective measures through the Resource Conservation and Recovery Act (RCRA) program, including initial interim site corrective actions and later more comprehensive remedial actions. The corrective and remedial actions for arsenic are summarized herein, as these actions inform where PFAS may be present and potential transport mechanisms of PFAS. The following interim and corrective actions were performed:

- Construction of a barrier wall consisting of sections of vibrated beam slurry wall and sheet pile around the former Salt Vault and former 8$^{th}$ Street Slip. In addition, sediments in the former 8$^{th}$ Street Slip were removed, and the slip was backfilled and covered with asphalt. As part of an interim agreement between Tyco and USEPA, a groundwater monitoring program was established in accordance with a 1998 Monitoring Plan (Dames and Moore 1998).
- Installation of a containment barrier around the perimeter of the Site to contain groundwater impacted with arsenic to the maximum extent possible (CH2M HILL 2011a).
- Maintenance of groundwater elevations inside the containment area through an on-site groundwater collection and treatment system (GWCTS) consisting of phyto-pumping and mechanical pumping systems to create an inward gradient within the Site. The mechanical GWCTS was brought online in October 2010 and is used to treat extracted groundwater for arsenic. The GWCTS consists of mix tanks, microfiltration, and reverse osmosis (CH2M HILL 2011b).
- Establishment of institutional controls including a deed restriction on the Site, site access controls, and site security measures. In the river, there are restrictions on dredging and an ordinance restricting anchoring in certain areas (CH2M HILL 2013).
- Covering of on-site surficial soil containing total arsenic concentrations greater than 32 milligrams per kilogram (mg/kg) and removal of surficial soil in three off-site areas with total arsenic concentrations greater than or equal to 16 mg/kg (CH2M HILL 2010).
- Dredging of 259,000 cubic yards of sediments from the Menominee River in 2012 to 2013 either to the depth of the glacial till or bedrock or to the depth where remaining arsenic concentrations were less than 50 mg/kg (CH2M HILL and Sevenson Environmental Services, Inc. 2014). Additional dredging in the Menominee River was completed in 2014 to remove sediments with total arsenic concentrations between 50 and 20 mg/kg. This dredging work was conducted in accordance with a May 2014 Great Lake Legacy Act Project Agreement among Tyco, USEPA, and WDNR.

- Implementation of a pump down program to lower groundwater levels, resulting in an inward gradient in the former Salt Vault and former 8th Street Slip to an elevation at or below 577.9 feet above mean sea level (relative to North American Vertical Datum [NAVD] 1998), which corresponds to the U.S. Army Corps of Engineers (USACE) ordinary low water elevation (Tyco 2016).
- Enhancements to the hydraulic monitoring program and barrier wall inspections in accordance with the USEPA-approved 2015 BWGMPU (CH2M HILL 2015) and addendums to the report in September 2015 and September 2019 (Jacobs 2020). Enhancements included performing an underwater visual survey of the barrier wall condition, installing additional shallow monitoring wells to monitor potential leakage through the barrier wall, and identifying a monitoring well network for continuous monitoring to further assess the wall for potential leaks.

# 3 SITE INVESTIGATION

A general timeline of specific investigation work conducted by Arcadis at the Site and details of the activities conducted during each phase are as follows:

- April/May 2018: Groundwater sampling for PFAS was first performed in 2018 under BRRTS No. 02-38-581955. The sampling results were reported in a Summary of Groundwater Sampling letter submitted to USEPA with a copy to WDNR on June 21, 2018 (Arcadis 2018b):
    - Groundwater samples were collected from seven existing monitoring wells for PFAS analyses.
    - One sample was collected of combined groundwater influent to the existing GWCTS.
- June/August 2019: Piezometers PZ-27-12, PZ-28-14, and PZ-28-54 were installed to the southwest and south of the Site in June and August 2019. The piezometers were installed to be gauged in conjunction with gauging planned for October 2019 at the Site and at the Tyco Fire Technology Center located at 2700 Industrial Parkway in Marinette.
- November/December 2019: A shallow soil and expanded groundwater sampling event was performed in November and December 2019. The expanded groundwater sampling included wells located outside of the containment wall at the Site. The results of this event were presented in a Summary of Soil and Groundwater Sampling report submitted to WDNR on February 4, 2020 (Arcadis 2020a):
    - Eight soil samples were collected from seven boring locations for PFAS analyses.
    - Groundwater samples were collected from 12 existing monitoring wells around the exterior of the containment wall for PFAS analyses.

## 3.1 Site Preparation

Investigation activities were conducted on the Site as well as in public rights-of-way of the City of Marinette. Prior to mobilization, permission for access to investigation locations was obtained from Tyco and the City appropriate jurisdictional authorities.

In accordance with Arcadis standard policies, at a minimum, three lines of evidence were used to locate subsurface utilities. Prior to mobilization, Wisconsin One Call (i.e., Diggers Hotline) was contacted to provide utility mark-outs. Additionally, Ground Penetrating Radar Services, a private utility locating service, was contracted to perform locating services, such as ground-penetrating radar, and each location was inspected prior to conducting intrusive work. Available utility drawings were reviewed, and knowledgeable facility personnel were interviewed when possible. A hand auger was used to clear soil boring areas.

## 3.2 Groundwater Investigation Activities

Groundwater investigation activities included assessing groundwater movement by piezometer installations and water elevation measurements and monitoring groundwater quality by sampling, as described in this section. Analytical results are provided and discussed in **Section 5.1**.

### 3.2.1 Groundwater Monitoring

Groundwater sampling for PFAS was first performed in 2018. On April 30 and May 1, 2018, Arcadis collected an initial round of groundwater samples for PFAS analyses from seven existing monitoring wells (MW008M, MW032S, MW041S, MW044S, MW054S, MW102S, and MW108S). Locations are presented on **Figure 2**. The monitoring wells included six shallow wells (10 to 25 feet bgs) and one intermediate well (approximately 30 feet bgs). Additionally, one sample was collected of combined groundwater influent to the existing GWCTS.

From December 9 to 13, 2019, Arcadis collected groundwater samples for PFAS analyses from 12 existing monitoring wells (MW003D, MW003M, MW003S, MW013D, MW013M, MW013S, MW021S-R, MW040M, MW102D, MW102M, MW102S, and MW104S) (**Figure 2**). The monitoring wells included five shallow wells (approximately 10 to 25 feet bgs), four intermediate wells (approximately 30 feet bgs), and three deep wells (approximately 45 to 50 feet bgs).

Prior to sampling, the wells were inspected, and redevelopment was deemed unnecessary. Low-flow sampling procedures were employed using a peristaltic pump and dedicated down-well high-density polyethylene disposable tubing. Analytical samples were collected at each well after groundwater parameters (i.e., dissolved oxygen, pH, specific conductivity, and oxidation-reduction potential) stabilized. Groundwater samples were collected for PFAS analyses following the methodology and sample handling procedures described in **Section 4.** Well construction details are provided in **Table 1**.

### 3.2.2 Piezometer Installation

As proposed in the March 2019 Groundwater Sampling Work Plan, piezometers PZ-27-12, PZ-28-14, and PZ-28-54 (**Figure 2**) were installed southwest and south of the Site in June and August 2019. The piezometers were installed to be gauged in conjunction with gauging at the Site and the Tyco Fire Technology Center in October 2019. The results of this gauging event are also reported and described in the Interim Site Investigation Report for the Fire Technology Center BRRTS No. 02-38-580694 submitted to WDNR on May 15, 2020 (Arcadis 2020c).

Installation locations of the piezometers were adjusted slightly based on access constraints or field conditions. Piezometer PZ-27-12 was shifted approximately 500 feet to the northwest from the proposed location indicated in the Supplemental Site Investigation Work Plan for the Fire Technology Center (Arcadis 2019a).

Drilling and well construction were performed by Braun Intertec Corporation of La Crosse, Wisconsin, with oversight by an Arcadis field geologist. Continuous soil cores were collected and logged at the first borehole drilled at each piezometer location. The initial borehole at each location was advanced to bedrock or until reaching a confining unit above the bedrock surface. The number of wells at each location and screened intervals of each well were determined based on observed lithology. The deepest piezometer at each location was set within the logged borehole, and shallower wells were installed in adjacent boreholes (within approximately 5 feet of each other) without collecting soil cores. Shallow piezometers were screened at or near the water table. Because of the shallow depth of the water table (e.g., typically less than 5 feet bgs), piezometers were constructed slightly below the water table (e.g., screened 7 to 17 feet bgs) to permit construction of a sufficient surface seal above the screened interval. Deeper piezometers were screened in permeable sand units within the overburden.

Piezometers were installed using a sonic drill rig and constructed in accordance with Wisconsin Administrative Code NR 141. Piezometers were constructed with 5- or 10-foot-long by 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) 0.010-inch slotted screen and a 2-inch Schedule 40 PVC riser to the surface. Filter pack sand was placed to 2 feet above the top of screen, followed by a 2-foot filter pack seal of granular bentonite, and the piezometer was grouted to a depth of 2 feet bgs and completed as a flush-mount. Newly installed piezometers were developed by Braun Intertec Corporation in August 2019. The piezometers were surged with a block and pumped. **Table 1** provides the construction details for the piezometers. Soil boring logs are included in **Appendix B**, and construction logs and development forms are included in **Appendix C**.

### 3.2.3 Groundwater Elevation Gauging

Three rounds of groundwater level measurements have been collected since 2018 at wells and piezometers located at the Site and in neighboring portions of Marinette. The events were conducted as follows:

- April/May 2018, in conjunction with the groundwater sampling event. Seven locations were gauged from existing monitoring wells (MW008M, MW032S, MW041S, MW044S, MW054S, MW102S, and MW108S). All locations except MW102S are located inside the Site's hydraulic barrier.
- October 2019, comprising approximately 70 locations including monitoring wells, piezometers, and surface water gauging locations in the City of Marinette, in the Town of Peshtigo, and at the Tyco Fire Technology Center site. Of the 70 locations, 16 were located at the Site (MW104S, MW104M, MW100M, MW100S, MW022S, MW022M, MW021S, MW021M, MW102S, MW102M, MW103M, MW103S, MW040M, MW040S, MW003M, and MW003S).
- December 2019, in conjunction with the groundwater sampling event. Twelve on-site locations were gauged from existing monitoring wells (MW003D, MW003M, MW003S, MW013D, MW013M, MW013S, MW021S-R, MW040M, MW102D, MW102M, MW102S, and MW104S). All wells are located outside the Site's hydraulic barrier.

Wells and piezometers were manually measured using a water-level meter prior to groundwater sampling. All monitoring wells were gauged for depth to water and depth to the bottom of the well. Water-level measurements are included in **Table 2**.

Jacobs, on behalf of Tyco, collected a round of water-level measurements on October 7, 2019, as part of a separate investigation at the Site. The data are included in Jacobs' 2019 Barrier Wall Groundwater Monitoring Annual Report (Jacobs 2020). The Shallow Well Depth – October 2019 Potentiometric Surface Map figure and the Bedrock Well Depth – October 2019 Potentiometric Surface Map figure are included in **Appendix D**.

### 3.2.4 Groundwater-Surface Water Interaction

A surface water gauge is installed at the Site to record surface water elevations. Jacobs, on behalf of Tyco, collects river water elevations from the surface water gauge as part of a separate investigation at the Site. Groundwater elevation data are discussed in Section 3.2.3. In accordance with the Near-Term Bedrock Groundwater Evaluation Work Plan, recording groundwater levels for select monitoring wells is

planned in the near future (Arcadis 2020b). The groundwater elevation data will be evaluated with the surface water gauge data to assess groundwater-surface water interactions.

## 3.3 Soil

On November 13 and 14, 2019, shallow soil sampling was conducted to assess the potential presence of PFAS in shallow soil at the Site. The soil samples were collected using stainless-steel hand augers. Eight samples were collected from seven hand-auger borings (SS-18-01 to SS-18-07) that were advanced at the Site. Investigation locations were limited to unpaved areas of the Site. At each boring location, samples were collected from one depth interval within 2 feet bgs and above the saturated zone. Each boring was logged by an Arcadis field geologist and abandoned after completion of sampling and testing. The approximate soil sampling locations are shown on **Figure 3**. Photographs of the boring locations are included in **Appendix E**. Non-disposable sampling equipment was decontaminated prior to beginning sampling at each location. Two equipment blanks and two field blanks were collected during soil sampling using a hand auger for each day of work. Soil boring logs and abandonment forms are provided in **Appendix B**. Analytical results are provided and discussed in **Section 5.2.**

## 3.4 Off-Site Surface Water Investigation Activities

At this time, no surface water sampling has been conducted by Arcadis for the purpose of this site investigation; however, publicly available surface water sampling data were compiled. Surface water sampling has occurred for the City of Marinette (performed by the Marinette Water Utility) and the City of Menominee (performed by the Michigan Department of Environment, Great Lakes, and Energy [EGLE]) water treatment facilities and within the Menominee River (performed by WDNR). Approximate sampling locations, based on public reporting, are shown on **Figure 4**. The compiled sampling results are discussed in **Section 5.3**.

### *Green Bay*

The City of Marinette conducted and published the results of seven PFAS sampling events for city drinking water between 2017 and 2020. Sampling was conducted by the Marinette Water Utility, and compiled results are for raw drinking water from Green Bay. There are two water intake locations and although the exact locations are not known, they are specified to be in western Green Bay, north of the Menominee River, and near the confluence of the Menominee River to Green Bay (WDNR 2003). One approximate location is shown on **Figure 4** based on a figure from the Lower Menominee River Remedial Action Plan Update (WDNR 1996).

In 2018, EGLE conducted a Phase I statewide PFAS sampling survey of public water supplies in Michigan that utilize surface water as a source. The City of Menominee was included in the sampling event and a sample of post-treated drinking water was collected. Following the results of the Phase I sampling, EGLE began Phase II of the program to include monthly sampling between April and October 2019. During the Phase II sampling program, 11 additional samples were collected, six samples from post-treatment drinking water and five samples from raw water at the City's intake in Green Bay. The approximate intake location is shown on **Figure 4**, based on a figure from the Lower Menominee River Remedial Action Plan Update (WDNR 1996).

### *Menominee River*

In 2019, WDNR collected surface water samples at five locations on the Menominee River. Four of the locations were along the lower 3.5 miles of the Menominee River before it discharges to Green Bay and were sampled during three events (**Figure 4**). Locations were selected to capture a gradient of potential PFAS contamination to the lower Menominee River from multiple possible sources. One location, Chalk Hills Flowage, was approximately 50 miles upstream and was sampled during the first event for background concentrations. An approximate location cannot be confirmed and therefore is not shown on a figure (WDNR 2019).

## 3.5 Sediment

At this time, no sediment sampling has been conducted for the purposes of this PFAS investigation at the Site.

## 3.6 Stormwater

At this time, no stormwater sampling has been conducted for the purposes of this PFAS investigation at the Site.

## 3.7 Air Sampling

There have been no emissions from the Site.

## 3.8 Surveying

The new piezometers were surveyed following installation activities. The ground surface elevation of each location was referenced to the NAVD 88 system, and the horizontal coordinates were reported in the North American Datum (NAD) 83 – Wisconsin Central 4802 Zone system as part of the survey work. Survey data are provided in **Appendix F.**

## 3.9 Investigation-Derived Waste

Purge water, soil, drilling fluid, and rock cuttings generated during investigation activities were containerized (i.e., 55-gallon steel drums and 1,500-gallon polyethylene tanks) and staged in a centralized and secured location on Tyco property, pending characterization. Waste disposal options will be assessed following waste characterization.

# 4 QUALITY ASSURANCE AND QUALITY CONTROL

This section discusses field and laboratory quality assurance (QA)/quality control (QC).

## 4.1 Special Considerations for PFAS Sampling

The detection of PFAS compounds, including at low concentrations, can be influenced by common PFAS-containing materials that may be present at a sampling site. Therefore, specific PFAS sampling protocols were strictly followed by sampling personnel. Sampling and decontamination procedures were conducted, and field blanks were collected, in accordance with the March 2018, August 2018, and March 2019 Work Plans.

## 4.2 Field Activities and Methods

Investigation activities were performed in accordance with the March 2018, August 2018, and March 2019 Work Plans approved by WDNR. The presence of ambient PFAS in the sampling area was analyzed by collecting one laboratory-supplied reagent field blank per day. A container of PFAS-free water supplied by the laboratory was poured into the dedicated PFAS bottleware near the sampling area. Precision and accuracy of field methods were assessed by the collection of field duplicates for laboratory analysis. Representativeness of field data was addressed by the selection of sampling locations, sampling frequency, and investigation methods as described in the March 2018, August 2018, and March 2019 Work Plans. Comparability of field data was achieved using standard methods specified in the March 2018, August 2018, and March 2019 Work Plans. Completeness was measured by comparing the number of samples collected to the number of samples proposed and was evaluated during data validation, which is discussed in **Section 4.4**. Sensitivity of field data was addressed by calibration of field equipment.

## 4.3 Laboratory Methods and Analysis

Samples for PFAS analyses were sent to EurofinsTestAmerica Sacramento, a laboratory accredited for PFAS analysis by the ANSI-ASQ National Accreditation Board under the Department of Defense's Environmental Laboratory Accreditation Program with ID #L2468.

The 2018 groundwater samples were analyzed for the 14 PFAS compounds that are reportable using the TestAmerica West Sacramento – Perfluorinated Compounds (PFCs) in water and soil by liquid chromatography with tandem mass spectrometry (LC/MS/MS) method. The 2019 groundwater samples were analyzed for the 14 PFAS compounds that are reportable using USEPA Method 537, and soil samples were analyzed for PFAS using a modified USEPA Method 537.

Samples for laboratory analysis and QA/QC samples, such as duplicates, matrix spike/matrix spike duplicates, equipment blanks, and field blanks, were collected as detailed in the March 2018, August 2018, and March 2019 Work Plans.

The laboratory information, analytical methods used, and individual analytical results are not available for all of the publicly available surface water data. The City of Marinette included the laboratory and method used for analysis with the analytical results posted. The data for the 2019 Phase II statewide PFAS

sampling program completed by EGLE do not include the laboratory information or individual PFAS results; combined PFOA and PFOS and total PFAS results are presented. The 2019 WDNR data do not include the analytical method used. In addition, these data were flagged with an asterisk if the analytical result was detected between the limit of detection and the limit of quantification, as indicated below.

## 4.4 Data Validation

Data were reviewed in accordance with USEPA National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-2017-002, January 2017 (with reference to the historical USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P, October 1999, as appropriate). Data validation reports have been submitted to WDNR in previous reports.

Results are qualified as follows in accordance with the National Functional Guidelines:

- * = The value is between the limit of detection and the limit of quantification.
- B = The compound is considered non-detect at the listed value due to associated blank contamination.
- D = The concentration is based on diluted sample analysis.
- J = The result is an estimated quantity. The associated value is the approximate concentration of the analyte in the sample.
- J- = The result is an estimated quantity. The associated numerical value is expected to have a negative or low bias.
- JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
- R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria.
- U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
- UB = The compound is considered non-detect at the listed value due to associated blank contamination.
- UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

With the exception of data that were rejected, accepted data are used as described in the March 2018, August 2018, and March 2019 Work Plans.

# 5 SITE INVESTIGATION RESULTS

This section summarizes the groundwater, soil, and surface water results associated with activities completed and data received between April 2018 and December 2019.

## 5.1 Groundwater Investigation Results

USEPA classifies PFAS as a category of “emerging contaminants.” In May 2016, USEPA issued a drinking water Lifetime Health Advisory Level (HAL) for two PFAS compounds, specifically the individual and combined values for PFOA and PFOS of 70 nanograms per liter (ng/L) or parts per trillion. In June 2019, the Wisconsin Department of Health Services (WDHS) recommended a groundwater enforcement standard of 20 ng/L for PFOA and PFOS, individually and combined. Use of a drinking water standard for groundwater at the Site may not be appropriate. However, comparison to these values was used as an initial method of evaluating groundwater data. The 20 ng/L value is a potential future groundwater standard and is included for consideration in this Interim Site Investigation Report for discussion purposes. The evaluation of the data considered the applicable HAL and WDHS criteria when they were available.

### 5.1.1 Groundwater Monitoring

On April 30 and May 1, 2018, Arcadis collected an initial round of groundwater samples for PFAS analyses from seven existing monitoring wells, including six shallow-zone wells (MW032S, MW041S, MW044S, MW054S, MW102S, and MW108S) and one intermediate-zone well (MW008M). All locations except MW102S are located inside the Site’s hydraulic barrier. The analytical results are summarized in **Table 3** and on **Figure 5**. The results support the following observations:

- The PFOA concentrations detected in the April and May 2018 groundwater samples ranged from 130 ng/L (MW102S) to 9,100 DJ ng/L (MW108S). The PFOS concentrations ranged from 25 ng/L (MW102S) to 650 DJ ng/L (MW041S).
- The lowest PFOA and PFOS concentrations observed were in MW-102S, the one location sampled outside the hydraulic barrier.
- The PFOA concentrations in all samples were greater than the USEPA HAL and the WDHS recommended enforcement standard. Except for the groundwater sample from monitoring well MW102S, the PFOS concentrations detected in the groundwater samples were greater than the USEPA HAL. The PFOS concentrations in all samples were greater than the WDHS recommended enforcement standard.

Additionally, one sample (INF-01) was collected on May 1, 2018 of combined groundwater influent to the existing GWCTS. The location of the GWCTS is shown on **Figure 2**. The extraction wells that service the GWCTS are EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, and EW-7 and are also shown on **Figure 2**. The analytical results for the sample collected (INF-01) is presented in **Table 3**. The PFOA concentration was detected at 1,800 DJ ng/L and the PFOS concentration was detected at 67 ng/L in the groundwater influent sample. The GWCTS is designed to remove arsenic but should also remove PFAS. The reverse osmosis membranes in the GWCTS typically remove compounds with molecular weights greater than 200

Dalton (Da). Typically, PFAS compounds with C4 (four carbons) and higher have molecular weights greater than 200 Da. Therefore, the existing reverse osmosis membranes most likely will remove PFAS.

The second groundwater monitoring event was completed December 9 to 13, 2019, and included collection of samples for PFAS analyses from 12 existing monitoring wells, all located outside the Site's hydraulic barrier. The sampling event included five shallow wells (MW102S, MW003S, MW013S, MW021S-R, and MW104S), four intermediate-zone wells (MW003M, MW013M, MW040M, and MW102M), and three shallow bedrock wells (MW003D, MW102D, and MW013D). The analytical results are included in **Table 3** and on **Figure 5**. The results support the following observations:

- The PFOA concentrations detected in the December 2019 samples ranged from 9 ng/L (MW013M) to 1,300 ng/L (MW102D). The PFOS concentrations ranged from non-detect (MW003M, MW102M, and MW102D) to 220 ng/L (MW003S).
- Concentrations of PFOA and PFOS in most shallow and intermediate locations outside the hydraulic barrier wall were significantly lower than the levels previously detected (April/May 2018) at wells inside the barrier. The exception was MW003S, for which PFOA was detected at 1,200 D ng/L and PFOS at 220 ng/L.
- PFOA and/or PFOS concentrations were greater than the USEPA HAL for all locations except upgradient shallow and intermediate wells MW013S and MW013M. PFOA and/or PFOS concentrations were greater than the WDHS recommended enforcement standard for all locations except upgradient intermediate well MW013M.
- PFOA was detected in each of the three sampled bedrock wells at concentrations greater than 1,000 ng/L (i.e., 1,100 D ng/L at MW003D, 1,200 D ng/L at MW013D, and 1,300 ng/L at MW102D). PFOS concentrations in those same wells were less than 3 ng/L.

