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Date: June 3, 2024

Our Ref: 30168592

Subject: Response to April 17, 2024 Comments - Response to *Interim Long Term Monitoring Plan for Groundwater and Surface Water, Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, WI, BRRTS #02-38-580694*

Dear Ms. Sellwood,

Per Wisconsin Department of Natural Resources (WDNR) request, and on behalf of Tyco Fire Products LP (Tyco)¹, Arcadis U.S., Inc. (Arcadis) has prepared these responses to April 17, 2024 comments made by the WDNR on the March 15, 2024 Interim Long Term Monitoring Plan for Groundwater and Surface Water associated with the Tyco Fire Technology Center (FTC) Site in Marinette, Wisconsin.

WDNR Comments and Tyco Responses

Recommendation #1 (Monitoring Well Abandonment): *The DNR does not recommend abandoning the monitoring wells south of Rader Road at this time. Rather, the DNR recommends including at least three of these monitoring wells in the Interim Monitoring Plan and leaving the others available for sampling or water level measurements for at least the depth where PFAS was detected in vertical aquifer profile (VAP) sampling location VAP-63. The recommended additions are summarized in the **Attachment A Table and Figure**. (If JCI/Tyco chooses not to incorporate this area in the Interim Monitoring Program, the DNR still recommends that the existing monitoring wells not be abandoned at this time.)*

Tyco Response to Recommendation #1:

As requested by the DNR, monitoring wells south of Rader Road will not be abandoned at this time. Table 1 of the Interim LTM Plan has been revised to remove the “Monitoring Wells Proposed to be Abandoned (South of Rader Road)” section.

Investigation activities along Rader Road (location “L” on the WDNR’s figure) and Shore Drive (location “K” on the WDNR’s figure) are ongoing based on the requests from WDNR for additional sampling at these locations. Specifically, vertical aquifer profile (VAP) samples are being collected, and monitoring wells will be set based on the results of the VAP sampling. These investigation results will be provided to WDNR in

¹ Reports associated with this Site are submitted to WDNR on behalf of Tyco Fire Products LP. The WDNR continues to address correspondence to both Tyco and Johnson Controls, Inc. (“JCI”); however, JCI is not an owner or operator of this Site and is not an appropriate “Responsible Party” under applicable law.

the forthcoming Site Investigation Report for the FTC (expected to be submitted to WDNR in Q3 2024). If monitoring wells are set, they will be evaluated for possible inclusion in the *Boundary Zone* area network identified in the Interim LTM Plan.

With respect to existing monitoring wells, no additional sampling will be completed south of Rader Road at this time. Based on extensive data collected from VAP borings and NR 141-compliant monitoring wells along Rader Road and to the south, Tyco maintains there is no evidence that the FTC-related PFAS plume extends to this southern area via any pathway (i.e., groundwater transport or surface water infiltration to groundwater). Prior evaluations of gaining and losing conditions in Ditch A, along with more recent (2022) VAP data from along the southern portion of the ditch, indicate that the ditch is gaining in the southern area and is not a pathway (recently or historically) to groundwater in this area. Additionally, based on analytical data and groundwater elevations from the existing robust monitoring well network, the Tyco-related PFAS plume, which has been delineated north of Rader Road, the primary direction of groundwater flow is toward Green Bay, not to the south.

As discussed within previous submittals², the low concentrations of PFAS detected in this southern area are consistent with ambient impacts from precipitation and residential sources (e.g., septic systems) as described in the April 2023 Site Investigation Status Report (SISR). Specifically at VAP-63 and nearby VAP-64 located adjacent to Ditch A, the sporadic presence of low concentrations of PFAS in these borings differs in both mixture and magnitude from PFAS detections in surface water; however, it is consistent with ambient and residential PFAS sources known to affect shallow groundwater outside of the Tyco plume boundary. Additionally, low levels of PFAS may be leaching from the Town of Peshtigo Former Landfill, a closed unlined former municipal landfill located on Heath Lane, east of Ditch A near the PZ-41 well pair.

Recommendation #2 (Monitoring Well Additions): *The DNR recommends adding monitoring wells into the Interim Monitoring Plan, which are summarized in the **Attachment A Table and Figure**. This includes two existing bedrock monitoring wells and eight new monitoring wells in addition to the ones recommended above. The DNR also recommends adjusting the location of proposed monitoring well “K”, to be closer to vertical aquifer profile (VAP) sampling point VAP-35 (see **Attachment A Figure**).*

Tyco Response to Recommendation #2a (Additional Monitoring Outside of the Area included in the Interim LTM Plan):

The DNR has recommended additional monitoring at three existing monitoring wells (PZ-37-12 or PZ-36-19; PZ-37-29; and PZ-41-17) in the southern area (i.e., south of Rader Road) and installation of one additional well near VAP-63 (location “u”). As indicated in the response to Recommendation #1, no existing monitoring wells south of Rader Road will be included in the Interim LTM Plan at this time because there is no current or historical transport pathway from the Site to groundwater in the southern area. Refer to previously submitted responses included in the August 23, 2023 Response to Comments – Response to Site Investigation Status Report (specifically Comment 3) for a detailed discussion of hydrogeologic data, PFAS data, and plausible alternative PFAS sources that confirm that a transport pathway from the losing segment of Ditch A to the southern area does not exist.

² Arcadis. 2023b. Response to Comments – Response to Site Investigation Status Report, Tyco FTC PFAS