The groundwater data collected to date from overburden and bedrock monitoring wells demonstrate that PFAS are present at the Site, and that concentrations are highest in shallow groundwater within the hydraulic containment barrier. Because concentrations exceeding the USEPA HAL and the WDHS recommended enforcement standard are present outside of the barrier, additional delineations is anticipated as a component of the Comprehensive Site Investigation Work Plan (under development). Work to evaluate and delineate PFAS in shallow bedrock is currently planned for 2020, as proposed in the Near-Term Bedrock Groundwater Evaluation Work Plan, submitted May 1, 2020 (Arcadis 2020b).

### 5.1.2 Groundwater Elevations

Manual water-level measurements at monitoring wells were recorded in April 2018, October 2019, and December 2019 as described in **Section 3**. The water-level measurement data collected by Arcadis are presented in **Table 2** and were used to develop potentiometric surface maps shown on **Figures 6** and **7** for the shallow sand unit and the deep sand unit, respectively. Note that the shallow and deep sand units are hydrostratigraphic designations developed for the wider Marinette-Peshtigo area. The shallow (s-zone) wells at the Site are the hydrostratigraphic equivalent of the shallow sand unit. The medium or intermediate (m-zone) wells at the Site are the hydrostratigraphic equivalent of the deep sand unit.

The potentiometric surface in the shallow sand unit (**Figure 6**) is an approximate reflection of the topography. Groundwater in the shallow sand flows toward the primary discharges at Green Bay and the

Menominee River, but also interacts with surface water in the ditches, ponds, and wetlands within the investigation area. Near the Site, groundwater in the shallow sand unit is interpreted to flow from southwest to northeast toward the Menominee River. The potentiometric surface of the deep sand unit (**Figure 7**) is similar to the shallow sand unit. The hydraulic gradient trends west-southwest to east-northeast, also suggesting flow toward the Menominee River.

Groundwater flow toward the river in the overburden is interrupted by the hydraulic barrier at the Site. The effects of the barrier wall are demonstrated by potentiometric surface maps generated by Jacobs from an October 2019 gauging event (**Appendix D)**. The shallow well depth potentiometric surface map illustrates the following:

- Groundwater flow in the shallow zone outside the containment barrier wall trends from the southeast (i.e., upgradient) toward the Menominee River but diverges around the wall to the east and west.
- Groundwater flow in the shallow and intermediate depth zone inside the wall is contained by the wall and collected by the GWCTS.

The potentiometric surface map generated based on water levels in shallow bedrock monitoring wells (**Appendix D**) does not show any clear effect of the barrier, which was constructed only down to the top of bedrock. Flow in bedrock groundwater appears to travel under the containment wall to the Menominee River. As described in **Section 3.2.4**, groundwater elevations in select bedrock monitoring wells will be monitored in the near future. The groundwater elevation data will be evaluated with surface water gauge data to assess groundwater-surface water interactions.

## 5.2 Soil Investigation Results

Soil sampling was completed via hand-auger borings to assess soil conditions and the potential presence of PFAS in shallow soil at the Site. PFAS analytical results for soil samples are provided in **Table 4** and on **Figure 8**. Soil boring logs and abandonment logs are provided in **Appendix B**.

PFAS analytical results for shallow soil samples were compared to applicable criteria or standards. The process to develop soil standards is provided in Wisconsin Administrative Code NR 720. Following this process, WDNR has calculated direct contact (DC) residual contaminant levels (RCLs) in soil for PFOA and PFOS that are deemed protective of human health. WDNR established non-industrial DC RCLs and industrial DC RCLs for PFOA and PFOS. The non-industrial DC RCL for PFOA and PFOS is 1,260 micrograms per kilogram (µg/kg) for each analyte, and the industrial DC RCL for PFOA and PFOS is 16,400 µg/kg for each analyte.

PFOS was detected above the analytical method detection limit in six of the eight samples, at concentrations ranging from 1.6 (SS-18-07) to 4.7 J (SS-18-05) µg/kg; PFOS was not detected in the other two samples. PFOA was detected in all eight soil samples at concentrations ranging from 1.3 (SS-18-01) to 15 µg/kg (SS-18-06). These PFOS and PFOA analytical results are well below the WDNR non-industrial and industrial DC RCLs for soil by at least two orders of magnitude.

## 5.3 Off-Site Surface Water Investigation Results

Approximate surface water sampling locations are shown on **Figure 4**. Compiled public analytical data and sources are provided in **Table 5**. Analytical results for PFOA and PFOS detections in surface water samples are shown on **Figure 9**.

The current EGLE and WDNR surface water quality guidelines are 420 ng/L for PFOA and 11 ng/L for PFOS for bodies of water that are used for drinking water purposes. Surface water samples were collected during three sampling events (June, July, and September 2019). In river surface water samples collected near the publicly owned treatment works outfall, located upgradient of the Site, concentrations of PFOA ranged from non-detect to 0.71 ng/L and PFOS ranged from non-detect to 0.31* ng/L. At the mouth of Green Bay, located downgradient of the Site, surface water concentrations of PFOA ranged from 0.6 ng/L to 0.82 ng/L and PFOS ranged from non-detect to 0.4* ng/L. All PFOA and PFOS results from public data were below the surface water quality guidelines.

## 5.4 Sediment Results

Sediment sampling for PFAS has not occurred at the Site; therefore, there are no analytical results to discuss for the site investigation at this time.

## 5.5 Stormwater Results

Stormwater sampling for PFAS has not occurred at the Site; therefore, there are no analytical results to discuss for the site investigation at this time.

# 6 CONCLUSIONS AND NEXT STEPS

A site investigation related to PFAS was conducted in accordance with work plans prepared on behalf of Tyco and approved by WDNR. The site investigation activities included groundwater, soil, and surface water sampling.

A Comprehensive Site Investigation Report, which will encompass previously completed and remaining planned investigation activities for the Site, is anticipated to be submitted in the first quarter of 2021. The data and evaluations presented in this Interim Site Investigation Report are part of an ongoing process to identify the nature and extent of PFAS in environmental media and will be used to evaluate additional potential remedial actions. Key points based on the site investigation activities conducted at the Site through December 31, 2019 include the following:

- The groundwater data collected to date for overburden and bedrock monitoring wells demonstrate that PFAS are present at the Site, and that concentrations are highest in shallow groundwater within the hydraulic containment barrier. Because concentrations exceeding the USEPA HAL and the WDHS recommended enforcement standard were detected outside of the barrier, additional delineation is anticipated as a component of the Comprehensive Site Investigation Work Plan (under development). Work to further evaluate and delineate PFAS in shallow bedrock is currently planned for 2020, as proposed in the Near-Term Bedrock Groundwater Evaluation Work Plan, submitted May 1, 2020 (Arcadis 2020b).
- Prior investigations by others (e.g., Jacobs 2020) have shown that essentially all overburden groundwater inside the containment wall is captured. Overburden groundwater outside of the wall flows around the barrier to the Menominee River.
- Results of surface water samples collected to date by WDNR, the City of Marinette, and the City of Menominee were below the WDNR surface water quality guidelines for PFOA and PFOS.
- For the eight soil samples collected at the Site in November 2019, PFOS and PFOA analytical results were well below the WDNR non-industrial and industrial DC RCLs for soil by at least two orders of magnitude.

The following tasks are still in progress and results will be reported at a later date:

- Near-term bedrock groundwater evaluation (Work Plan dated May 1, 2020)
- Development and implementation of a Comprehensive Site Investigation Work Plan

After completion of site investigation activities, the Comprehensive Site Investigation Report, anticipated for submittal in the first quarter of 2021, will be prepared pursuant to Wisconsin Administrative Code NR 716 requirements. Overall conclusions and recommendations will be provided in that report.

# 7 REFERENCES

Arcadis. 2018a. PFAS Sampling Procedures and Low-flow Groundwater Purging for Monitoring Wells and Treatment System Influent, Tyco Fire Products LP Facility. March 1.

Arcadis. 2018b. Summary of Groundwater Sampling, Ansul Inc. Stanton Street Facility, Marinette, Wisconsin, EPA ID: WID006125215. June 21.

Arcadis. 2018c. Site Investigation Work Plan, Tyco Stanton Street Facility Marinette, Wisconsin. August 1.

Arcadis. 2019a. Supplemental Site Investigation Work Plan, Tyco Fire Technology Center Site, 2700 Industrial Parkway, Marinette, Wisconsin, BRRTS No. 02-38-580694. February 5.

Arcadis. 2019b. Groundwater Sampling Work Plan, Tyco Fire Products PFAS - Stanton Street Facility Marinette, Wisconsin, BRRTS No. 02-38-581955. March 19.

Arcadis. 2020a. Summary of Soil and Groundwater Sampling, Tyco Stanton Street Facility, Marinette, Wisconsin, BRRTS No. 02-38-581955. February 4.

Arcadis. 2020b. Near-Term Bedrock Groundwater Evaluation Work Plan, Tyco Stanton Street Facility, Marinette, Wisconsin, BRRTS No. 02-38-581955. May 1.

Arcadis. 2020c. Interim Site Investigation Report, Fire Technology Center, Marinette, Wisconsin, BRRTS No. 02-38-580694. May 15.

CH2M HILL. 2010. Final Construction Completion Report – Revision 1, Onsite and Offsite Soil Areas at the Tyco Fire Products LP Facility. December.

CH2M HILL. 2011a. Construction Completion Report, Containment Barrier Wall Installation at the Tyco Fire Products LP Facility. April 18.

CH2M HILL. 2011b. Construction Completion Report, Groundwater Collection and Treatment System Installation. April.

CH2M HILL. 2013. Five-Year Technical Review. December.

CH2M Hill. 2015. Revised Barrier Wall Groundwater Monitoring Plan Update. Tyco Fire Products LP. September.

CH2M HILL and Sevenson Environmental Services, Inc. 2014. Construction Completion Report, Menominee River Sediment Removal Project Adjacent to the Tyco Fire Products LP Facility. March.

Dames and Moore. 1998. Long-Term Monitoring Plan.

Jacobs. 2020. 2019 Barrier Wall Groundwater Monitoring Annual Report, Document Control No. D3235600.274, Jacobs Engineering Group Inc. March.

Tyco. 2016. Letter from Ryan Suennen of Tyco Fire Protection Products to Dave Johnson of WDNR Regarding Dewatering System Construction Report, Tyco Fire Products LP Site, One Stanton Street. July 6.

USEPA. 1999. Contract Laboratory Program National Functional Guidelines for Organic Data Review, OSWER 9240.1-05A-P. October.

USEPA. 2017. National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540-R-2017-002. January.

WDNR. 1996. Lower Menominee River Remedial Action Plan Update, PUBL-WR-410-96. February.

WNDR. 2003. Source Water Assessment for Marinette Water Utility. Marinette, Wisconsin. March 27.

WDNR. 2019. PFAS surface water sampling results. Available at: https://dnr.wi.gov/topic/Contaminants/WaterQuality.html#study.

# TABLES

**Table 1**
**Well Construction Details**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Well ID | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Top of Casing Elevation (feet) | Surface Finish | Ditch PZ Stickup Length (feet) | Top of Screen Elevation (feet amsl) | Bottom of Screen Elevation (feet amsl) |
|---|---|---|---|---|---|---|---|
| MW003D | 45 | 50.43 | 587.29 | NA | -- | 542.29 | 536.86 |
| MW003M | 30 | 32.64 | 587.24 | NA | -- | 557.24 | 554.6 |
| MW003S | 10 | 16.63 | 586.4 | NA | -- | 576.4 | 569.77 |
| MW008M | 25 | 30 | 583.12 | NA | -- | 558.12 | 553.12 |
| MW013D | 45 | 46.9 | 588.69 | NA | -- | 543.69 | 541.79 |
| MW013M | 30 | 32.61 | 587.91 | NA | -- | 557.91 | 555.3 |
| MW013S | 5 | 12.6 | 588.21 | NA | -- | 583.21 | 575.61 |
| MW021M | 30 | 35 | 586.93 | NA | -- | 556.93 | 551.93 |
| MW021S-R | 6 | 18.94 | 586.17 | NA | -- | 580.17 | 567.23 |
| MW022M | 30 | 35 | 584.34 | NA | -- | 554.34 | 549.34 |
| MW022S | 10 | 20 | 584.3 | NA | -- | 574.3 | 564.3 |
| MW032S | 7 | 17 | 588.33 | NA | -- | 581.33 | 571.33 |
| MW040M | 20 | 25 | 582.42 | NA | -- | 562.42 | 557.42 |
| MW040S | 5 | 15 | 582.43 | NA | -- | 577.43 | 567.43 |
| MW041S | 5 | 15 | 582.93 | NA | -- | 577.93 | 567.93 |
| MW044S | 5 | 15 | 583.96 | NA | -- | 578.96 | 568.96 |
| MW054S | 10 | 20 | 587.66 | NA | -- | 577.66 | 567.66 |
| MW102D | 49.76 | 54.68 | 588.49 | NA | -- | 538.73 | 533.81 |
| MW102M | 27.73 | 32.94 | 588.43 | NA | -- | 560.7 | 555.49 |
| MW102S | 7.71 | 17.4 | 588.71 | NA | -- | 581 | 571.31 |
| MW104S | 8 | 18 | 589.14 | NA | -- | 581.14 | 571.14 |
| MW108S | 8 | 18 | 586.51 | NA | -- | 578.51 | 568.51 |
| FTC-2D | 27 | 32 | 611.43 | Flush | -- | 584.43 | 579.43 |
| FTC-2S | 5 | 15 | 611.55 | Flush | -- | 606.55 | 596.55 |
| FTC-34D | 28 | 33 | 608.72 | Flush | -- | 580.72 | 575.72 |
| FTC-34S | 3 | 13 | 608.50 | Flush | -- | 605.50 | 595.50 |
| FTC-35 | 3 | 13 | 610.30 | Flush | -- | NM | NM |

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**Table 1**
**Well Construction Details**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Well ID | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Top of Casing Elevation (feet) | Surface Finish | Ditch PZ Stickup Length (feet) | Top of Screen Elevation (feet amsl) | Bottom of Screen Elevation (feet amsl) |
|---|---|---|---|---|---|---|---|
| FTC-42 | 5 | 15 | 609.37 | Flush | -- | NM | NM |
| FTC-44 | 5 | 15 | 611.30 | Flush | -- | NM | NM |
| PZ-1D | 63.5 | 68.5 | 606.23 | Stickup | -- | 542.73 | 537.73 |
| PZ-1S | 36 | 41 | 606.36 | Stickup | -- | 570.36 | 565.36 |
| PZ-4D | 68.5 | 73.5 | NM | Stickup | -- | NM | NM |
| PZ-4S | 36 | 41 | NM | Stickup | -- | NM | NM |
| PZ-9 | 38 | 43 | 611.16 | Stickup | -- | 573.16 | 568.16 |
| PZ-14D | 25 | 35 | 611.15 | Stickup | -- | 586.15 | 576.15 |
| PZ-14S | 4 | 19 | 610.771 | Stickup | -- | 606.771 | 591.771 |
| PZ-16D | 28 | 38 | 608.613 | Stickup | -- | 580.613 | 570.613 |
| PZ-16S | 4 | 19 | 608.93 | Stickup | -- | 604.93 | 589.93 |
| PZ-19 | 27 | 37 | 604.91 | Stickup | -- | 577.91 | 567.91 |
| PZ-22D | 31 | 41 | 605.79 | Stickup | -- | 574.79 | 564.79 |
| PZ-22S | 10 | 20 | 605.91 | Stickup | -- | 595.91 | 585.91 |
| PZ-11 | 41 | 46 | 611.41 | Stickup | -- | 570.41 | 565.41 |
| PZ-23 | 35 | 40 | 601.73 | Flush | -- | 566.73 | 561.73 |
| PZ-24-17 | 7 | 17 | 605.463 | Flush | -- | 598.463 | 588.463 |
| PZ-24-47 | 37 | 47 | 605.273 | Flush | -- | 568.273 | 558.273 |
| PZ-25-17 | 7 | 17 | 598.738 | Flush | -- | 591.738 | 581.738 |
| PZ-26-11 | 6 | 11 | 598.126 | Flush | -- | 592.126 | 587.126 |
| PZ-27-12 | 7 | 12 | 592.987 | Flush | -- | 585.987 | 580.987 |
| PZ-28-14 | 9 | 14 | 594.756 | Flush | -- | 585.756 | 580.756 |
| PZ-28-54 | 49 | 54 | 594.81 | Flush | -- | 545.81 | 540.81 |
| PZ-29-17 | 7 | 17 | 594.017 | Flush | -- | 587.017 | 577.017 |
| PZ-29-48 | 38 | 43 | 593.937 | Flush | -- | 555.937 | 550.937 |
| PZ-30-12 | 7 | 12 | 594.746 | Flush | -- | 587.746 | 582.746 |
| PZ-30-45 | 35 | 45 | 594.719 | Flush | -- | 559.719 | 549.719 |

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**Table 1**
**Well Construction Details**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Well ID | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Top of Casing Elevation (feet) | Surface Finish | Ditch PZ Stickup Length (feet) | Top of Screen Elevation (feet amsl) | Bottom of Screen Elevation (feet amsl) |
|---|---|---|---|---|---|---|---|
| PZ-30-59 | 54 | 59 | 594.635 | Flush | -- | 540.635 | 535.635 |
| PZ-31-17 | 7 | 17 | 595.74 | Flush | -- | 588.74 | 578.74 |
| PZ-31-40 | 35 | 40 | 595.751 | Flush | -- | 560.751 | 555.751 |
| PZ-31-53 | 48 | 53 | 595.785 | Flush | -- | 547.785 | 542.785 |
| PZ-32-18 | 8 | 18 | 591.734 | Flush | -- | 583.734 | 573.734 |
| PZ-32-72 | 67 | 72 | 591.733 | Flush | -- | 524.733 | 519.733 |
| PZ-04 (STW-04 Pair) | 4.3 | 4.79 | 612.15 | Stickup | 2.65 | 605.2 | 604.71 |
| PZ-05 (STW-05 Pair) | 4.15 | 4.65 | 607.01 | Stickup | 3.78 | 599.08 | 598.58 |
| PZ-06 (STW-06 Pair) | 4.66 | 5.16 | 595.94 | Stickup | 3.39 | 587.89 | 587.39 |
| PZ-07 (STW-07 Pair) | 5 | 5.5 | 595.37 | Stickup | 3 | 587.37 | 586.87 |
| PZ-08 (STW-08 Pair) | 4.19 | 4.69 | 594.54 | Stickup | 3.86 | 586.49 | 585.99 |
| STW-04 | -- | 3.47 | 612.85 | Stickup | -- | -- | 609.38 |
| STW-05 | -- | 3.29 | 606.67 | Stickup | -- | -- | 603.38 |
| STW-06 | -- | 3.56 | 596.8 | Stickup | -- | -- | 593.24 |
| STW-07 | -- | 3.31 | 595.14 | Stickup | -- | -- | 591.83 |
| STW-08 | -- | 3.45 | 594.28 | Stickup | -- | -- | 590.83 |

**Notes:**
Vertical Datum: North American Vertical Datum (NAVD) 1988.
Stilling wells are not installed into ground, Top of Casing Elevation column is the top of stilling well, and Bottom of Screen Elevation column is the bottom of stilling well.
PZ-39 and PZ-40 depths to top and bottom of screen are shown from below top of casing.
amsl = above mean sea level
bgs = below ground surface
FTC = Fire Technology Center
NA = not available
NM = not measured
PZ = piezometer
STW = stilling well

**Table 2**
**Groundwater Elevations**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Well ID | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Measuring Point (feet amsl) | Measurement Date | Depth to Water (feet) | Water Elevation (feet amsl) |
|---|---|---|---|---|---|---|
| **Stanton Street Wells** | | | | | | |
| MW003D | 45 | 50.43 | 587.29 | 12/12/2019 | 5.39 | 581.90 |
| MW003M | 30 | 32.64 | 587.24 | 12/10/2019 | 5.20 | 582.04 |
| MW003M | 30 | 32.64 | 587.24 | 10/17/2019 | 5.14 | 582.10 |
| MW003S | 10 | 16.63 | 586.4 | 12/12/2019 | 4.36 | 582.04 |
| MW003S | 10 | 16.63 | 586.4 | 10/17/2019 | 4.72 | 581.68 |
| MW008M | 25 | 30 | 583.12 | 5/1/2018 | 0.39 | 582.73 |
| MW013D | 45 | 46.9 | 588.69 | 12/13/2019 | 4.93 | 583.76 |
| MW013M | 30 | 32.61 | 587.91 | 12/13/2019 | 3.21 | 584.70 |
| MW013S | 5 | 12.6 | 588.21 | 12/13/2019 | 3.25 | 584.96 |
| MW021M | 30 | 35 | 586.93 | 10/17/2019 | 3.56 | 583.37 |
| MW021M | 30 | 35 | 586.93 | 10/17/2019 | -- | -- |
| MW021S-R | 6 | 18.94 | 586.17 | 12/9/2019 | 2.99 | 583.18 |
| MW022M | 30 | 35 | 584.34 | 10/17/2019 | -- | -- |
| MW022S | 10 | 20 | 584.3 | 10/17/2019 | -- | -- |
| MW032S | 7 | 17 | 588.33 | 4/30/2018 | 5.86 | 582.47 |
| MW040M | 20 | 25 | 582.42 | 12/10/2019 | 4.00 | 578.42 |
| MW040M | 20 | 25 | 582.42 | 10/17/2019 | 0.21 | 582.21 |
| MW040S | 5 | 15 | 582.43 | 10/17/2019 | 0.43 | 582.00 |
| MW041S | 5 | 15 | 582.43 | 5/1/2018 | 0.80 | 581.63 |
| MW044S | 5 | 15 | 583.96 | 4/30/2018 | 0.25 | 583.71 |
| MW054S | 10 | 20 | 587.66 | 4/30/2018 | 3.95 | 583.71 |
| MW100M | 28 | 33 | 584.46 | 10/17/2019 | -- | -- |
| MW100S | 8 | 18 | 584.19 | 10/17/2019 | -- | -- |
| MW102D | 49.76 | 54.68 | 588.49 | 12/12/2019 | 6.29 | 582.20 |
| MW102M | 27.73 | 32.94 | 588.43 | 12/12/2019 | 5.24 | 583.19 |
| MW102M | 27.73 | 32.94 | 588.43 | 10/17/2019 | 4.60 | 583.83 |
| MW102S | 7.71 | 17.4 | 588.71 | 12/12/2019 | 3.94 | 584.77 |
| MW102S | 7.71 | 17.4 | 588.71 | 10/17/2019 | 3.12 | 585.59 |
| MW102S | 7.71 | 17.71 | 588.71 | 4/30/2018 | 4.10 | 584.61 |
| MW103M | 28 | 33 | 588.88 | 10/17/2019 | -- | -- |
| MW103S | 8 | 18 | 588.7 | 10/17/2019 | -- | -- |
| MW104M | 28 | 33 | 589.25 | 10/17/2019 | 5.26 | 583.99 |
| MW104S | 8 | 17.75 | 589.14 | 12/12/2019 | 6.46 | 582.68 |
| MW104S | 8 | 17.75 | 589.14 | 10/17/2019 | 5.05 | 584.09 |
| MW108S | 8 | 18 | 586.51 | 5/1/2018 | 4.06 | 582.45 |

Notes on Page 3.

**Table 2**
**Groundwater Elevations**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Well ID | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Measuring Point (feet amsl) | Measurement Date | Depth to Water (feet) | Water Elevation (feet amsl) |
|---|---|---|---|---|---|---|
| **FTC** | | | | | | |
| FTC-2D | 27.0 | 32.0 | 611.43 | 10/16/2019 | 2.78 | 608.65 |
| FTC-2S | 5.0 | 15.0 | 611.55 | 10/16/2019 | 2.64 | 608.91 |
| FTC-34D | 28.0 | 33.0 | 608.72 | 10/16/2019 | 0.76 | 607.96 |
| FTC-34S | 3.0 | 13.0 | 608.50 | 10/16/2019 | 0.40 | 608.10 |
| FTC-35 | 3.0 | 13.0 | 610.30 | -- | -- | -- |
| FTC-42 | 5.0 | 15.0 | 609.37 | 10/17/2019 | 0.22 | 609.15 |
| FTC-44 | 5.0 | 15.0 | 611.30 | 10/16/2019 | 2.84 | 608.46 |
| PZ-1D | 63.5 | 68.5 | 606.23 | 10/16/2019 | 9.58 | 596.65 |
| PZ-1S | 36.0 | 41.0 | 606.36 | 10/16/2019 | 5.05 | 601.31 |
| PZ-4D | 68.5 | 73.5 | -- | -- | -- | -- |
| PZ-4S | 36.0 | 41.0 | -- | -- | -- | -- |
| PZ-9 | 38.0 | 43.0 | 611.16 | 10/17/2019 | 4.64 | 606.52 |
| PZ-14D | 25.0 | 35.0 | 611.15 | 10/17/2019 | 3.77 | 607.38 |
| PZ-14S | 4.0 | 19.0 | 610.77 | 10/17/2019 | 3.10 | 607.67 |
| PZ-16D | 28.0 | 38.0 | 608.61 | 10/16/2019 | 5.50 | 603.11 |
| PZ-16S | 4.0 | 19.0 | 608.93 | 10/16/2019 | 5.05 | 603.88 |
| PZ-19 | 27.0 | 37.0 | 604.91 | 10/17/2019 | 6.53 | 598.38 |
| PZ-22D | 31.0 | 41.0 | 605.79 | 10/16/2019 | 5.80 | 599.99 |
| PZ-22S | 10.0 | 20.0 | 605.91 | 10/16/2019 | 5.88 | 600.03 |
| **Off-Site** | | | | | | |
| PZ-11 | -- | -- | 611.41 | -- | -- | -- |
| PZ-23 | 35.0 | 40.0 | 601.73 | 10/17/2019 | 1.58 | 600.15 |
| PZ-24-17 | 7.0 | 17.0 | 605.46 | 10/16/2019 | 3.40 | 602.06 |
| PZ-24-47 | 37.0 | 47.0 | 605.27 | 10/16/2019 | 3.47 | 601.80 |
| PZ-25-17 | 7.0 | 17.0 | 598.74 | 10/16/2019 | 5.40 | 593.34 |
| PZ-26-11 | 6.0 | 11.0 | 598.13 | 10/16/2019 | 3.33 | 594.80 |
| PZ-27-12 | 7.0 | 12.0 | 592.99 | 10/16/2019 | 4.71 | 588.28 |
| PZ-28-14 | 9.0 | 14.0 | 594.76 | 10/16/2019 | 4.75 | 590.01 |
| PZ-28-54 | 49.0 | 54.0 | 594.81 | 10/16/2019 | 5.49 | 589.32 |
| PZ-29-17 | 7.0 | 17.0 | 594.02 | 10/16/2019 | 2.29 | 591.73 |
| PZ-29-48 | 38.0 | 43.0 | 593.94 | 10/16/2019 | 3.21 | 590.73 |
| PZ-30-12 | 7.0 | 12.0 | 594.75 | 10/16/2019 | 3.25 | 591.50 |
| PZ-30-45 | 35.0 | 45.0 | 594.72 | 10/16/2019 | 3.92 | 590.80 |
| PZ-30-59 | 54.0 | 59.0 | 594.64 | 10/16/2019 | 3.82 | 590.82 |

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**Table 2**
**Groundwater Elevations**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Well ID | Depth to Top of Screen (feet bgs) | Depth to Bottom of Screen (feet bgs) | Measuring Point (feet amsl) | Measurement Date | Depth to Water (feet) | Water Elevation (feet amsl) |
|---|---|---|---|---|---|---|
| **Off-Site (continued)** | | | | | | |
| PZ-31-17 | 7.0 | 17.0 | 595.74 | 10/16/2019 | 3.18 | 592.56 |
| PZ-31-40 | 35.0 | 40.0 | 595.75 | 10/16/2019 | 3.25 | 592.50 |
| PZ-31-53 | 48.0 | 53.0 | 595.79 | 10/16/2019 | 3.23 | 592.56 |
| PZ-32-18 | 8.0 | 18.0 | 591.73 | 10/16/2019 | 1.48 | 590.25 |
| PZ-32-72 | 67.0 | 72.0 | 591.73 | 10/16/2019 | 1.98 | 589.75 |
| PZ-04 | N/A | N/A | 612.15 | 10/17/2019 | 1.16 | 610.99 |
| PZ-05 | N/A | N/A | 607.01 | 10/17/2019 | 0.58 | 606.43 |
| PZ-06 | N/A | N/A | 595.94 | 10/17/2019 | 0.72 | 595.22 |
| PZ-07 | N/A | N/A | 595.37 | 10/17/2019 | 2.19 | 593.18 |
| PZ-08 | N/A | N/A | 594.54 | 10/17/2019 | 1.69 | 592.85 |
| STW-04 | N/A | N/A | 612.85 | 10/17/2019 | 2.18 | 610.67 |
| STW-05 | N/A | N/A | 606.67 | 10/17/2019 | -- | -- |
| STW-06 | N/A | N/A | 596.8 | 10/17/2019 | 1.90 | 594.90 |
| STW-07 | N/A | N/A | 595.14 | 10/17/2019 | 2.05 | 593.09 |
| STW-08 | N/A | N/A | 594.28 | 10/17/2019 | 1.84 | 592.44 |

**Notes:**

The water level at PZ-40 was artesian during the gauging event.

-- = not available

amsl = above mean sea level

bgs = below ground surface

N/A = not applicable

FTC = Fire Technology Center

PZ = piezometer

STW = stilling well

**Table 3**
**Groundwater Monitoring Analytical Results**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Method | Chemical Name | Location | MW003D | MW003M | | MW003S | MW008M | | MW013D | MW013M |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | MW003D (121219) | MW003M (121019) | DUP-01 (121019) | MW003S (121219) | MW008M (050118) | DUP-02 (050118) | MW013D (121319) | MW013M (121319) |
| | | Sample Date | 12/12/2019 | 12/10/2019 | 12/10/2019 | 12/12/2019 | 5/1/2018 | 5/1/2018 | 12/13/2019 | 12/13/2019 |
| | | Sample Type | N | N | FD | N | N | FD | N | N |
| | | Unit | | | | | | | | |
| PFC_IDA | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | ng/L | <1.8 U | <1.9 U | <1.8 U | <1.8 U | NA | NA | <1.8 U | <1.9 U |
| PFC_IDA | N-Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA) | ng/L | <2.9 U | <3.2 U | <3.0 U | <2.9 U | NA | NA | <2.9 U | <3.1 U |
| PFC_IDA | Perfluorobutane sulfonic acid (PFBS) | ng/L | **1.5 J** | <0.20 U | <0.19 U | **5.3** | NA | NA | **2.4** | **1.5 J** |
| PFC_IDA | Perfluorodecanoic acid (PFDA) | ng/L | <0.29 U | <0.32 U | <0.30 U | **20** | NA | NA | **1.2 J** | <0.31 U |
| PFC_IDA | Perfluorododecanoic acid (PFDoA) | ng/L | <0.52 U | <0.56 U | <0.53 U | <0.51 U | NA | NA | <0.52 U | <0.54 U |
| PFC_IDA | Perfluoroheptanoic acid (PFHpA) | ng/L | **180** | **140** | **140** | **1,800 D** | NA | NA | **290** | **5.4** |
| PFC_IDA | Perfluorohexane sulfonic acid (PFHxS) | ng/L | **16** | **4.3** | **4.0** | **29** | NA | NA | **19** | **2.4** |
| PFC_IDA | Perfluorohexanoic acid (PFHxA) | ng/L | **77** | **460 D** | **460 D** | **3,300 D** | NA | NA | **190** | **14** |
| PFC_IDA | Perfluorononanoic acid (PFNA) | ng/L | **55** | **3.4** | **2.9** | **350** | NA | NA | **21** | <0.27 U |
| PFC_IDA | Perfluorooctane sulfonic acid (PFOS) | ng/L | **1.1 JN** | <0.55 U | <0.52 U | **220** | NA | NA | **2.1** | **1.4 JN** |
| PFC_IDA | Perfluorooctanoic acid (PFOA) | ng/L | **1,100 D** | **290** | **270** | **1,200 D** | NA | NA | **1,200 D** | **9.0** |
| PFC_IDA | Perfluorotetradecanoic acid (PFTeA) | ng/L | <0.27 U | <0.30 U | <0.28 U | <0.27 U | NA | NA | <0.27 U | <0.29 U |
| PFC_IDA | Perfluorotridecanoic acid (PFTrDA) | ng/L | <1.2 U | <1.3 U | <1.3 U | <1.2 U | NA | NA | <1.2 U | <1.3 U |
| PFC_IDA | Perfluoroundecanoic acid (PFUdA) | ng/L | <1.0 U | <1.1 U | <1.1 U | <1.0 U | NA | NA | <1.0 U | <1.1 U |
| WS-LC-0025 | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | ng/L | NA | NA | NA | NA | R | R | NA | NA |
| WS-LC-0025 | N-Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA) | ng/L | NA | NA | NA | NA | R | R | NA | NA |
| WS-LC-0025 | Perfluorobutane sulfonic acid (PFBS) | ng/L | NA | NA | NA | NA | **14 J** | **15 J** | NA | NA |
| WS-LC-0025 | Perfluorodecanoic acid (PFDA) | ng/L | NA | NA | NA | NA | **5.8 J** | **5.5 J** | NA | NA |
| WS-LC-0025 | Perfluorododecanoic acid (PFDoA) | ng/L | NA | NA | NA | NA | R | R | NA | NA |
| WS-LC-0025 | Perfluoroheptanoic acid (PFHpA) | ng/L | NA | NA | NA | NA | **2,600 DJ** | **2,700 DJ** | NA | NA |
| WS-LC-0025 | Perfluorohexane sulfonic acid (PFHxS) | ng/L | NA | NA | NA | NA | **69 J** | **70 J** | NA | NA |
| WS-LC-0025 | Perfluorohexanoic acid (PFHxA) | ng/L | NA | NA | NA | NA | **9,400 DJ** | **9,200 DJ** | NA | NA |
| WS-LC-0025 | Perfluorononanoic acid (PFNA) | ng/L | NA | NA | NA | NA | **210 J** | **220 J** | NA | NA |
| WS-LC-0025 | Perfluorooctane sulfonic acid (PFOS) | ng/L | NA | NA | NA | NA | **350 J** | **340 J** | NA | NA |
| WS-LC-0025 | Perfluorooctanoic acid (PFOA) | ng/L | NA | NA | NA | NA | **3,700 DJ** | **4,100 DJ** | NA | NA |
| WS-LC-0025 | Perfluorotetradecanoic acid (PFTeA) | ng/L | NA | NA | NA | NA | R | R | NA | NA |
| WS-LC-0025 | Perfluorotridecanoic acid (PFTrDA) | ng/L | NA | NA | NA | NA | R | R | NA | NA |
| WS-LC-0025 | Perfluoroundecanoic acid (PFUdA) | ng/L | NA | NA | NA | NA | R | R | NA | NA |

**Notes:**
Detections are **boldfaced.**
<= analyte not detected above corresponding method detection limit
FD = field duplicate sample type
N = normal sample type
NA = not analyzed
ng/L = nanograms per liter

**Laboratory Qualifiers:**
D = The concentration is based on a diluted sample analysis.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria.
U = Laboratory flag indicating the result is non-detect.
UB = The compound is considered non-detect at the listed value due to associated blank contamination.
UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Table 3
Groundwater Monitoring Analytical Results
Interim Site Investigation Report
Tyco Stanton Street Facility
Marinette, Wisconsin

| Method | Chemical Name | Location | MW013S | MW021S-R | MW032S | MW040M | MW041S | MW044S | MW054S | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | MW013S (121319) | MW021S-R (120919) | MW032S (043018) | MW040M (121019) | MW041S (050118) | MW044S (043018) | MW054S (043018) | DUP-01 (043018) |
| | | Sample Date | 12/13/2019 | 12/9/2019 | 4/30/2018 | 12/10/2019 | 5/1/2018 | 4/30/2018 | 4/30/2018 | 4/30/2018 |
| | | Sample Type | N | N | N | N | N | N | N | FD |
| | | Units | | | | | | | | |
| PFC_IDA | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | ng/L | <1.8 U | <1.7 U | NA | <1.8 U | NA | NA | NA | NA |
| PFC_IDA | N-Methylperfluoroocatane sulfonamidoacetic acid (MeFOSAA) | ng/L | <2.9 U | <2.8 U | NA | <2.9 U | NA | NA | NA | NA |
| PFC_IDA | Perfluorobutane sulfonic acid (PFBS) | ng/L | **1.7 J** | **2.3** | NA | **3.0** | NA | NA | NA | NA |
| PFC_IDA | Perfluorodecanoic acid (PFDA) | ng/L | **0.70 J** | **4.9** | NA | **7.3** | NA | NA | NA | NA |
| PFC_IDA | Perfluorododecanoic acid (PFDoA) | ng/L | <0.52 U | <0.50 U | NA | **1.4 J** | NA | NA | NA | NA |
| PFC_IDA | Perfluoroheptanoic acid (PFHpA) | ng/L | **180** | **870 D** | NA | **160** | NA | NA | NA | NA |
| PFC_IDA | Perfluorohexane sulfonic acid (PFHxS) | ng/L | <1.9 UB | **3.2** | NA | **9.6** | NA | NA | NA | NA |
| PFC_IDA | Perfluorohexanoic acid (PFHxA) | ng/L | **170** | **950 D** | NA | **230** | NA | NA | NA | NA |
| PFC_IDA | Perfluorononanoic acid (PFNA) | ng/L | **21** | **160** | NA | **16** | NA | NA | NA | NA |
| PFC_IDA | Perfluorooctane sulfonic acid (PFOS) | ng/L | **6.1** | **17** | NA | **32** | NA | NA | NA | NA |
| PFC_IDA | Perfluorooctanoic acid (PFOA) | ng/L | **41** | **230** | NA | **74** | NA | NA | NA | NA |
| PFC_IDA | Perfluorotetradecanoic acid (PFTeA) | ng/L | <0.27 U | <0.26 U | NA | **0.40 J** | NA | NA | NA | NA |
| PFC_IDA | Perfluorotridecanoic acid (PFTrDA) | ng/L | <1.2 U | <1.2 U | NA | <1.2 U | NA | NA | NA | NA |
| PFC_IDA | Perfluoroundecanoic acid (PFUdA) | ng/L | <1.0 U | <0.99 U | NA | **1.2 J** | NA | NA | NA | NA |
| WS-LC-0025 | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | ng/L | NA | NA | <2.0 UJ | NA | <2.2 UJ | **1.8 J** | <2.2 UJ | <2.0 UJ |
| WS-LC-0025 | N-Methylperfluoroocatane sulfonamidoacetic acid (MeFOSAA) | ng/L | NA | NA | <3.3 UJ | NA | **5.5 J** | <3.0 UJ | <3.5 UJ | <3.3 UJ |
| WS-LC-0025 | Perfluorobutane sulfonic acid (PFBS) | ng/L | NA | NA | <0.21 UJ | NA | **3.0 J** | **0.98 J** | **1.3 J** | **1.4 J** |
| WS-LC-0025 | Perfluorodecanoic acid (PFDA) | ng/L | NA | NA | **61 J** | NA | **7.1 J** | **600 DJ** | **520 DJ** | **510 DJ** |
| WS-LC-0025 | Perfluorododecanoic acid (PFDoA) | ng/L | NA | NA | **0.75 J** | NA | <0.63 UJ | **0.65 J** | **0.81 J** | **0.92 J** |
| WS-LC-0025 | Perfluoroheptanoic acid (PFHpA) | ng/L | NA | NA | **780 DJ** | NA | **1,400 DJ** | **2,200 DJ** | **5,200 DJ** | **4,800 DJ** |
| WS-LC-0025 | Perfluorohexane sulfonic acid (PFHxS) | ng/L | NA | NA | <2.1 UB | NA | **9.3 J** | **4.0 J** | **7.4 J** | **7.7 J** |
| WS-LC-0025 | Perfluorohexanoic acid (PFHxA) | ng/L | NA | NA | **2,100 DJ** | NA | **3,400 DJ** | **5,300 DJ** | **8,500 DJ** | **9,100 DJ** |
| WS-LC-0025 | Perfluorononanoic acid (PFNA) | ng/L | NA | NA | **120 J** | NA | **130 J** | **770 DJ** | **2,800 DJ** | **2,900 DJ** |
| WS-LC-0025 | Perfluorooctane sulfonic acid (PFOS) | ng/L | NA | NA | **140 J** | NA | **650 DJ** | **340 J** | **210 J** | **200 J** |
| WS-LC-0025 | Perfluorooctanoic acid (PFOA) | ng/L | NA | NA | **520 DJ** | NA | **1,500 DJ** | **1,500 DJ** | **3,800 DJ** | **4,100 DJ** |
| WS-LC-0025 | Perfluorotetradecanoic acid (PFTeA) | ng/L | NA | NA | <0.31 UJ | NA | <0.33 UJ | <0.28 UJ | <0.33 UJ | <0.31 UJ |
| WS-LC-0025 | Perfluorotridecanoic acid (PFTrDA) | ng/L | NA | NA | <1.4 UJ | NA | <1.5 UJ | <1.3 UJ | <1.5 UJ | <1.4 UJ |
| WS-LC-0025 | Perfluoroundecanoic acid (PFUdA) | ng/L | NA | NA | **4.3 J** | NA | <1.3 UJ | **28 J** | **31 J** | **28 J** |

**Notes:**
Detections are **boldfaced.**
<= analyte not detected above corresponding method detection limit
FD = field duplicate sample type
N = normal sample type
NA = not analyzed
ng/L = nanograms per liter

**Laboratory Qualifiers:**
D = The concentration is based on a diluted sample analysis.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria.
U = Laboratory flag indicating the result is non-detect.
UB = The compound is considered non-detect at the listed value due to associated blank contamination.
UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Table 3
Groundwater Monitoring Analytical Results
Interim Site Investigation Report
Tyco Stanton Street Facility
Marinette, Wisconsin

| Method | Chemical Name | Location | MW102D | MW102M | MW102S | | MW104S | MW108S | INF-01 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sample ID | MW102D (121219) | MW102M (121219) | MW102S (043018) | MW102S (121219) | MW104S (121219) | MW108S (050118) | INF-01 (050118) | INF-01 (050118) |
| | | Sample Date | 12/12/2019 | 12/12/2019 | 4/30/2018 | 12/12/2019 | 12/12/2019 | 5/1/2018 | 5/1/2018 | 5/1/2018 |
| | | Sample Type | N | N | N | N | N | N | N | FD |
| | | Units | | | | | | | | |
| PFC_IDA | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | ng/L | <9.1 U | <1.8 U | NA | <1.7 U | <1.7 U | NA | NA | NA |
| PFC_IDA | N-Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA) | ng/L | <15 U | <3.0 U | NA | <2.8 U | <2.8 U | NA | NA | NA |
| PFC_IDA | Perfluorobutane sulfonic acid (PFBS) | ng/L | **1.4 J** | **1.2 J** | NA | **2.3** | **2.7** | NA | NA | NA |
| PFC_IDA | Perfluorodecanoic acid (PFDA) | ng/L | <1.5 U | <0.30 U | NA | <0.28 U | <0.28 U | NA | NA | NA |
| PFC_IDA | Perfluorododecanoic acid (PFDoA) | ng/L | <2.6 U | <0.52 U | NA | <0.50 U | <0.51 U | NA | NA | NA |
| PFC_IDA | Perfluoroheptanoic acid (PFHpA) | ng/L | **260** | **280** | NA | **1,900 D** | **730 D** | NA | NA | NA |
| PFC_IDA | Perfluorohexane sulfonic acid (PFHxS) | ng/L | **13** | <1.9 UB | NA | **3.6** | **6.9** | NA | NA | NA |
| PFC_IDA | Perfluorohexanoic acid (PFHxA) | ng/L | **160** | **610 D** | NA | **2,700 D** | **700 D** | NA | NA | NA |
| PFC_IDA | Perfluorononanoic acid (PFNA) | ng/L | **21** | **4.0** | NA | **0.54 JN** | **6.4** | NA | NA | NA |
| PFC_IDA | Perfluorooctane sulfonic acid (PFOS) | ng/L | <2.6 U | <0.51 U | NA | **1.6 JN** | **64 JN** | NA | NA | NA |
| PFC_IDA | Perfluorooctanoic acid (PFOA) | ng/L | **1,300** | **73** | NA | **340** | **290** | NA | NA | NA |
| PFC_IDA | Perfluorotetradecanoic acid (PFTeA) | ng/L | <1.4 U | <0.28 U | NA | <0.27 U | <0.27 U | NA | NA | NA |
| PFC_IDA | Perfluorotridecanoic acid (PFTrDA) | ng/L | <6.3 U | <1.2 U | NA | <1.2 U | <1.2 U | NA | NA | NA |
| PFC_IDA | Perfluoroundecanoic acid (PFUdA) | ng/L | <5.3 U | <1.0 U | NA | <1.0 U | <1.0 U | NA | NA | NA |
| WS-LC-0025 | N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA) | ng/L | NA | NA | <1.9 U | NA | NA | R | <20 U | <20 U |
| WS-LC-0025 | N-Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA) | ng/L | NA | NA | <3.1 U | NA | NA | R | <20 U | <20 U |
| WS-LC-0025 | Perfluorobutane sulfonic acid (PFBS) | ng/L | NA | NA | **4.2** | NA | NA | **4.3 J** | **3.4** | **3.2** |
| WS-LC-0025 | Perfluorodecanoic acid (PFDA) | ng/L | NA | NA | <0.31 U | NA | NA | **19 J** | **10 J** | **10 J** |
| WS-LC-0025 | Perfluorododecanoic acid (PFDoA) | ng/L | NA | NA | <0.56 U | NA | NA | R | <2.0 U | <2.0 U |
| WS-LC-0025 | Perfluoroheptanoic acid (PFHpA) | ng/L | NA | NA | **2,100 DJ** | NA | NA | **7,000 DJ** | **2000 DJ** | **2100 DJ** |
| WS-LC-0025 | Perfluorohexane sulfonic acid (PFHxS) | ng/L | NA | NA | **3.2** | NA | NA | **13** | **19 J** | **19 J** |
| WS-LC-0025 | Perfluorohexanoic acid (PFHxA) | ng/L | NA | NA | **3,200 DJ** | NA | NA | **20,000 DJ** | **5200 DJ** | **4900 DJ** |
| WS-LC-0025 | Perfluorononanoic acid (PFNA) | ng/L | NA | NA | **0.31 J** | NA | NA | **1,200 DJ** | **110 J** | **120 J** |
| WS-LC-0025 | Perfluorooctane sulfonic acid (PFOS) | ng/L | NA | NA | **25** | NA | NA | **530 DJ** | **64 J** | **67 J** |
| WS-LC-0025 | Perfluorooctanoic acid (PFOA) | ng/L | NA | NA | **130** | NA | NA | **9,100 DJ** | **1800 DJ** | **1700 DJ** |
| WS-LC-0025 | Perfluorotetradecanoic acid (PFTeA) | ng/L | NA | NA | <0.29 U | NA | NA | R | <2.0 U | <2.0 U |
| WS-LC-0025 | Perfluorotridecanoic acid (PFTrDA) | ng/L | NA | NA | <1.3 U | NA | NA | R | <2.0 U | <2.0 U |
| WS-LC-0025 | Perfluoroundecanoic acid (PFUdA) | ng/L | NA | NA | <1.1 U | NA | NA | R | <2.0 U | <2.0 U |

**Notes:**
Detections are **boldfaced.**
<= analyte not detected above corresponding method detection limit
FD = field duplicate sample type
N = normal sample type
NA = not analyzed
ng/L = nanograms per liter

**Laboratory Qualifiers:**
D = The concentration is based on a diluted sample analysis.
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria.
U = Laboratory flag indicating the result is non-detect.
UB = The compound is considered non-detect at the listed value due to associated blank contamination.
UJ = The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.

Table 4
Soil Sampling Analytical Results
Interim Site Investigation Report
Tyco Stanton Street Facility
Marinette, Wisconsin

| | Location | SS-18-01 | SS-18-02 | SS-18-03 | SS-18-04 | SS-18-05 | | SS-18-06 | SS-18-07 |
|---|---|---|---|---|---|---|---|---|---|
| | Sample ID | SS-18-01(0-1) (111419) | SS-18-02(0-2) (111419) | SS-18-03(0-0.5) (111419) | SS-18-04(0-1) (111419) | SS-18-05(0-2) (111319) | DUP-01 (111319) | SS-18-06(0-1) (111419) | SS-18-07(0-2) (111319) |
| | Sample Depth (feet) | 0-1 | 0-2 | 0-0.5 | 0-1 | 0-2 | 0-2 | 0-1 | 0-2 |
| | Sample Date | 11/14/2019 | 11/14/2019 | 11/14/2019 | 11/14/2019 | 11/13/2019 | 11/13/2019 | 11/14/2019 | 11/13/2019 |
| Chemical Name | Unit | | | | | | | | |
| N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (NEtFOSAA) | µg/kg | <0.46 | <0.39 | <0.45 | <0.46 | <0.43 | <0.43 | <0.49 | <0.39 |
| N-Methylperfluoroocatane Sulfonamidoacetic Acid (NMeFOSAA) | µg/kg | <0.49 | <0.42 | <0.47 | <0.49 | <0.45 | **0.46 J** | <0.51 | <0.41 |
| Perfluorobutane Sulfonic Acid (PFBS) | µg/kg | <0.031 | <0.027 | <0.030 | <0.031 | <0.029 | <0.029 | <0.033 | <0.026 |
| Perfluorodecanoic Acid (PFDA) | µg/kg | **2.6** | **0.81** | **1.4** | **0.34** | **20** | **22 D** | **45 D** | **1.9** |
| Perfluorododecanoic Acid (PFDoA) | µg/kg | **3.1** | **0.27** | **0.46** | <0.084 | **2.1** | **2.5** | **11** | **0.38** |
| Perfluoroheptanoic Acid (PFHpA) | µg/kg | **1.3** | **11** | **1.1** | **2.8** | **5.4** | **5.5** | **6.9** | **1.5** |
| Perfluorohexane Sulfonic Acid (PFHxS) | µg/kg | <0.039 | **0.12 J** | **0.43** | **0.30** | <0.036 | <0.036 | <0.041 | <0.033 |
| Perfluorohexanoic Acid (PFHxA) | µg/kg | **2.9** | **12** | **0.85** | **2.0** | **7.5** | **8.2** | **22** | **1.2** |
| Perfluorononanoic Acid (PFNA) | µg/kg | **0.60** | **2.7** | **2.6** | **3.9** | **21 D** | **20** | **11** | **10** |
| Perfluorooctanesulfonic Acid (PFOS) | µg/kg | <1.0 UB | <1.3 UBJ- | **3.3** | **2.5** | **2.7 J** | **4.7 J** | **3.2** | **1.6** |
| Perfluorooctanoic Acid (PFOA) | µg/kg | **1.3** | **6.5 J-** | **1.4** | **1.6** | **8.6** | **8.7** | **15** | **1.9** |
| Perfluorotetradecanoic Acid (PFTeA) | µg/kg | **0.66** | **0.099 J** | **0.31** | <0.067 | **0.48** | **0.65** | **3.7** | **0.13 J** |
| Perfluorotridecanoic Acid (PFTriA) | µg/kg | **0.61** | **0.066 J** | **0.33** | <0.064 | **0.49** | **0.59** | **3.0** | **0.19 J** |
| Perfluoroundecanoic Acid (PFUnA) | µg/kg | **3.9** | **0.57 J** | **1.7** | **0.23 J** | **7.8** | **8.7** | **22** | **1.6** |

**Notes:**
Samples were analyzed using a modified version of EPA 537.
Detections are **boldfaced**.
< = compound not detected at method detection limit
DUP = field duplicate
µg/kg = micrograms per kilogram

**Laboratory Qualifiers:**
D = Dilution required for sample analysis.
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
J- = The result is an estimated quantity. The associated numerical value is expected to have a negative or low bias.
UB = The compound is considered non-detect at the listed value due to associated blank contamination.

**Table 5**
**Publicly Available Surface Water Analytical Results**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Green Bay | Sample ID | Sample Date | PFAS Total (ppt) | PFOA (ppt) | PFOS (ppt) | Entity Sampled | Laboratory Used | Analytical Method | Reference |
|---|---|---|---|---|---|---|---|---|---|
| City of Marinette Drinking Water | NA | 11/20/17 | NA | 2.11 J | 1.87 J | Intake - Green Bay | NA | NA | https://marinette.wi.us/361/PFOA-and-PFOS-Investigation |
| | | 12/4/18 | NA | 3.54 J | 5.94 | | | | |
| | | 1/3/19 | NA | 1.87 J | <1.7 | | NA | NA | |
| | | 4/15/19 | NA | 1.93 J | 1.96 J | | NA | NA | |
| | | 7/1/19 | NA | 1.77 J | 2.06 J | | NA | NA | |
| | | 10/8/19 | NA | 2.44 J | <2.7 | | NA | NA | |
| | | 2/12/20 | NA | 1.75 J | 1.52 | | NA | NA | |
| City of Menominee Drinking Water (Treated) | SWEF1808211200GSC | 8/21/18 | ND | ND | ND | Post Treatment - Green Bay | Vista Analytical Laboratory | EPA 537 | **2018 PFAS Sampling Phase I EGLE** https://www.michigan.gov/pfasresponse/0,9038,7-365-95571_95577_95587_95620-508860--,00.html |
| | | 8/21/18 | ND | ND | ND | | | IDM | |
| | SWEF1904301105GGA | 4/30/19 | ND | Combined Result: ND | | | NA | EPA 537 | **2019 Monthly Testing EGLE** https://www.michigan.gov/pfasresponse/0,9038,7-365-95571_95577_95587_95620-508860--,00.html |
| | | 4/30/19 | 2 | Combined Result: ND | | | NA | IDM | |
| | SWEF1906051605GGA | 6/5/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| | SWEF1906051605GGA-FD | 6/5/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| | SWEF1907020905GGA | 7/2/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| | SWEF1908110935GSC | 8/11/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| | SWEF1909111040GSC | 9/11/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| | SWEF190911040GSC-FD | 9/11/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| | SWEF1910031205GGA | 10/3/19 | ND | Combined Result: ND | | | NA | EPA 537 | |
| City of Menominee Drinking Water (Raw) | SWIN1808211210GSC | 8/21/18 | 3 | Combined Results: ND | | Intake - Green Bay | Vista Analytical Laboratory | IDM | **2018 PFAS Sampling Phase I EGLE** https://www.michigan.gov/pfasresponse/0,9038,7-365-95571_95577_95587_95620-508860--,00.html |
| | SWIN1904301100GGA | 4/30/19 | 3 | Combined Result: ND | | | NA | IDM | **2019 Monthly Testing EGLE** https://www.michigan.gov/pfasresponse/0,9038,7-365-95571_95577_95587_95620-508860--,00.html |
| | SWIN1907020900GGA | 7/2/19 | 2.00 | Combined Result: ND | | | NA | IDM | |
| | SWIN1908110930GSC | 8/11/19 | 2.00 | Combined Result: ND | | | NA | IDM | |
| | SWIN1909111035GSC | 9/11/19 | ND | Combined Result: ND | | | NA | IDM | |
| | SWIN1909111035GSC-FD | 9/11/19 | ND | Combined Result: ND | | | NA | IDM | |
| | SWIN1910031200GGA | 10/3/19 | ND | Combined Result: ND | | | NA | IDM | |
| | SWIN1910031200GGA-FD | 10/3/19 | ND | Combined Result: ND | | | NA | IDM | |

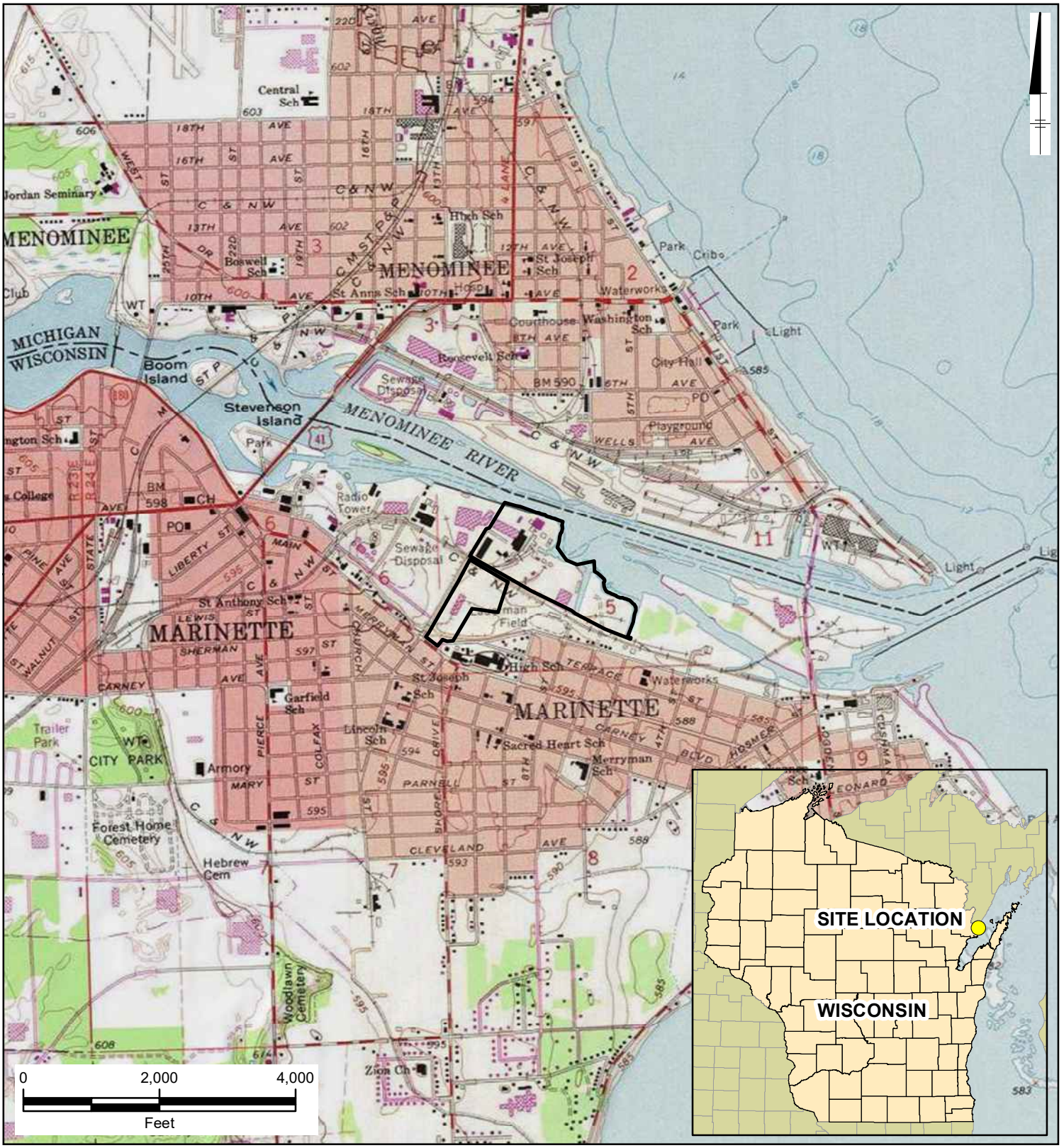
Notes on Page 2.

**Table 5**
**Publicly Available Surface Water Analytical Results**
**Interim Site Investigation Report**
**Tyco Stanton Street Facility**
**Marinette, Wisconsin**

| Menominee River | Sample ID | Date | PFAS Total (ng/L) | PFOA (ng/L) | PFOS (ng/L) | Entity Sampled | Laboratory Used | Analytical Method | Reference |
|---|---|---|---|---|---|---|---|---|---|
| WDNR 2019 Sampling | Chalk Hills Flowage | 5/29/19 | 0.9 | 0.32* | 0.31* | Chalk Hills Flowage | Wisconsin State Laboratory of Hygiene | Not specified but tested 36 compounds | **2019 Surface Water Sampling Results** https://dnr.wi.gov/topic/Contaminants/WaterQuality.html |
| | Upper Scott Flowage | 6/27/19 | 3.7 | 0.51* | 0.29* | Upper Scott Flowage | | | |
| | Upper Scott Flowage | 7/29/19 | 5.7 | 0.67 | 0.31* | Upper Scott Flowage | | | |
| | Upper Scott Flowage | 9/16/19 | 4.3 | 0.5* | ND | Upper Scott Flowage | | | |
| | Lower Scott Flowage | 6/27/19 | 4.0 | 0.44 | 0.30* | Lower Scott Flowage | | | |
| | Lower Scott Flowage | 7/29/19 | 5.8 | 0.71 | 0.32* | Lower Scott Flowage | | | |
| | Lower Scott Flowage | 9/16/19 | 4.8 | 0.6* | ND | Lower Scott Flowage | | | |
| | Mouth to Green Bay | 6/27/19 | 4.804 | 0.6 | 0.31* | Mouth to Green Bay | | | |
| | Mouth to Green Bay | 7/29/19 | 12.5 | 0.82 | 0.4* | Mouth to Green Bay | | | |
| | Mouth to Green Bay | 9/16/19 | 7.3 | 0.82 | ND | Mouth to Green Bay | | | |
| | POTW Outfall | 6/27/19 | 0.094 | ND | ND | POTW Outfall | | | |
| | POTW outfall | 7/29/19 | 5.5 | 0.71 | 0.31* | POTW Outfall | | | |
| | POTW outfall | 9/16/19 | 4.3 | 0.56* | ND | POTW Outfall | | | |

**Notes:**
* = between LOD and LOQ
< = analyte not detected above corresponding limit of detection
EGLE = Michigan Department of Environment, Great Lakes, & Energy
EPA = Environmental Protection Agency
IDM = isotope dilution method
J = result is between LOD and LOQ, a region of less certain quantitation
LOD = limit of detection, lowest quantity instrument can detect
LOQ = limit of quantitation, lowest quantity instrument can detect with 100% certainty
NA = not available from public data source
ND = non-detectable, substance was not found above laboratory limit of detection
ng/L = nanograms per liter
PFAS = per- and polyfluoroalkyl substances
PFOA = perfluorooctanoic acid
PFOS = perfluorooctane sulfonic acid
POTW = publicly owned treatment works
ppt = parts per trillion
WDNR = Wisconsin Department of Natural Resources

# FIGURES




LEGEND:

APPROXIMATE SITE PROPERTY BOUNDARY

NOTES:

1. TOPOGRAPHIC MAP SOURCE: COPYRIGHT:© 2013 NATIONAL GEOGRAPHIC SOCIETY, I-CUBED, ACCESSED JUNE 2020.

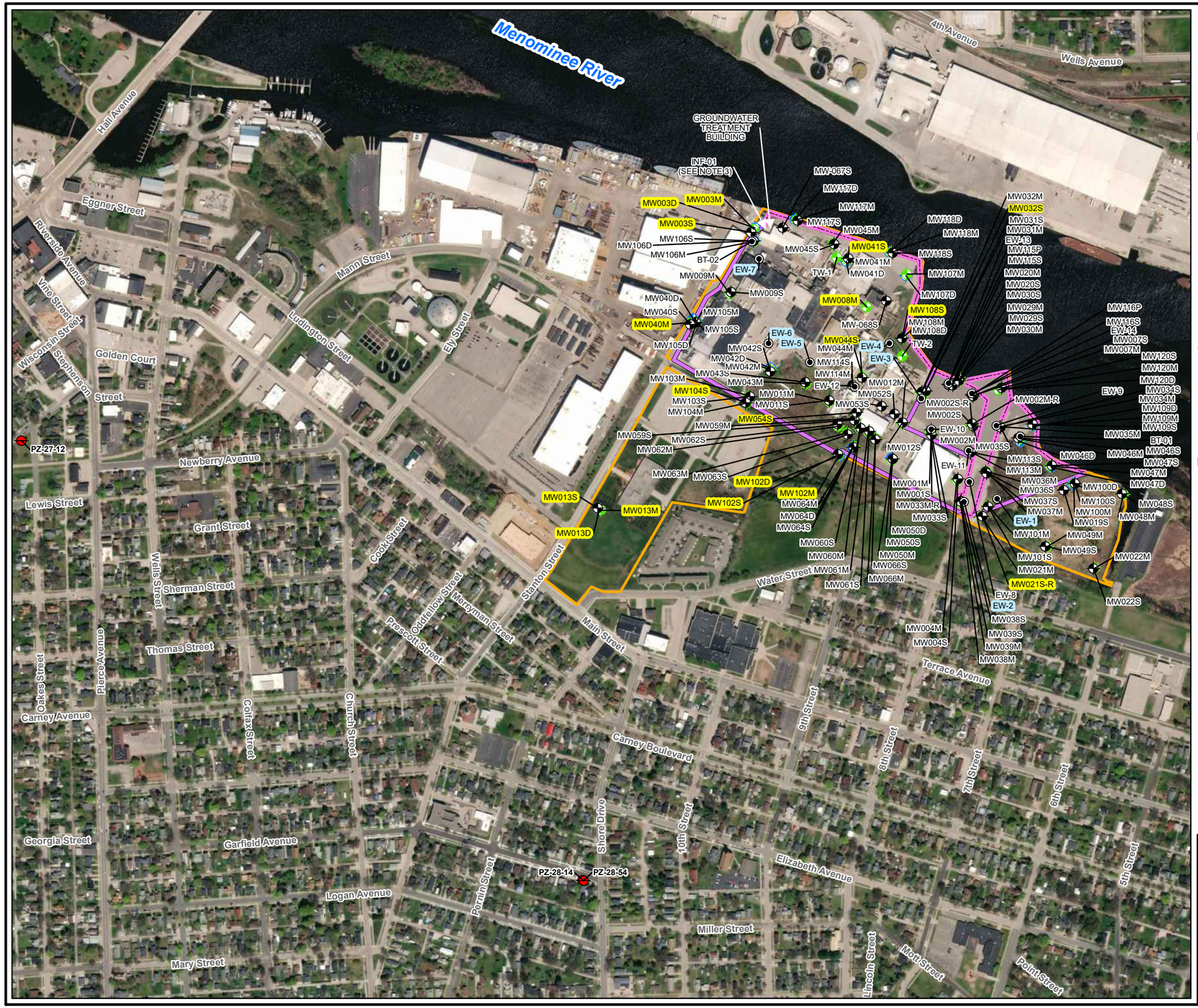
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

# SITE LOCATION

ARCADIS

FIGURE
1




LEGEND:

- EXTRACTION WELL OR TEST WELL
- MONITORING WELL - SHALLOW OR PEAT
- MONITORING WELL - MEDIUM
- MONITORING WELL - DEEP (BEDROCK)
- PIEZOMETER
- APPROXIMATE SITE PROPERTY BOUNDARY
- SHEET PILE WALL
- SLURRY WALL
- WELL ID GROUNDWATER SAMPLING LOCATION
- EX-1 EXTRACTION WELL PUMPED TO GROUNDWATER COLLECTION AND TREATMENT SYSTEM

NOTES:

1. ALL WELLS DEPICTED WERE INSTALLED AND SURVEYED BY ANOTHER CONSULTANT EXCEPT THE PIEZOMETERS, WHICH WERE SURVEYED BY ARCADIS.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
3. INF-01 SAMPLE IS REPRESENTATIVE OF GROUNDWATER COLLECTED FROM EXTRACTION WELLS EX-1 TO EX-7 PRIOR TO TREATMENT.

0 300 600

GRAPHIC SCALE IN FEET

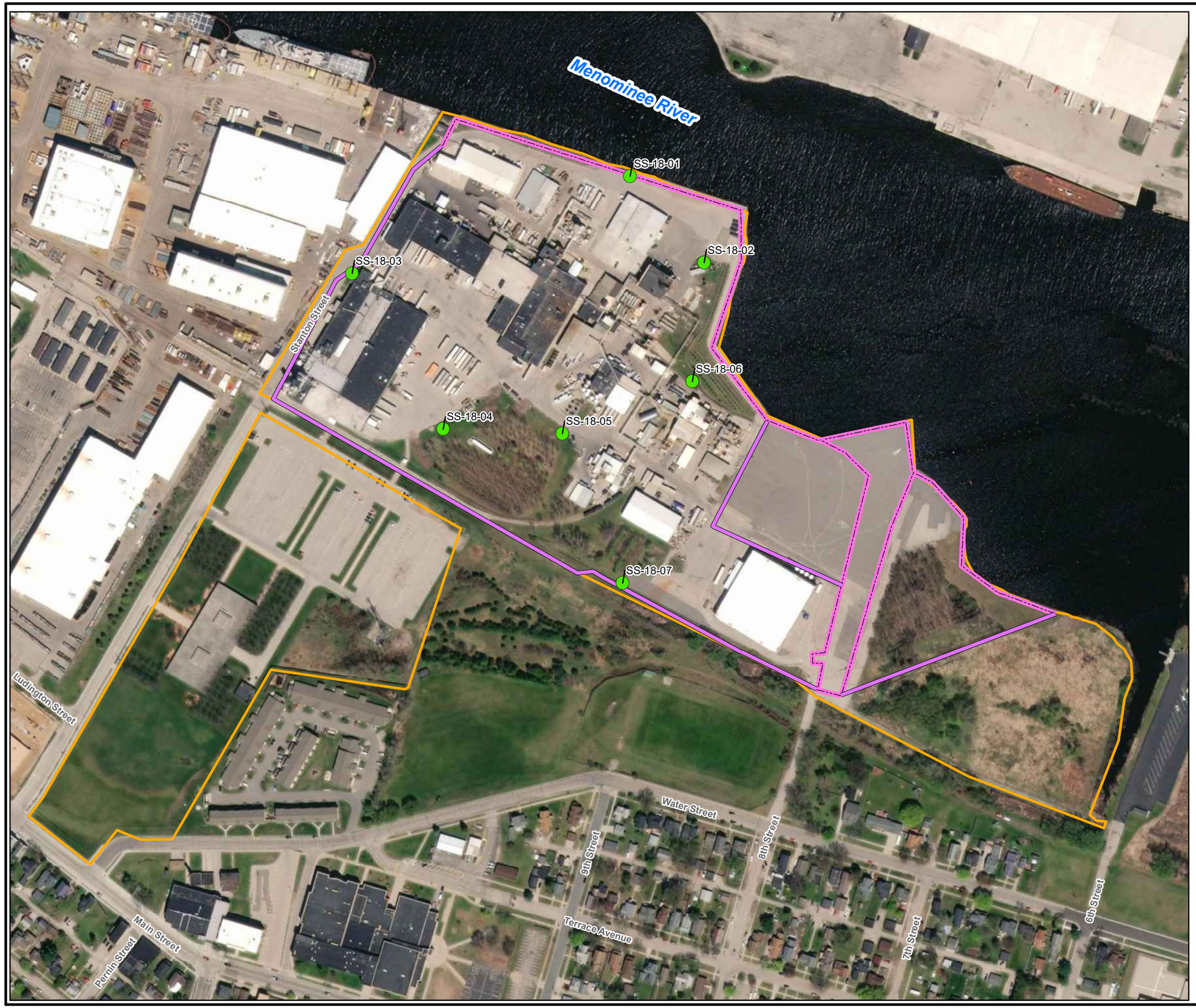
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

# MONITORING WELL AND PIEZOMETER LOCATIONS

ARCADIS

FIGURE
**2**




LEGEND:

- SOIL SAMPLE LOCATION
- APPROXIMATE SITE PROPERTY BOUNDARY
- SHEET PILE WALL
- SLURRY WALL

NOTES:

1. ALL BORING LOCATIONS DEPICTED ARE APPROXIMATE.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.

0 275 550

GRAPHIC SCALE IN FEET

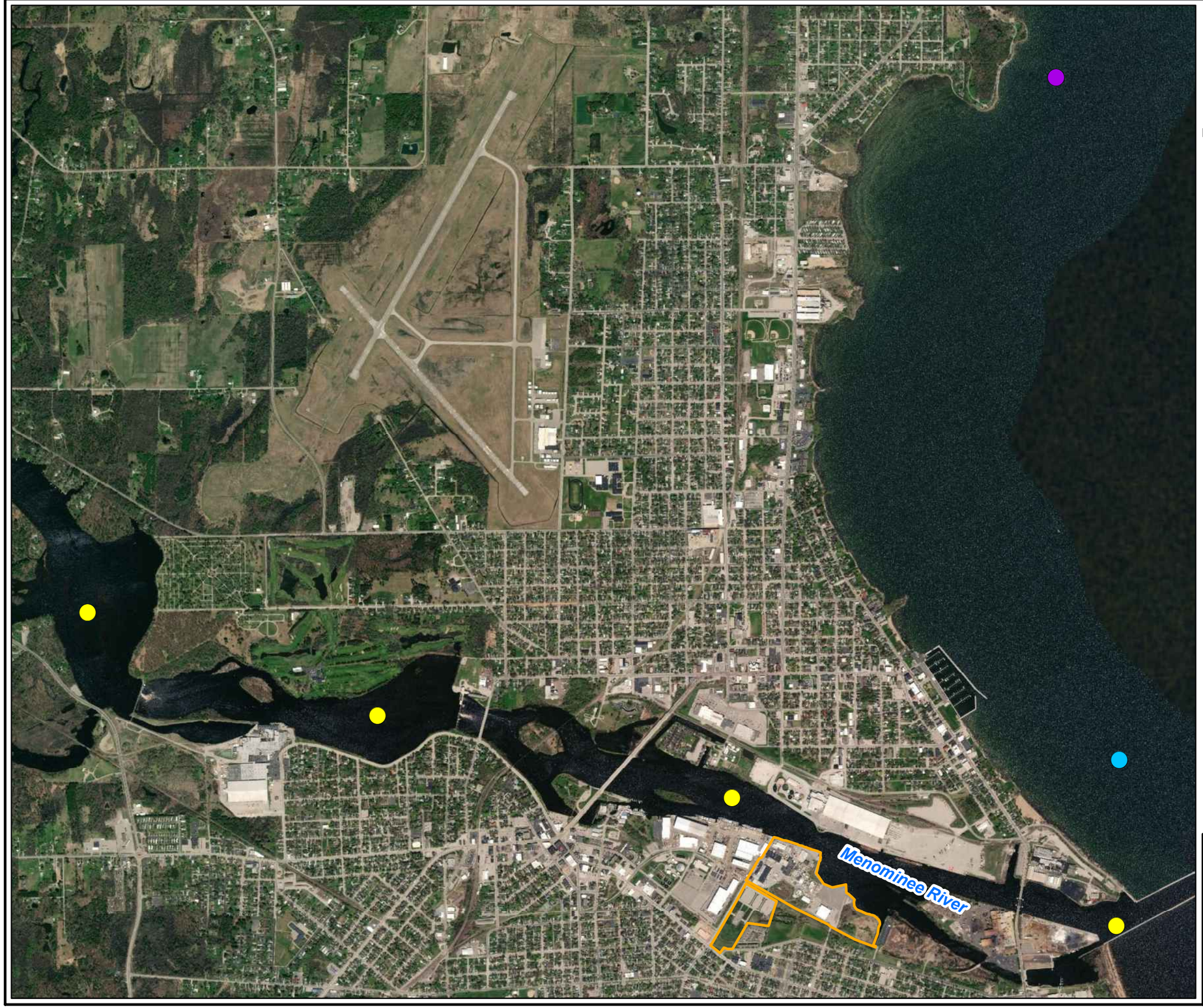
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIATION REPORT**

**SOIL BORING LOCATIONS**

ARCADIS

FIGURE
**3**




LEGEND:

**SURFACE WATER SAMPLE LOCATIONS**

- SAMPLED BY WDNR
- SAMPLED BY CITY OF MARINETTE
- SAMPLED BY EGLE
- APPROXIMATE SITE PROPERTY BOUNDARY

NOTES:

1. ALL SURFACE WATER LOCATIONS DEPICTED ARE APPROXIMATE BASED ON PUBLICLY AVAILABLE DATA.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
3. EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, & ENERGY.
4. WDNR = WISCONSIN DEPARTMENT OF NATURAL RESOURCES.

0 1,800 3,600

GRAPHIC SCALE IN FEET

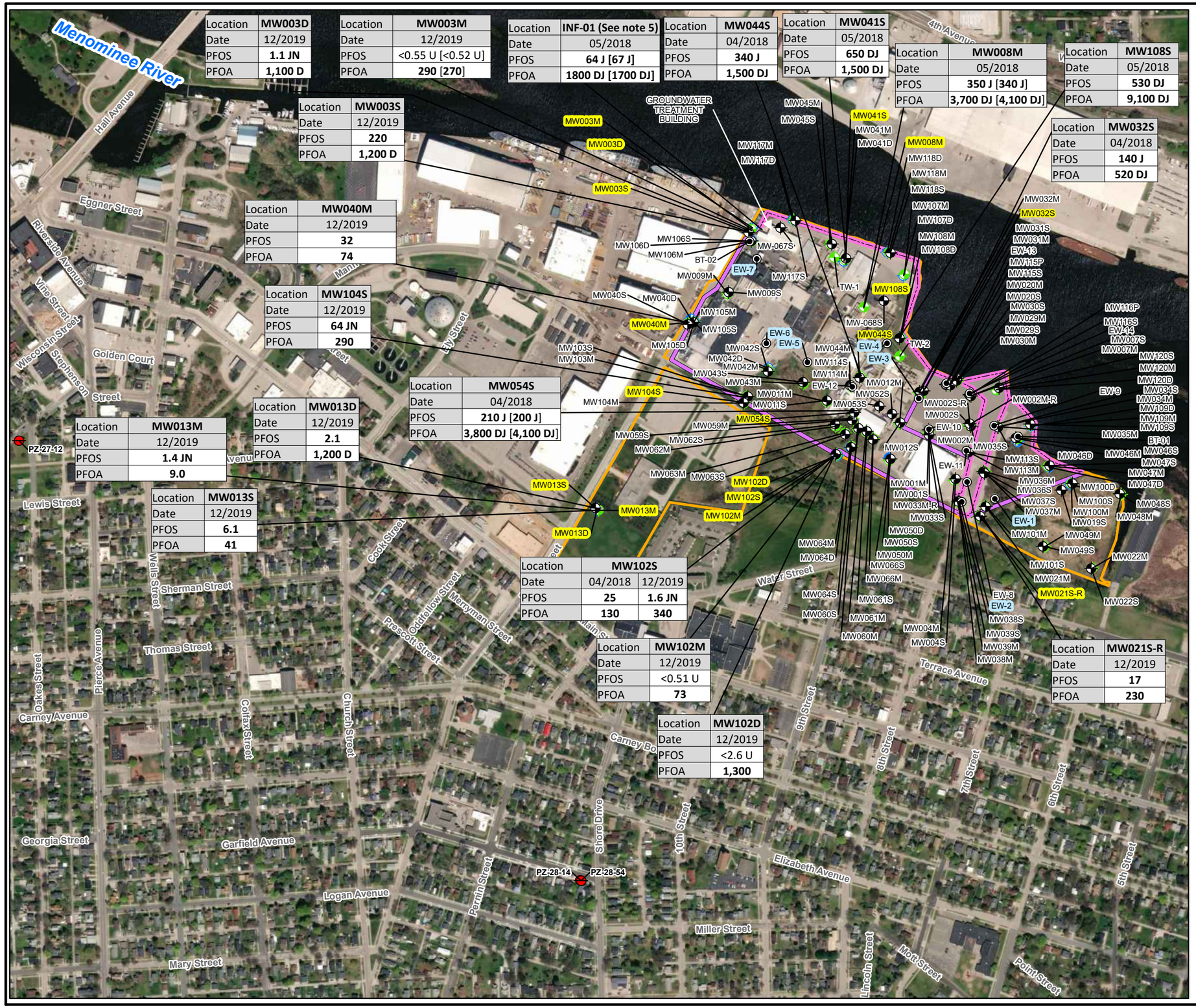
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

# SURFACE WATER SAMPLING LOCATIONS

ARCADIS

FIGURE
**4**




| Location | MW003D |
|---|---|
| Date | 12/2019 |
| PFOS | **1.1 JN** |
| PFOA | **1,100 D** |

| Location | MW003M |
|---|---|
| Date | 12/2019 |
| PFOS | <0.55 U [<0.52 U] |
| PFOA | **290 [270]** |

| Location | INF-01 (See note 5) |
|---|---|
| Date | 05/2018 |
| PFOS | **64 J [67 J]** |
| PFOA | **1800 DJ [1700 DJ]** |

| Location | MW044S |
|---|---|
| Date | 04/2018 |
| PFOS | **340 J** |
| PFOA | **1,500 DJ** |

| Location | MW041S |
|---|---|
| Date | 05/2018 |
| PFOS | **650 DJ** |
| PFOA | **1,500 DJ** |

| Location | MW008M |
|---|---|
| Date | 05/2018 |
| PFOS | **350 J [340 J]** |
| PFOA | **3,700 DJ [4,100 DJ]** |

| Location | MW108S |
|---|---|
| Date | 05/2018 |
| PFOS | **530 DJ** |
| PFOA | **9,100 DJ** |

| Location | MW003S |
|---|---|
| Date | 12/2019 |
| PFOS | **220** |
| PFOA | **1,200 D** |

| Location | MW032S |
|---|---|
| Date | 04/2018 |
| PFOS | **140 J** |
| PFOA | **520 DJ** |

| Location | MW040M |
|---|---|
| Date | 12/2019 |
| PFOS | **32** |
| PFOA | **74** |

| Location | MW104S |
|---|---|
| Date | 12/2019 |
| PFOS | **64 JN** |
| PFOA | **290** |

| Location | MW054S |
|---|---|
| Date | 04/2018 |
| PFOS | **210 J [200 J]** |
| PFOA | **3,800 DJ [4,100 DJ]** |

| Location | MW013D |
|---|---|
| Date | 12/2019 |
| PFOS | **2.1** |
| PFOA | **1,200 D** |

| Location | MW013M |
|---|---|
| Date | 12/2019 |
| PFOS | **1.4 JN** |
| PFOA | **9.0** |

| Location | MW013S |
|---|---|
| Date | 12/2019 |
| PFOS | **6.1** |
| PFOA | **41** |

| Location | MW102S | |
|---|---|---|
| Date | 04/2018 | 12/2019 |
| PFOS | **25** | **1.6 JN** |
| PFOA | **130** | **340** |

| Location | MW102M |
|---|---|
| Date | 12/2019 |
| PFOS | <0.51 U |
| PFOA | **73** |

| Location | MW102D |
|---|---|
| Date | 12/2019 |
| PFOS | <2.6 U |
| PFOA | **1,300** |

| Location | MW021S-R |
|---|---|
| Date | 12/2019 |
| PFOS | **17** |
| PFOA | **230** |

LEGEND:

- EXTRACTION WELL OR TEST WELL
- MONITORING WELL - SHALLOW OR PEAT
- MONITORING WELL - MEDIUM
- MONITORING WELL - DEEP (BEDROCK)
- PIEZOMETER
- APPROXIMATE SITE PROPERTY BOUNDARY
- SHEET PILE WALL
- SLURRY WALL
- WELL ID GROUNDWATER SAMPLING LOCATION
- EX-1 EXTRACTION WELL PUMPED TO GROUNDWATER COLLECTION AND TREATMENT SYSTEM

NOTES:

1. ALL WELLS DEPICTED WERE INSTALLED AND SURVEYED BY ANOTHER CONSULTANT EXCEPT THE PIEZOMETERS, WHICH WERE SURVEYED BY ARCADIS.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
3. PFOS = PERFLUOROOCTANESULFONIC ACID.
4. PFOA = PERFLUOROOCTANOIC ACID.
5. INFO-01 SAMPLE IS REPRESENTATIVE OF GROUNDWATER COLLECTED FROM EXTRACTION WELLS EX-1 TO EX-7 PRIOR TO TREATMENT.
6. UNITS ARE IN ng/L (NANOGRAM PER LITER) UNLESS OTHERWISE STATED.
7. QUALIFIERS ARE DEFINED AS:
< = COMPOUND NOT DETECTED AT METHOD DETECTION LIMIT.
D = DILUTION REQUIRED FOR SAMPLE ANALYSIS.
J = THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
N = THE ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION.
U = LABORATORY FLAG INDICATING THE RESULT IS NON-DETECT.
8. FIELD DUPLICATES ARE SHOWN IN BRACKETS [ ].
9. BOLD = DETECTION.

0 300 600

GRAPHIC SCALE IN FEET

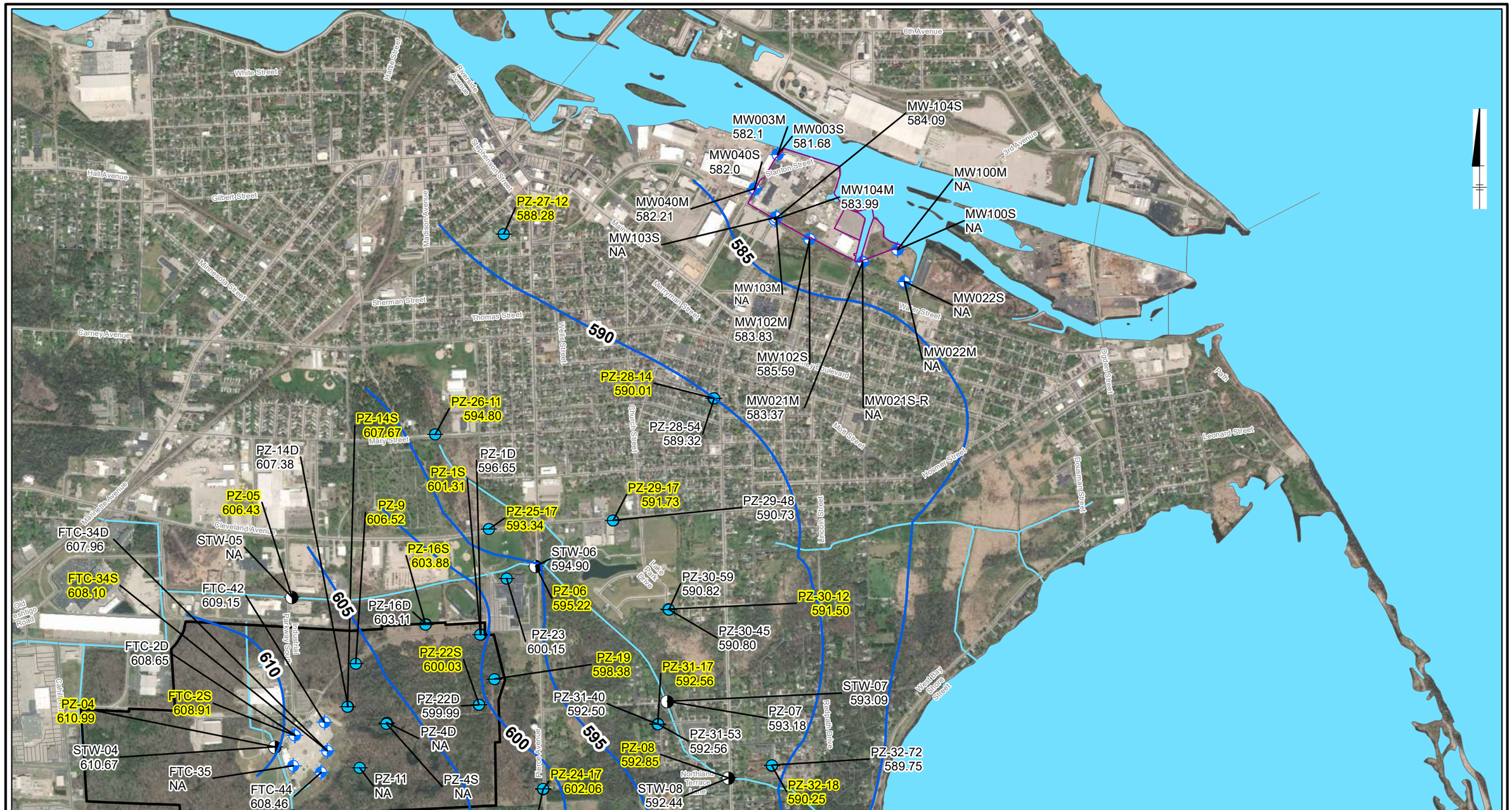
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

## GROUNDWATER ANALYTICAL RESULTS

ARCADIS

FIGURE 5




LEGEND:

- MONITORING WELL
- PIEZOMETER
- IN-STREAM PIEZOMETER AND STILLING WELL PAIR
- ROAD
- HYDRAULIC CONTAINMENT WALL
- DITCH/STREAM
- WATERBODY
- SHALLOW SAND POTENTIOMETRIC SURFACE (AMSL)
- APPROXIMATE SITE PROPERTY BOUNDARY
- FTC-2S 608.91 — HIGHLIGHTED LOCATION USED FOR GENERATING CONTOURS

NOTES:

1. WELLS AND PIEZOMETERS WERE USED FOR CONTOURING THE GROUNDWATER POTENTIOMETRIC SURFACE.
2. DITCH/STREAM DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
3. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
4. AERIAL IMAGERY: 5/14/2017 DIGITALGLOBE, VIVID-USA.
5. POSTED WATER-LEVEL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (AMSL), BASED ON MEASUREMENTS COMPLETED 10/16/2019 - 10/17/2019.
6. GREEN BAY SURFACE ELEVATION (582.29) AS REPORTED BY NOAA/NOS (NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION/NATIONAL OCEAN SERVICE) MENOMINEE, MI, STATION #9087088 FOR 10/16/2019.
7. NA = LOCATION DATA NOT AVAILABLE FOR GROUNDWATER CONTOURING.

0 2,000 4,000

GRAPHIC SCALE IN FEET

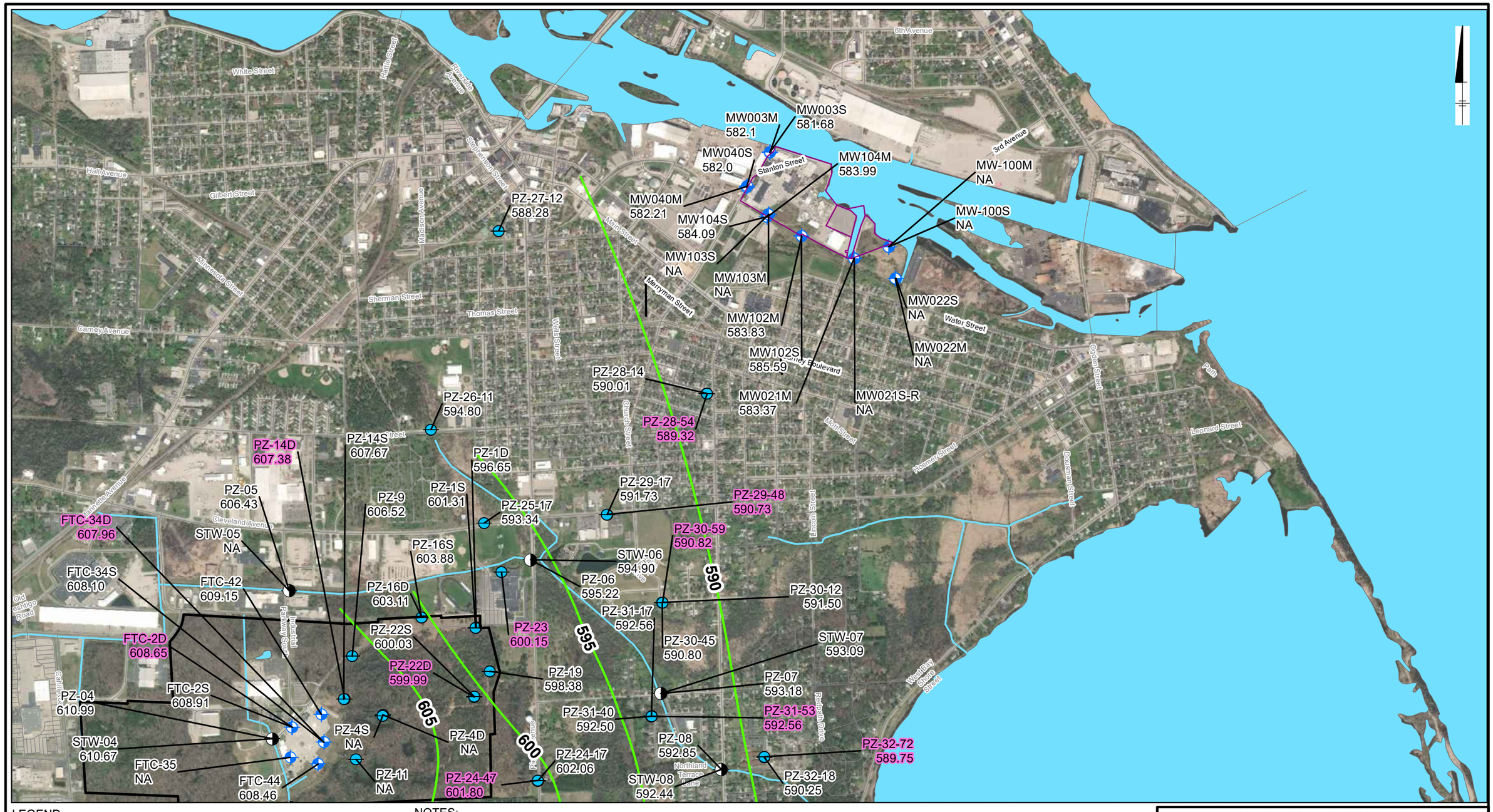
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

**SHALLOW SAND POTENTIOMETRIC SURFACE - OCTOBER 2019**

ARCADIS

**FIGURE 6**




LEGEND:

- MONITORING WELL
- PIEZOMETER
- IN-STREAM PIEZOMETER AND STILLING WELL PAIR
- ROAD
- HYDRAULIC CONTAINMENT WALL
- DITCH/STREAM
- WATERBODY
- APPROXIMATE SITE PROPERTY BOUNDARY
- DEEP SAND POTENTIOMETRIC SURFACE
- PZ-23 600.15 — HIGHLIGHTED LOCATION USED FOR GENERATING CONTOURS

NOTES:

1. WELLS AND PIEZOMETERS WERE USED FOR CONTOURING THE GROUNDWATER POTENTIOMETRIC SURFACE.
2. DITCH/STREAM DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
3. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
4. AERIAL IMAGERY: 5/14/2017 DIGITALGLOBE, VIVID-USA.
5. POSTED WATER-LEVEL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (AMSL), BASED ON MEASUREMENTS COMPLETED 10/16/2019 - 10/17/2019.
6. GREEN BAY SURFACE ELEVATION (582.29) AS REPORTED BY NOAA/NOS (NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION/NATIONAL OCEAN SERVICE) MENOMINEE, MI, STATION #9087088 FOR 10/16/2019.
7. NA = LOCATION DATA NOT AVAILABLE FOR GROUNDWATER CONTOURING.

0 2,000 4,000

GRAPHIC SCALE IN FEET

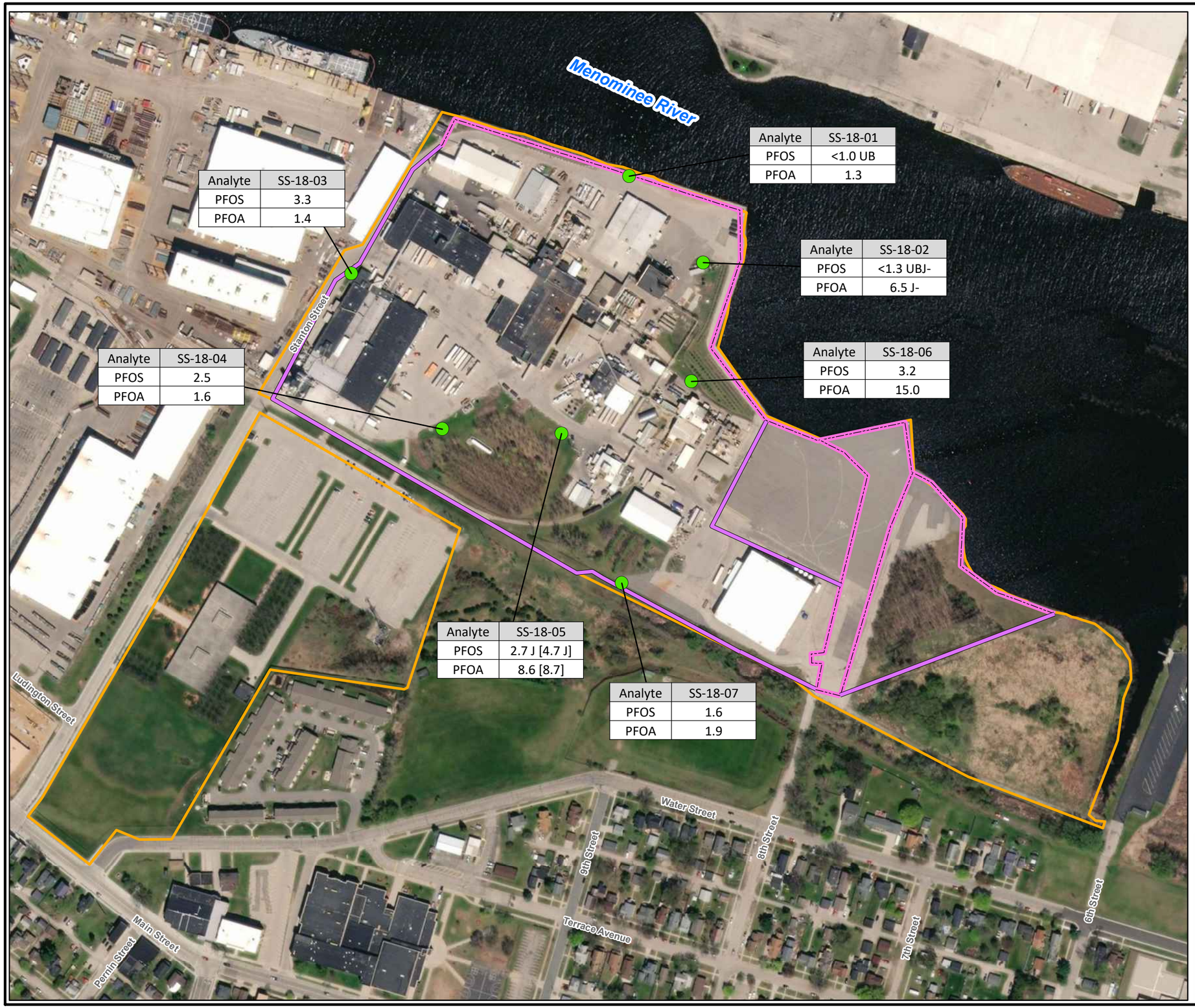
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

**DEEP SAND POTENTIOMETRIC SURFACE - OCTOBER 2019**

ARCADIS

FIGURE
7




LEGEND:

- SOIL SAMPLE LOCATION
- APPROXIMATE SITE PROPERTY BOUNDARY
- SHEET PILE WALL
- SLURRY WALL

NOTES:

1. ALL BORING LOCATIONS DEPICTED ARE APPROXIMATE.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
3. PFOS = PERFLUOROOCTANESULFONIC ACID.
4. PFOA = PERFLUOROOCTANOIC ACID.
5. UNITS ARE IN µg/kg (MICROGRAMS PER KILOGRAM).
6. QUALIFIERS ARE DEFINED AS:
   < = COMPOUND NOT DETECTED AT METHOD DETECTION LIMIT.
   J = COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
   J- = RESULT IS AN ESTIMATED QUANTITY. THE ASSOCIATED NUMERICAL VALUE IS EXPECTED TO HAVE A NEGATIVE OR LOW BIAS.
   UB = COMPOUND CONSIDERED NON-DETECT AT THE LISTED VALUE DUE TO ASSOCIATED BLANK CONTAMINATION.
7. FIELD DUPLICATES ARE SHOWN IN BRACKETS [].

0 275 550

GRAPHIC SCALE IN FEET

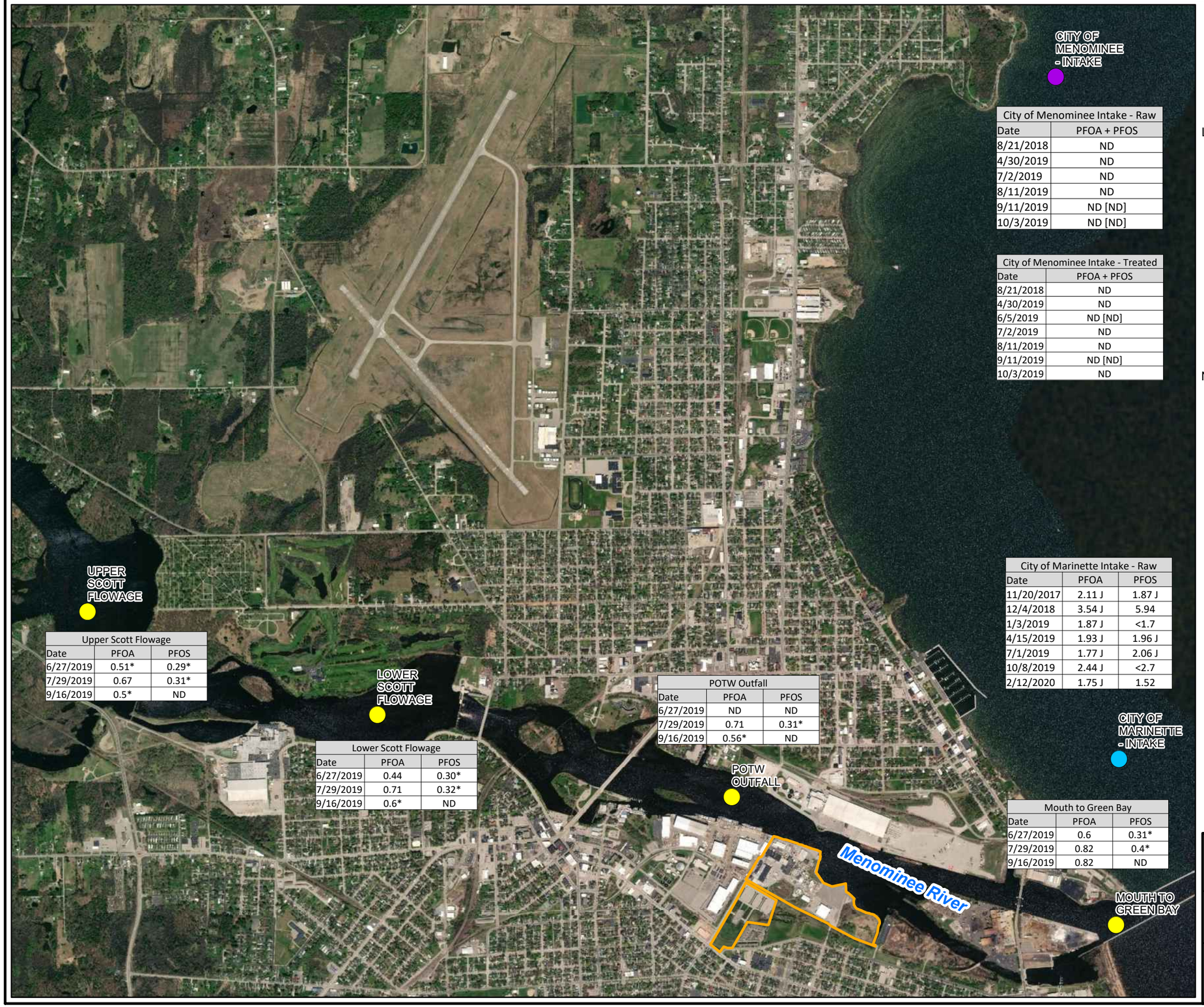
TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

# SOIL ANALYTICAL RESULTS

ARCADIS

FIGURE
8




| City of Menominee Intake - Raw | |
|---|---|
| Date | PFOA + PFOS |
| 8/21/2018 | ND |
| 4/30/2019 | ND |
| 7/2/2019 | ND |
| 8/11/2019 | ND |
| 9/11/2019 | ND [ND] |
| 10/3/2019 | ND [ND] |

| City of Menominee Intake - Treated | |
|---|---|
| Date | PFOA + PFOS |
| 8/21/2018 | ND |
| 4/30/2019 | ND |
| 6/5/2019 | ND [ND] |
| 7/2/2019 | ND |
| 8/11/2019 | ND |
| 9/11/2019 | ND [ND] |
| 10/3/2019 | ND |

| Upper Scott Flowage | | |
|---|---|---|
| Date | PFOA | PFOS |
| 6/27/2019 | 0.51* | 0.29* |
| 7/29/2019 | 0.67 | 0.31* |
| 9/16/2019 | 0.5* | ND |

| Lower Scott Flowage | | |
|---|---|---|
| Date | PFOA | PFOS |
| 6/27/2019 | 0.44 | 0.30* |
| 7/29/2019 | 0.71 | 0.32* |
| 9/16/2019 | 0.6* | ND |

| POTW Outfall | | |
|---|---|---|
| Date | PFOA | PFOS |
| 6/27/2019 | ND | ND |
| 7/29/2019 | 0.71 | 0.31* |
| 9/16/2019 | 0.56* | ND |

| City of Marinette Intake - Raw | | |
|---|---|---|
| Date | PFOA | PFOS |
| 11/20/2017 | 2.11 J | 1.87 J |
| 12/4/2018 | 3.54 J | 5.94 |
| 1/3/2019 | 1.87 J | <1.7 |
| 4/15/2019 | 1.93 J | 1.96 J |
| 7/1/2019 | 1.77 J | 2.06 J |
| 10/8/2019 | 2.44 J | <2.7 |
| 2/12/2020 | 1.75 J | 1.52 |

| Mouth to Green Bay | | |
|---|---|---|
| Date | PFOA | PFOS |
| 6/27/2019 | 0.6 | 0.31* |
| 7/29/2019 | 0.82 | 0.4* |
| 9/16/2019 | 0.82 | ND |

LEGEND:

**SURFACE WATER SAMPLE LOCATIONS**

- SAMPLED BY WDNR
- SAMPLED BY CITY OF MARINETTE
- SAMPLED BY EGLE
- APPROXIMATE SITE PROPERTY BOUNDARY

NOTES:

1. ALL SURFACE WATER LOCATIONS DEPICTED ARE APPROXIMATE BASED ON PUBLICLY AVAILABLE DATA.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
3. * = BETWEEN LOD AND LOQ.
4. EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, & ENERGY.
5. LOD = LIMIT OF DETECTION.
6. LOQ = LIMIT OF QUANTIFICATION.
7. PFOA = PERFLUOROOCTANOIC ACID.
8. PFOS = PERFLUOROOCTANE SULFONIC ACID.
9. POTW = PUBLICLY OWNED TREATMENT WORKS.
10. WDNR = WISCONSIN DEPARTMENT OF NATURAL RESOURCES.
11. UNITS ARE IN ng/L (NANOGRAM PER LITER) UNLESS OTHERWISE STATED.
12. QUALIFIERS ARE DEFINED AS:
< = SUBSTANCE WAS NOT FOUND ABOVE THE LABORATORY LIMIT OF DETECTION.
J = RESULT IS BETWEEN LOD AND LOQ, A REGION OF LESS CERTAIN QUANTITATION.
ND = NON-DETECTABLE, SUBSTANCE WAS NOT FOUND ABOVE LABORATORY LIMIT OF DETECTION.
13. FIELD DUPLICATES ARE SHOWN IN BRACKETS [].

0 1,800 3,600

GRAPHIC SCALE IN FEET

TYCO STANTON STREET FACILITY
MARINETTE, WISCONSIN

**INTERIM SITE INVESTIGATION REPORT**

# SURFACE WATER ANALYTICAL RESULTS

ARCADIS

FIGURE 9

# APPENDIX A

## Submittal Certification

# NR 712.09 CERTIFICATION

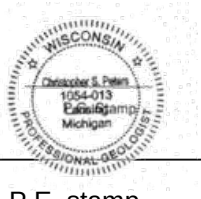
I, Benjamin J. Verburg, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.


Signature, title and P.E. number

P.E. stamp

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

WI PG 1054-013




Signature, title and P.E. number

P.E. stamp

# APPENDIX B

## Boring and Abandonment Logs

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Tyco FTC | | PZ-27 |

| Boring Drilled By: | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name: Keith Last Name: Fehrman<br>Firm: Layne, A Granite Company | 8-1-2019 | 8-1-2019 | Sonic |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | Feet MSL | 592.99 Feet MSL | 6 inches |

Local Grid Origin (estimated: ☐) or Boring Location ☒
State Plane 469460.57 N 2580178.12 E Lat
1/4 of 1/4 of Section , T N, R Long

Local Grid Location
☐ N ☐ E
Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| 438005590 | Marinette | 38 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (ft) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Soil Properties: Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4.5 | | 0.0<br>2.0<br>4.0<br>6.0<br>8.0<br>10.0<br>12.0<br>14.0 | (0.0-0.5)<br>TOPSOIL: fine sand and silt; organics' dry; brown (7.5YR 4/3).<br>(0.5-1.8)<br>SAND: fine to medium; trace silt; well sorted; dry to moist; very dark grayish black (7.5YR 3/1) and black (7.5YR 3/1) with strong brown (7.5YR 5/6).<br>(1.8-13.5)<br>SAND: fine to medium; well sorted; moist; brown (7.5YR 5/3).<br>Note: Wet at 2.9' bgs.<br>(13.5-14.0)<br>CLAY and GRAVEL: medium to very large pebbles, subangular; some fine sand; poorly sorted; moist to wet; dark gray (7.5YR 5/1). | | | | | | | | | | |
| | 4.0 | | 16.0<br>18.0 | (14.0-18.0)<br>DOLOSTONE: gray, hard | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm ARCADIS
126 N. Jefferson St., Suite 400
Milwaukee, WI 53202

This form is authorized by Chapters 281, 283, 289, 291, 293, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Tyco FTC | | PZ-28 |

| Boring Drilled By: | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name: Keith Last Name: Fehrman<br>Firm: Layne, A Granite Company | 6-25-2019 | 6-25-2019 | Sonic |

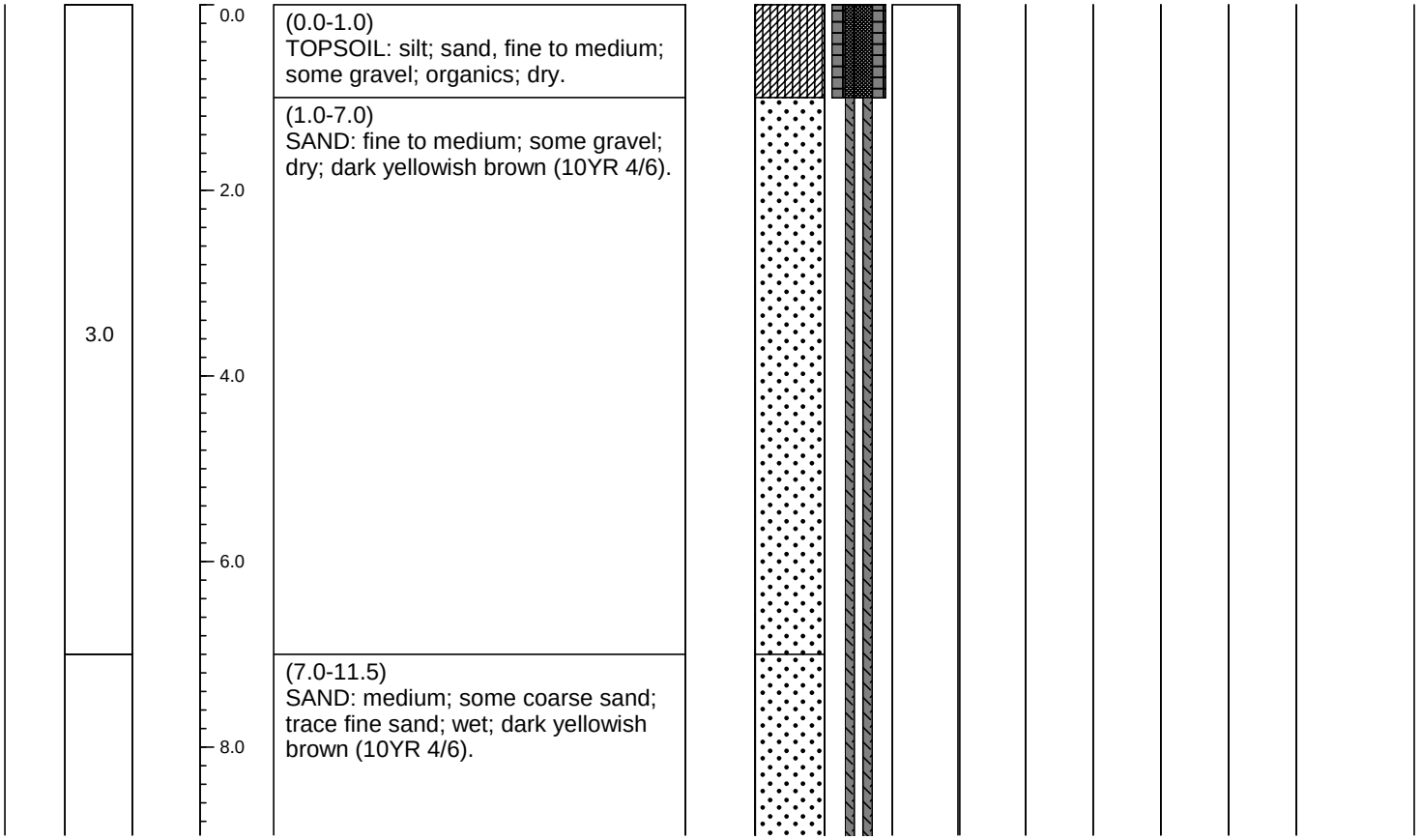
| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | Feet MSL | 594.81 Feet MSL | 6 inches |

Local Grid Origin (estimated: ☐) or Boring Location ☒
State Plane 467123.14 N 2583168.64 E Lat
1/4 of 1/4 of Section , T N, R Long

Local Grid Location
☐ N ☐ E
Feet ☐ S Feet ☐ W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| 438005590 | Marinette | 38 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (ft) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Soil Properties: Moisture Content | Liquid Limit | Plasticity Index | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3.0 | | 0.0 | (0.0-1.0) TOPSOIL: silt; sand, fine to medium; some gravel; organics; dry. | | | | | | | | | | |
| | | | 2.0 | (1.0-7.0) SAND: fine to medium; some gravel; dry; dark yellowish brown (10YR 4/6). | | | | | | | | | | |
| | | | 4.0 | | | | | | | | | | | |
| | | | 6.0 | | | | | | | | | | | |
| | | | 8.0 | (7.0-11.5) SAND: medium; some coarse sand; trace fine sand; wet; dark yellowish brown (10YR 4/6). | | | | | | | | | | |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature 

Firm ARCADIS
126 N. Jefferson St., Suite 400
Milwaukee, WI 53202

| Sample | | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Soil Properties | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | | | | | | | | | Moisture Content | Liquid Limit | Placticity Index | P 200 | |
| | | | 10.0 | | | | | | | | | | | |
| | 9.0 | | 12.0 | (11.5-14.5)<br>SAND: medium; some fine sand; trace coarse sand; wet; dark yellowish brown (10YR 4/4). | | | | | | | | | | |
| | | | 14.0 | | | | | | | | | | | |
| | | | | (14.5-17.0)<br>SILT: some clay; trace fine sand; some organics; wet; brown (10YR 3/2). | | | | | | | | | | |
| | | | 16.0 | | | | | | | | | | | |
| | | | | (17.0-22.0)<br>SAND: medium; some fine sand; some coarse sand; wet; dark grayish brown (10YR 4/2). | | | | | | | | | | |
| | | | 18.0 | | | | | | | | | | | |
| | | | 20.0 | | | | | | | | | | | |
| | 8.5 | | 22.0 | (22.0-24.0)<br>SILT: trace to some clay; trace fine sand; organics; brown (10YR 3/2). | | | | | | | | | | |
| | | | 24.0 | | | | | | | | | | | |
| | | | | (24.0-28.0)<br>SAND: medium; some coarse sand; trace fine sand; wet; dark grayish brown (10YR 4/2). | | | | | | | | | | |
| | | | 26.0 | | | | | | | | | | | |

| Sample | | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Soil Properties | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | | | | | | | | | Moisture Content | Liquid Limit | Plasticity Index | P 200 | |
| | | | 28.0 | (28.0-37.0)<br>SILT: trace fine sand; trace clay; organics; wet; brown (10YR 3/2); layers of medium sand, some fine sand, trace coarse sand 29-32' bgs and 33-34' bgs. | | | | | | | | | | |
| | 10.0 | | 30.0 | | | | | | | | | | | |
| | | | 32.0 | | | | | | | | | | | |
| | | | 34.0 | | | | | | | | | | | |
| | | | 36.0 | | | | | | | | | | | |
| | | | 38.0 | (37.0-39.0)<br>SAND: medium; some fine sand; trace coarse sand; wet; dark grayish brown (10YR 4/2). | | | | | | | | | | |
| | | | 40.0 | (39.0-41.0)<br>SILT: brown (10YR 3/2), some fine sand, organics, wet. | | | | | | | | | | |
| | 8.5 | | 42.0 | (41.0-43.0)<br>SAND: coarse; some medium sand; wet; brown (10YR 3/2). | | | | | | | | | | |
| | | | 44.0 | (43.0-47.0)<br>SILT: some fine sand; alternating SAND layers; medium, some coarse sand; organics; wet; dark grayish brown (10YR 4/2). | | | | | | | | | | |

| Sample | | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Compressive Strength | Soil Properties | | | | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number and Type | Length Att. & Recovered (in) | | | | | | | | | Moisture Content | Liquid Limit | Plasticity Index | P 200 | |
| | | | 46.0 | | | | | | | | | | | |
| | | | 48.0 | (47.0-50.0) SAND: medium; trace coarse sand; organics; wet; dark grayish brown (10YR 4/2); SILT: with organics 49-49.5' bgs; wet; brown (10YR 3/2). | | | | | | | | | | |
| | 4.5 | | 50.0 | (50.0-51.0) SAND: coarse; trace fine gravel, rounded; wet; brown (10YR 3/2). | | | | | | | | | | |
| | | | | (51.0-51.5) SILT: trace clay; organics; wet; brown (10YR 3/2). | | | | | | | | | | |
| | | | 52.0 | (51.5-53.0) SAND: fine to coarse; some gravel; wet; brown (10YR 3/2). | | | | | | | | | | |
| | | | | (53.0-53.5) GRAVEL: subrounded, up to 1.5"; trace granite cobbles up to 5"; wet. | | | | | | | | | | |
| | 1.5 | | 54.0 | (53.5-54.5) SAND and GRAVEL: medium to coarse sand; gravel, subrounded, up to 2", wet. | | | | | | | | | | |
| | | | | (54.5-55.0) DOLOSTONE fragments. | | | | | | | | | | |

State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-01 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/14/2019 | 11/14/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/C☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-0.5' Silt with some sand, black, organics, moist, soft.<br>0.5-0.8' Sand with some silt, brown, some organics, moist, wet at 0.8'. | | | | | | | | | | |
| | | | 1 | EOB @ 1' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Kendra Keon

Firm Arcadis U.S., Inc.
126 N. Jefferson St., Suite 400
Milwaukee, WI (414) 276-7742

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any purpose. NOTE: See instructions for more information, including where the completed from should be sent.

State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-02 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/14/2019 | 11/14/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/C☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-0.5' Sand and silt, some gravel, poorly sorted, organics, dark brown.<br>0.5-0.8' Silt, some sand, coal fragments up to 40 mm organics, small layer of red slag, moist.<br>0.8-1.4' Sand, light gray, coarse grained, poorly sorted, angular, moist, loose.<br>1.4-2.0' Sand, fine grained, well sorted, light brown, moist, wet at 2'. | | | | | | | | | | |
| | | | 2 | EOB @ 2' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Kendra Keon

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Milwaukee, WI (414) 276-7742

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State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-03 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/14/2019 | 11/14/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/D☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-0.6' Silt with some fine sand, moist, organics, very dark gray, soft, little gravel, wet at 0.5'.<br>0.6-1.1' Fine sand, wet, loose, well sorted, round to subround, brown. | | | | | | | | | | |
| | | | 1.1 | EOB @ 1.1' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Kendra Keon

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126 N. Jefferson St., Suite 400
Milwaukee, WI (414) 276-7742

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State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-04 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/14/2019 | 11/14/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/D☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-1.5' Silt with little fine sand, grades into some coarse sand, gravel up to 40 mm, organics from 0-1 feet, moist, wet at 1.2', soft, sand poorly sorted. | | | | | | | | | | |
| | | | 1.5 | EOB @ 1.5' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Kendra Keon

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Milwaukee, WI (414) 276-7742

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State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-05 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/13/2019 | 11/13/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/D☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-1.9' Silt with some fine sand dark brown organics, moist, soft to medium stiff, little gravel starting at 1.5' angular to subangular, up to 40 mm.<br>1.9-2.2' Silt and angular slag, dark brown wet, no odor, poorly sorted, loose to very loose. | | | | | | | | | | |
| | | | 2.2 | EOB @ 2.2' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Kendra Keon

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126 N. Jefferson St., Suite 400
Milwaukee, WI (414) 276-7742

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State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-06 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/14/2019 | 11/14/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/C☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-0.5' Silt with some fine sand, organics, moist, very dark gray, soft.<br>0.5-0.9' Silt and poorly sorted fine to medium sand, and gravel; up to 50 mm, subround to subangular, wet, loose. | | | | | | | | | | |
| | | | 0.9 | EOB @ 0.9' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Kendra Keon

Firm Arcadis U.S., Inc.
126 N. Jefferson St., Suite 400
Milwaukee, WI (414) 276-7742

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State of Wisconsin
Department of Natural Resources

# Soil Boring Log Information

Form 4400-122 Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☒ _____



| Facility/Project Name | License/Permit/Monitoring Number | Boring Number |
|---|---|---|
| Stanton Street/30015423 | | SS-18-07 |

| Boring Drilled By: Name of crew chief (first, last) and Firm | Date Drilling Started | Date Drilling Completed | Drilling Method |
|---|---|---|---|
| First Name Last Name<br>Firm | 11/13/2019 | 11/13/2019 | Hand Auger |

| WI Unique Well No. | DNR Well ID No. | Well Name | Final Static Water Level | Surface Elevation | Borehole Diameter |
|---|---|---|---|---|---|
| | | | _____ Feet | _____ Feet MSL | _____ inches |

Local Grid Origin ☐ (estimated: ☐ ) or Boring Location ☐
State Plane _____ N, _____ E S☐/C☐/N☐ E☐ W☐ Lat _____
_____ 1/4 of _____ 1/4 of Section _____ ,T _____ N,R _____ Long _____

Local Grid Location
☐N ☐E
_____ Feet ☐S _____ Feet ☒W

| Facility ID | County | County Code | Civil Town/City/or Village |
|---|---|---|---|
| | Crawford | 12 | Marinette |

| Sample Number and Type | Sample Length Att. & Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description And Geologic Origin For Each Major Unit | USCS | Graphic Log | Well Diagram | PID/FID | Soil Properties: Compressive Strength | Moisture Content | Liquid Limit | Plastic Limit | P 200 | RQD/ Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0 | 0-2'/<br>0-1.4' Sandy Silt, dark brown, moist, organics<br>1.4-2.0' Sand and some silt, brown, moist, some organics, wood, approximately <6 mm gravel, angular. | | | | | | | | | | |
| | | | 2 | EOB @ 2' | | | | | | | | | | |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Kendra Keon

Firm Arcadis U.S., Inc.
126 N. Jefferson St., Suite 400
Milwaukee, WI (414) 276-7742

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State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other:

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | — — — — — | |

Latitude / Longitude (see instructions): ____ N ____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Marinette | 54143 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason For Removal From Service | WI Unique Well # of Replacement Well |
|---|---|
| | — — — — — |

## 2. Facility / Owner Information

| Facility Name | Common Well Name |
|---|---|
| Johnson Controls Inc. | SS-18-01 |

Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/14/19 (KB)
If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): Hand Auger

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| | |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 0.8 (KB) ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain):

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

| 5. Material Used to Fill Well / Drillhole | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Bentonite Pellets | Surface | 0.8 (KB) | 0.15 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/14/19 |

| Street or Route | Telephone Number |
|---|---|
| 126 N. Jefferson Street, Suite 400 | 414-276-7742 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Blatz | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |
| Comments | |

State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | — — — — — | |

Latitude / Longitude (see instructions): _____ N _____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Marinette | 54143 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason For Removal From Service | WI Unique Well # of Replacement Well |
|---|---|
| | — — — — — |

## 2. Facility / Owner Information

| Facility Name | Common Well Name |
|---|---|
| Johnson Controls Inc. | SS-18-02 |

Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/14/19

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): Hand Auger

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| | |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | (Y&S) 2 ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| 5. Material Used to Fill Well / Drillhole | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Bentonite Pellets | Surface | 2 | 0.2 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/14/19 |

| Street or Route | Telephone Number |
|---|---|
| 126 N. Jefferson Street, Suite 400 | 414-276-7742 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Bloß | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |
| **Comments** | |
| | |

State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis.Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other: _____

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | — — — — — | |

Latitude / Longitude (see instructions): _____ N / _____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Marinette | 54143 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason For Removal From Service | WI Unique Well # of Replacement Well |
|---|---|
| | — — — — — |

## 2. Facility / Owner Information

| Facility Name | Common Well Name |
|---|---|
| Johnson Controls Inc. | SS-18-03 |

Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/14/19
If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): Hand Auger

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| | |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 0.5 ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain): _____

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Bentonite Pellets | Surface | 0.5 | 0.1 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/14/19 |

| Street or Route | Telephone Number |
|---|---|
| 126 N. Jefferson Street, Suite 400 | 414-276-7742 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Blotz | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other:

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | — — — — — | |

Latitude / Longitude (see instructions): ____ N ____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Marinette | 54143 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason For Removal From Service | WI Unique Well # of Replacement Well |
|---|---|
| | — — — — — |

## 2. Facility / Owner Information

| Facility Name | Common Well Name |
|---|---|
| Johnson Controls Inc. | SS-18-04 |

Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/14/19

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): Hand Auger

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| | |

| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |
|---|---|
| | |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 1 ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain):

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

| 5. Material Used to Fill Well / Drillhole | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Bentonite Pellets | Surface | 1 | 0.15 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/14/19 |

| Street or Route | Telephone Number |
|---|---|
| 126 N. Jefferson Street, Suite 400 | 414-276-7742 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Blotz | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |

Comments:

State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)



Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis.Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forteiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other:

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | _ _ _ _ _ _ _ | |

Latitude / Longitude (see instructions): _____ N _____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.
Well City, Village or Town: Marinette
Well ZIP Code: 54143
Subdivision Name:
Lot #:
Reason For Removal From Service:
WI Unique Well # of Replacement Well: _ _ _ _ _ _ _

## 2. Facility / Owner Information

Facility Name: Johnson Controls Inc.
Common Well Name: SS-18-05
Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:
City of Present Owner | State | ZIP Code:

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/13/19
If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): Hand Auger

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| | |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 2 ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain):

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Bentonite Pellets | Surface | 2 | 0.2 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/13/19 |
| **Street or Route** | | **Telephone Number** |
| 126 N. Jefferson Street, Suite 400 | | 414-276-7742 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Blob | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |
| **Comments** | |
| | |

State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other:

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | — — — — — | |

Latitude / Longitude (see instructions): ____ N ____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.

| Well City, Village or Town | Well ZIP Code |
|---|---|
| Marinette | 54143 |

| Subdivision Name | Lot # |
|---|---|
| | |

| Reason For Removal From Service | WI Unique Well # of Replacement Well |
|---|---|
| | — — — — — |

## 2. Facility / Owner Information

| Facility Name | Common Well Name |
|---|---|
| Johnson Controls Inc. | SS-18-06 |

Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:

| City of Present Owner | State | ZIP Code |
|---|---|---|
| | | |

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/14/19
If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): Hand Auger

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| | |
| **Lower Drillhole Diameter (in.)** | **Casing Depth (ft.)** |
| | |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| | 1 ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ☐ N/A |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ☐ N/A |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain):

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| Bentonite Pellets | Surface | 1 | 0.15 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/14/19 |

| Street or Route | Telephone Number |
|---|---|
| 126 N. Jefferson Street, Suite 400 | 414-276-7742 |

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Blitz | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| | |
| **Comments** | |
| | |

State of Wis., Dept. of Natural Resources
dnr.wi.gov

# Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015) 

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis.Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

Route to DNR Bureau:
☐ Drinking Water ☐ Watershed/Wastewater ☐ Remediation/Redevelopment
☐ Waste Management ☐ Other:

## 1. Well Location Information

| County | WI Unique Well # / Removed Well | Hicap # |
|---|---|---|
| Marinette | — — — — — | |

Latitude / Longitude (see instructions) ____ N ____ W
Format Code: ☐ DD ☐ DDM
Method Code: ☐ GPS008 ☐ SCR002 ☐ OTH001

| 1/4 / 1/4 | 1/4 | Section | Township | Range |
|---|---|---|---|---|
| or Gov't Lot # | | | N | ☐ E ☐ W |

Well Street Address: 1 Stanton St.
Well City, Village or Town: Marinette
Well ZIP Code: 54143
Subdivision Name:
Lot #:
Reason For Removal From Service:
WI Unique Well # of Replacement Well: — — — — —

## 2. Facility / Owner Information

Facility Name: Johnson Controls Inc.
Common Well Name: SS-18-07
Facility ID (FID or PWS):
License/Permit/Monitoring #:
Original Well Owner:
Present Well Owner:
Mailing Address of Present Owner:
City of Present Owner:
State:
ZIP Code:

## 3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/13/19
If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☐ Driven (Sandpoint) ☐ Dug
☒ Other (specify): HAND AUGER

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

| Total Well Depth From Ground Surface (ft.) | Casing Diameter (in.) |
|---|---|
| Lower Drillhole Diameter (in.) | Casing Depth (ft.) |

Was well annular space grouted? ☐ Yes ☒ No ☐ Unknown

| If yes, to what depth (feet)? | Depth to Water (feet) |
|---|---|
| ~~[illegible]~~ (13) | (2) 2 ft |

## 4. Pump, Liner, Screen, Casing & Sealing Material

| | | | |
|---|---|---|---|
| Pump and piping removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) removed? | ☐ Yes | ☐ No | ☒ N/A |
| Liner(s) perforated? | ☐ Yes | ☐ No | ☒ N/A |
| Screen removed? | ☐ Yes | ☐ No | ☒ N/A |
| Casing left inplace? | ☐ Yes | ☐ No | ☒ N/A |
| Was casing cut off below surface? | ☐ Yes | ☐ No | ☒ N/A |
| Did sealing material rise to surface? | ☒ Yes | ☐ No | ~~☒ N/A~~ |
| Did material settle after 24 hours? | ☐ Yes | ☒ No | ~~☒ N/A~~ |
| If yes, was hole retopped? | ☐ Yes | ☐ No | ☒ N/A |
| If bentonite chips were used, were they hydrated with water from a known safe source? | ☐ Yes | ☐ No | ☒ N/A |

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain):

Sealing Materials
☐ Neat Cement Grout ☐ Concrete
☐ Sand-Cement (Concrete) Grout ☒ Bentonite Chips

*For Monitoring Wells and Monitoring Well Boreholes Only:*
☐ Bentonite Chips ☐ Bentonite - Cement Grout
☐ Granular Bentonite ☐ Bentonite - Sand Slurry

## 5. Material Used to Fill Well / Drillhole

| Material | From (ft.) | To (ft.) | No. Yards, Sacks Sealant or Volume (circle one) | Mix Ratio or Mud Weight |
|---|---|---|---|---|
| BENTONITE PELLETS | Surface | 2 | 0.2 bags | |
| | | | | |
| | | | | |

## 6. Comments

## 7. Supervision of Work

| Name of Person or Firm Doing Filling & Sealing | License # | Date of Filling & Sealing (mm/dd/yyyy) |
|---|---|---|
| ARCADIS | | 11/13/19 |

Street or Route: 126 N. Jefferson Street, Suite 400
Telephone Number: 414-276-7742

| City | State | ZIP Code | Signature of Person Doing Work | Date Signed |
|---|---|---|---|---|
| Milwaukee | WI | 53202 | Kaelyn Blotz | 11/20/19 |

**DNR Use Only**

| Date Received | Noted By |
|---|---|
| Comments | |

# APPENDIX C

## Piezometer Construction Logs and Development Forms

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

| Facility/Project Name | County Name | Well Name |
|---|---|---|
| JCI/Tyco FTC (PFAS) | Marinette | PZ-27-17' |
| **Facility License, Permit or Monitoring Number** | **County Code** | **Wis. Unique Well Number** | **DNR Well ID Number** |
| BRRTS: 02-38-580694 | 38 | _____ | ___ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | |
|---|---|
| surged with bailer and bailed | ☐ 41 |
| surged with bailer and pumped | ☐ 61 |
| surged with block and bailed | ☐ 42 |
| surged with block and pumped | ☒ 62 |
| surged with block, bailed and pumped | ☐ 70 |
| compressed air | ☐ 20 |
| bailed only | ☐ 10 |
| pumped only | ☐ 51 |
| pumped slowly | ☐ 50 |
| Other _____ | ☐ ___ |

3. Time spent developing well __50 min.

4. Depth of well (from top of well casisng) __12.1 ft.

5. Inside diameter of well __2.00 in.

6. Volume of water in filter pack and well casing __1.2 gal.

7. Volume of water removed from well __50.0 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. __5.15 ft. | __5.17 ft. |
| Date | b. 08/12/2019 (m m d d y y y y) | 08/12/2019 |
| Time | c. 15:20 ☐ a.m. ☒ p.m. | 16:10 ☐ a.m. ☒ p.m. |
| 12. Sediment in well bottom | __0.0 inches | __0.0 inches |
| 13. Water clarity | Clear ☐ 10 Turbid ☒ 15 (Describe) Brown | Clear ☒ 20 Turbid ☐ 25 (Describe) Clear |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____.__ mg/l | _____.__ mg/l |
| 15. COD | _____.__ mg/l | _____.__ mg/l |

16. Well developed by: Name (first, last) and Firm
First Name: Jared Last Name: LaRue
Firm: Braun Intertec

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: Johnson Controls, Inc.
Street: 5757 N Green Bay Ave.
City/State/Zip: Milwaukee, WI 53201

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Jared LaRue
Firm: Braun Intertec

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

| Facility/Project Name | County Name | Well Name |
|---|---|---|
| JCI/Tyco FTC (PFAS) | Marinette | PZ-28-14' |
| **Facility License, Permit or Monitoring Number** | **County Code** | **Wis. Unique Well Number** | **DNR Well ID Number** |
| BRRTS: 02-38-580694 | 38 | _____ | ___ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☒ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other _____ | ☐ | |

3. Time spent developing well 35 min.

4. Depth of well (from top of well casisng) 14.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 1.6 gal.

7. Volume of water removed from well 51.0 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) | a. 5.37 ft. | 5.38 ft. |
| Date | b. 08/13/2019 (m m d d y y y y) | 08/13/2019 |
| Time | c. 09:10 ☒ a.m. ☐ p.m. | 09:45 ☒ a.m. ☐ p.m. |
| 12. Sediment in well bottom | 0.0 inches | 0.0 inches |
| 13. Water clarity | Clear ☐ 10 Turbid ☒ 15 | Clear ☒ 20 Turbid ☐ 25 |
| (Describe) | Brown | Clear |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____ mg/l | _____ mg/l |
| 15. COD | _____ mg/l | _____ mg/l |

16. Well developed by: Name (first, last) and Firm
First Name: Jared Last Name: LaRue
Firm: Braun Intertec

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: Johnson Controls, Inc.
Street: 5757 N Green Bay Ave.
City/State/Zip: Milwaukee, WI 53201

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Jared LaRue
Firm: Braun Intertec

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

# MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐ _____

| Facility/Project Name | County Name | Well Name |
|---|---|---|
| JCI/Tyco FTC (PFAS) | Marinette | PZ-28-54' |

| Facility License, Permit or Monitoring Number | County Code | Wis. Unique Well Number | DNR Well ID Number |
|---|---|---|---|
| BRRTS: 02-38-580694 | 38 | _____ | ___ |

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

| | | |
|---|---|---|
| surged with bailer and bailed | ☐ | 41 |
| surged with bailer and pumped | ☐ | 61 |
| surged with block and bailed | ☐ | 42 |
| surged with block and pumped | ☒ | 62 |
| surged with block, bailed and pumped | ☐ | 70 |
| compressed air | ☐ | 20 |
| bailed only | ☐ | 10 |
| pumped only | ☐ | 51 |
| pumped slowly | ☐ | 50 |
| Other _____ | ☐ | __ |

3. Time spent developing well 44 min.

4. Depth of well (from top of well casisng) 53.8 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 8.4 gal.

7. Volume of water removed from well 83.0 gal.

8. Volume of water added (if any) _____ gal.

9. Source of water added N/A

10. Analysis performed on water added? (If yes, attach results) ☐ Yes ☒ No

| | Before Development | After Development |
|---|---|---|
| 11. Depth to Water (from top of well casing) a. | 6.17 ft. | 6.24 ft. |
| Date b. | 08/13/2019 (mm/dd/yyyy) | 08/13/2019 (mm/dd/yyyy) |
| Time c. | 09:56 ☒ a.m. ☐ p.m. | 10:40 ☒ a.m. ☐ p.m. |
| 12. Sediment in well bottom | 0.0 inches | 0.0 inches |
| 13. Water clarity | Clear ☐ 10 Turbid ☒ 15 | Clear ☒ 20 Turbid ☐ 25 |
| (Describe) | Brown | Clear |

Fill in if drilling fluids were used and well is at solid waste facility:

| | | |
|---|---|---|
| 14. Total suspended solids | _____ mg/l | _____ mg/l |
| 15. COD | _____ mg/l | _____ mg/l |

16. Well developed by: Name (first, last) and Firm
First Name: Jared Last Name: LaRue
Firm: Braun Intertec

17. Additional comments on development:

Name and Address of Facility Contact /Owner/Responsible Party
First Name: _____ Last Name: _____
Facility/Firm: Johnson Controls, Inc.
Street: 5757 N Green Bay Ave.
City/State/Zip: Milwaukee, WI 53201

I hereby certify that the above information is true and correct to the best of my knowledge.
Signature: [signature]
Print Name: Jared LaRue
Firm: Braun Intertec

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Tyco FTC | Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W. | Well Name: PZ-27-12 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or | Wis. Unique Well No. _____ DNR Well ID No. _____ |
| Facility ID: 438005590 | St. Plane 469460.57 ft. N, 2580178.12 ft. E. S/C/N | Date Well Installed: 08 / 01 / 2019 (m m d d y y y y) |
| Type of Well: Well Code 12 / PZ | Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 13, T. 30 N, R. 23 ☒ E ☐ W | Well Installed By: Name (first, last) and Firm: Keith Fehrman; Layne, A Granite Company |
| Distance from Waste/Source _____ ft. Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number _____ |

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation 592.99 ft. MSL

D. Surface seal, bottom _____ ft. MSL or 1 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Sonic Other ☒

15. Drilling fluid used: Water ☒ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required):
City of Marinette hydrant

E. Bentonite seal, top _____ ft. MSL or 1.0 ft.

F. Fine sand, top _____ ft. MSL or 5.0 ft.

G. Filter pack, top _____ ft. MSL or 6.0 ft.

H. Screen joint, top _____ ft. MSL or 7.0 ft.

I. Well bottom _____ ft. MSL or 12.0 ft.

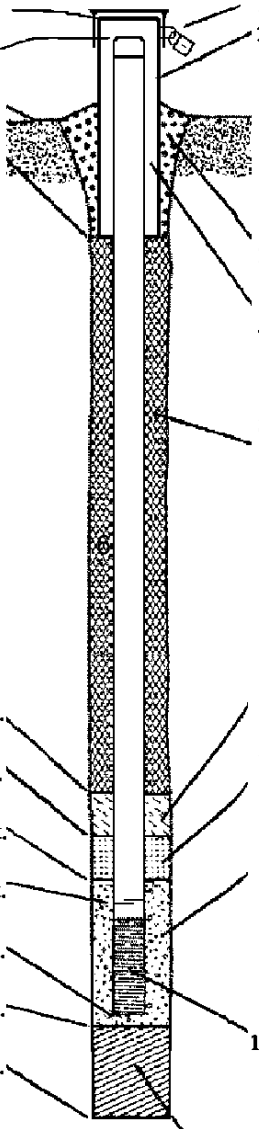
J. Filter pack, bottom _____ ft. MSL or 14.0 ft.

K. Borehole, bottom _____ ft. MSL or 18.0 ft.

L. Borehole, diameter 6 in.

M. O.D. well casing 2 in.

N. I.D. well casing _____ in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04 Other ☐ ___
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ ___
4. Material between well casing and protective pipe: Bentonite ☐ 30 Other ☒ Sand
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1-50lb bag Ft$^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ ___
7. Fine sand material: Manufacturer, product name & mesh size
a. #15 Red Flint
b. Volume added 1/2-50 lb bag Ft$^3$
8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint
b. Volume added 3-50 lb bag Ft$^3$
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ ___
10. Screen material: Schedule 40 PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ___
b. Manufacturer Johnson Screen
c. Slot size: 0.010 in.
d. Slotted length: 5 ft.
11. Backfill material (below filter pack): None ☐ 14 Other ☒ Chipped Bentonite

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm |
|---|---|
| | Arcadis U.S., Inc. |

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Tyco FTC | Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W. | Well Name: PZ-28-14 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or | Wis. Unique Well No. / DNR Well ID No. |
| Facility ID: 438005590 | St. Plane 467124.90 ft. N, 2583162.77 ft. E. S/C/N | Date Well Installed: 06 / 25 / 2019 (m m d d y y y y) |
| Type of Well: Well Code 12 / PZ | Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 13, T. 30 N, R. 23 ☒ E ☐ W | Well Installed By: Name (first, last) and Firm: Keith Fehrman; Layne, A Granite Company |
| Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number |

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation 594.76 ft. MSL

D. Surface seal, bottom _____ ft. MSL or 1 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 Hollow Stem Auger ☐ 41 Other ☒ Sonic

15. Drilling fluid used: Water ☒ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required): City of Marinette hydrant

E. Bentonite seal, top _____ ft. MSL or 1.0 ft.

F. Fine sand, top _____ ft. MSL or 6.0 ft.

G. Filter pack, top _____ ft. MSL or 8.0 ft.

H. Screen joint, top _____ ft. MSL or 9.0 ft.

I. Well bottom _____ ft. MSL or 14.0 ft.

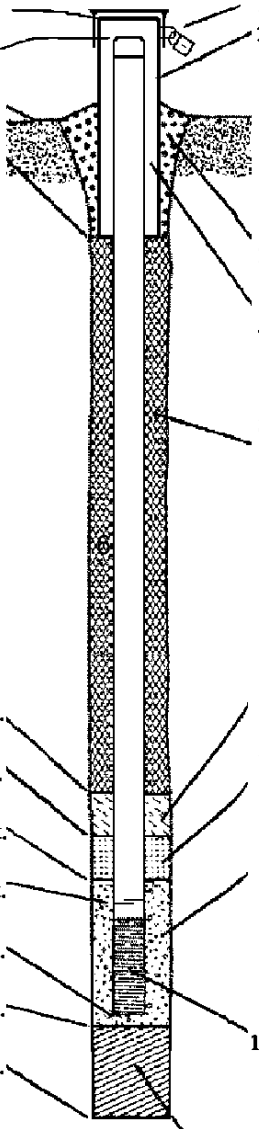
J. Filter pack, bottom _____ ft. MSL or 14.0 ft.

K. Borehole, bottom _____ ft. MSL or 14.0 ft.

L. Borehole, diameter 6 in.

M. O.D. well casing 2 in.

N. I.D. well casing _____ in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04 Other ☐ _____
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ _____

4. Material between well casing and protective pipe: Bentonite ☐ 30 Other ☒ Sand

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1-50lb bag Ft$^3$ volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ _____

7. Fine sand material: Manufacturer, product name & mesh size
a. #15 Red Flint
b. Volume added 1/2-50 lb bag Ft$^3$

8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint
b. Volume added 3-50 lb bag Ft$^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ _____

10. Screen material: Schedule 40 PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ _____
b. Manufacturer Johnson Screen
c. Slot size: 0.010 in.
d. Slotted length: 5 ft.

11. Backfill material (below filter pack): None ☒ 14 Other ☐ _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm: Arcadis U.S., Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐ _____

# MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

| | | |
|---|---|---|
| Facility/Project Name: Tyco FTC | Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W. | Well Name: PZ-28-54 |
| Facility License, Permit or Monitoring No. | Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or | Wis. Unique Well No. _____ DNR Well ID No. _____ |
| Facility ID: 438005590 | St. Plane 467123.14 ft. N, 2583168.64 ft. E. S/C/N | Date Well Installed: 06 / 25 / 2019 (m m d d y y y y) |
| Type of Well: Well Code 12 / PZ | Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 13, T. 30 N, R. 23 ☒ E ☐ W | Well Installed By: Name (first, last) and Firm: Keith Fehrman; Layne, A Granite Company |
| Distance from Waste/Source _____ ft. Enf. Stds. Apply ☐ | Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known | Gov. Lot Number: _____ |

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation 594.81 ft. MSL

D. Surface seal, bottom _____ ft. MSL or 1 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☐ 41
Sonic Other ☒ ___

15. Drilling fluid used: Water ☒ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☐ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

17. Source of water (attach analysis, if required):
City of Marinette hydrant

E. Bentonite seal, top _____ ft. MSL or 40.0 ft.

F. Fine sand, top _____ ft. MSL or 45.0 ft.

G. Filter pack, top _____ ft. MSL or 47.0 ft.

H. Screen joint, top _____ ft. MSL or 49.0 ft.

I. Well bottom _____ ft. MSL or 54.0 ft.

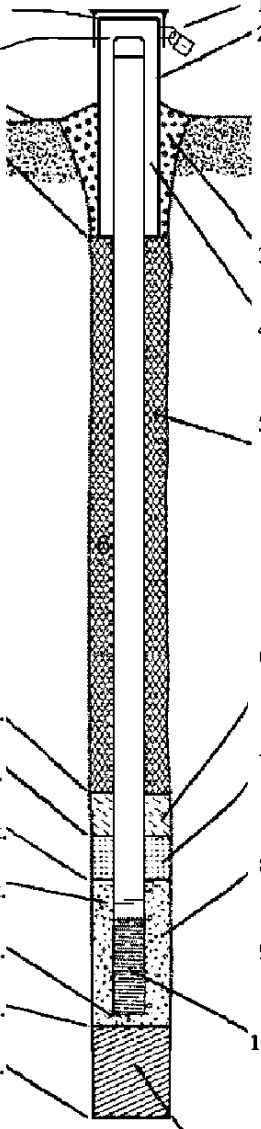
J. Filter pack, bottom _____ ft. MSL or 54.0 ft.

K. Borehole, bottom _____ ft. MSL or 54.0 ft.

L. Borehole, diameter 6 in.

M. O.D. well casing 2 in.

N. I.D. well casing _____ in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04 Other ☐ ___
d. Additional protection? ☐ Yes ☒ No
If yes, describe: _____

3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ ___

4. Material between well casing and protective pipe:
Bentonite ☐ 30
Sand Other ☒ ___

5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☒ 50
e. appx. 40 gal Ft$^3$ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☒ 02
Gravity ☐ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ ___

7. Fine sand material: Manufacturer, product name & mesh size
a. #15 Red Flint ___
b. Volume added 1/2-50 lb bag Ft$^3$

8. Filter pack material: Manufacturer, product name & mesh size
a. #40 Red Flint ___
b. Volume added 3-50 lb bag Ft$^3$

9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
_____ Other ☐ ___

10. Screen material: Schedule 40 PVC ___
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
_____ Other ☐ ___
b. Manufacturer Johnson Screen
c. Slot size: 0.010 in.
d. Slotted length: 5 ft.

11. Backfill material (below filter pack): None ☐ 14
Chipped Bentonite Other ☒ ___

I hereby certify that the information on this form is true and correct to the best of my knowledge.

| Signature | Firm |
|---|---|
| | Arcadis U.S., Inc. |

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

# APPENDIX D

## 2019 Barrier Wall Groundwater Monitoring Annual Report

| October 2019 Monthly Average Extraction Well Flow Rates (gallons per minute) | | | | | | |
|---|---|---|---|---|---|---|
| EW-1 | EW-2 | EW-3 | EW-4 | EW-5 | EW-6 | EW-7 |
| 0.12 | 0.00 | 0.00 | 0.01 | 0.00 | 0.57 | 0.00 |

Flow rates from Pump Down Program Extraction Wells are not included in the table. However, operations were active during this time.

GROUNDWATER TREATMENT BUILDING

0 100 200 300
SCALE IN FEET

NOTES:

1. MW003S (581.60) - MONITORING WELL WITH GROUNDWATER ELEVATION (ft. amsl).
2. DEPTH TO WATER LEVEL MEASUREMENTS COLLECTED ON OCTOBER 7, 2019. Ft. amsl = FEET ABOVE MEAN SEAL LEVEL IN WISCONSIN STATE PLANE COORDINATE SYSTEM NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. ** GROUNDWATER ELEVATIONS WERE NOT COLLECTED AT MW047S, MW048S AND MW100S DUE TO HIGH MENOMINEE RIVER LEVELS AND DENSE VEGETATION IN THE WETLANDS AREA; MW009S HAD WATER TO THE TOP OF CASING, ELEVATION MAY NOT BE REPRESENTATIVE; MW067S WAS NOT MEASURED, THE WELL COULD NOT BE LOCATED.
4. + MW012S WATER LEVEL MEASUREMENTS ARE NOT REPRESENTATIVE AND ARE NOT INCLUDED IN CONTOURS.

## LEGEND

- EW-5 OR BT-02 — EXTRACTION WELL OR TEST WELL
- MW002S OR MW115P — MONITORING WELL - SHALLOW OR PEAT
- MW002M — MONITORING WELL - MEDIUM
- MW002D — MONITORING WELL - DEEP (BEDROCK)
- PZ04 — PIEZOMETER
- VW-TB01 — VIBRATING WIRE PIEZOMETER
- SG1 — STAFF GAUGE
- WELLS PREVIOUSLY ABANDONED OR DESTROYED
- SHEET PILE WALL
- SLURRY WALL
- * ARSENIC SAMPLING EVERY 5 YEARS
- ** VOC SAMPLING EVERY 5 YEARS
- ARSENIC SAMPLING LOCATION AND MANUAL WATER LEVEL MEASUREMENT
- TRANSDUCER GROUNDWATER ELEVATION MEASUREMENT LOCATION AND ARSENIC SAMPLING LOCATION
- BOX AROUND HIGHLIGHTING INDICATES TRANSDUCER DATA WILL BE ANALYZED USING SERIES SEE
- TRANSDUCER WATER LEVEL MEASUREMENT AND MANUAL WATER ELEVATION MEASUREMENT AT TIME OF ARSENIC SAMPLING
- MANUAL GROUNDWATER ELEVATION MEASUREMENT ONLY AT TIME OF ARSENIC SAMPLING EVENTS

# FIGURE 7A
## SHALLOW WELL DEPTH - OCTOBER 2019 POTENTIOMETRIC SURFACE MAP
TYCO FIRE PRODUCTS LP
MARINETTE, WISCONSIN

JACOBS

FILENAME: 10-2019A_D3235600.dgn PLOT DATE: 3/16/2020 PLOT TIME: 10:03:28 AM

GROUNDWATER TREATMENT BUILDING

(582.40) MW118D-R
MW118S
MW118M
MW107S
MW107M
MW107D (NM++)
MW122S
MW121S
(582.08) MW117D MW117S ** MW117M ** MW045M MW045S **
MW041S **
MW041M **
MW-067S
TW-1
MW123S
MW068S
(581.91) MW003D
MW003M
MW003S
BT-02
MW106D (581.83)
MW106S
MW106M
MW008M
(582.58) MW108D
MW108M
MW108S
MW124S
EW-7
EW-4
TW-2
MW009S
MW009M
EW-8
EW-5
MW044M
MW044S
MW114S
MW114M
EW-12
MW053S
MW052S
MW012S
MW012M
MW033M
MW001S
MW001M
EW-10
MW066S
EW-11
MW113S
MW113M
MW036M
MW036S
MW037M
MW037S
MW031S
MW031M
MW032S
MW032M
EW-3
MW002S-R
MW002M-R
(581.95+) EW-14
EW-13
MW119D *
MW115S
MW115P
MW120S *
MW120M *
MW116S
MW116P
MW120D **
(582.24)
SG4
MW109S
MW109M
MW109D (581.90)
MW034M
EW-09
MW034S
MW035M
MW035S
BT-01
MW046S
MW046M
MW046D
MW048S
MW048M
MW047S
MW047M
MW047D (NM++)
MW100S
MW100M
MW100D (NM++)
MW019S
MW004S
MW004M
EW-08
EW-1
MW101M
MW101S
MW039S
MW039M
EW-2
MW038S
MW038M
MW021S-R
MW021M
MW049S
MW049M
MW022S
MW022M
(582.38) MW040D
MW040M
MW040S
(582.41) MW105D
MW105M
MW105S
MW042D
MW042M
MW042S
MW043S
MW043M
PZ10
MW011S
MW011M
PZ09
PZ08
PZ05
PZ07
PZ03
PZ06
PZ04
PZ02
PZ01
MW054S
MW059M
MW059S
MW060S
MW060M
MW061S
MW066M
MW066S
MW061M
MW062S
MW062M
MW063M
MW063S
MW050S
MW050D
MW050M
MW064S
MW064M
MW064D (582.03)
MW103S
MW103M
MW104S
MW104M
MW102S
MW102M
MW102D (582.08)
582
582.5
583
583.5
(583.96) MW013D
MW013S
MW013M

0 100 200 300
SCALE IN FEET

NOTES:
1. MW003S (581.60) - MONITORING WELL WITH GROUNDWATER ELEVATION (ft. amsl).
2. DEPTH TO WATER LEVEL MEASUREMENTS COLLECTED ON OCTOBER 7, 2019. Ft. amsl = FEET ABOVE MEAN SEA LEVEL IN WISCONSIN STATE PLANE COORDINATE SYSTEM NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.
3. ++ GROUNDWATER ELEVATIONS WERE NOT COLLECTED AT MW047D AND MW100D DUE TO HIGH MENOMINEE RIVER LEVELS AND DENSE VEGETATION IN THE WETLANDS AREA; MW107D WAS COVERED BY A FRAC TANK AND INACCESSIBLE DURING GAUGING EVENT.
4. + MW119D HAS A SLOW RECOVERY RATE AND MAY NOT BE REPRESENTATIVE AND THEREFORE IS NOT INCLUDED IN THE CONTOURING.

LEGEND

- EW-5 OR BT-02 — EXTRACTION WELL OR TEST WELL
- MW002S OR MW115P — MONITORING WELL - SHALLOW OR PEAT
- MW002M — MONITORING WELL - MEDIUM
- MW002D — MONITORING WELL - DEEP (BEDROCK)
- PZ04 — PIEZOMETER
- VW-TB01 — VIBRATING WIRE PIEZOMETER
- SG1 — STAFF GAUGE
- WELLS PREVIOUSLY ABANDONED OR DESTROYED
- SHEET PILE WALL
- SLURRY WALL
- * ARSENIC SAMPLING EVERY 5 YEARS
- ** VOC SAMPLING EVERY 5 YEARS
- ARSENIC SAMPLING LOCATION AND MANUAL WATER LEVEL MEASUREMENT
- TRANSDUCER GROUNDWATER ELEVATION MEASUREMENT LOCATION AND ARSENIC SAMPLING LOCATION
- BOX AROUND HIGHLIGHTING INDICATES TRANSDUCER DATA WILL BE ANALYZED USING SERIES SEE
- TRANSDUCER WATER LEVEL MEASUREMENT AND MANUAL WATER ELEVATION MEASUREMENT AT TIME OF ARSENIC SAMPLING
- MANUAL GROUNDWATER ELEVATION MEASUREMENT ONLY AT TIME OF ARSENIC SAMPLING EVENTS

# FIGURE 7B
## BEDROCK WELL DEPTH - OCTOBER 2019 POTENTIOMETRIC SURFACE MAP
TYCO FIRE PRODUCTS LP
MARINETTE, WISCONSIN

JACOBS

FILENAME: 10-2019B_D3235600.dgn PLOT DATE: 3/16/2020 PLOT TIME: 10:03:32 AM

# APPENDIX E

## Soil Boring Photograph Log

**Appendix E – Soil Boring Photograph Log**
Tyco Stanton Street Facility
Interim Site Investigation Report
Marinette, Wisconsin

**PHOTOGRAPH No:** 1

**DATE: 11/13/2019**

**LOCATION:**
SS-18-05

**COMMENT:**
Location was hand augured to 2.2 ft below ground surface.


**PHOTOGRAPH No:** 2

**DATE: 11/14/2019**

**LOCATION:**
SS-18-01

**COMMENT:**
Staked location after abandonment, location was hand augured to 0.8 ft below ground surface.

**PHOTOGRAPH No:** 3

**DATE: 11/14/2019**

**LOCATION:**
SS-18-02

**COMMENT:**
Staked location after abandonment, location was hand augured to 2.0 ft below ground surface.

**PHOTOGRAPH No:** 4

**DATE: 1/14/2019**

**LOCATION:**
SS-18-04

**COMMENT:**
Staked location after abandonment, location was hand augured to 1.5 ft below ground surface.

**PHOTOGRAPH No:** 5

**DATE: 11/14/2019**

**LOCATION:**
SS-18-04

**COMMENT:**
Staked location after abandonment, location was hand augured to 1.5 ft below ground surface.

**PHOTOGRAPH No:** 6

**DATE: 11/14/2019**

**LOCATION:**
SS-18-05

**COMMENT:**
Staked location after abandonment, location was hand augured to 2.2 ft below ground surface.

**PHOTOGRAPH No:** 7

**DATE: 11/14/2019**

**LOCATION:**
SS-18-07

**COMMENT:**
Staked location after abandonment, location was hand augured to 2.0 ft below ground surface.

**PHOTOGRAPH No:** 8

**DATE: 11/14/2019**

**LOCATION:**
SS-18-03

**COMMENT:**
Staked location after abandonment, location was hand augured to 1.1 ft below ground surface.

**PHOTOGRAPH No:** 9

**DATE: 11/14/2019**

**LOCATION:**
SS-18-06

**COMMENT:**
Staked location after abandonment, location was hand augured to 0.9 ft below ground surface.

**PHOTOGRAPH No:** 10

**DATE: 11/14/2019**

**LOCATION:**
SS-18-06

**COMMENT:**
Staked location after abandonment, location was hand augured to 0.9 ft below ground surface.

# APPENDIX F

## Survey Data

**Arcadis-Marinette, WI  Coleman Engineering Survey-8-15-19**
**WISCONSIN STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NAD 83 (2011), US SURVEY FOOT**
**ELEVATIONS BASED ON NAVD 88, US FEET**

| NAME | NORTHING | EASTING | ELEVATION (FT) |
|---|---|---|---|
| **PIEZOMETERS / MONITORING WELLS** | | | |
| PZ-27-12 | 469460.57 | 2580178.12 | 592.99 |
| PZ-28-54 | 467123.14 | 2583168.64 | 594.81 |
| PZ-28-14 | 467124.90 | 2583162.77 | 594.76 |

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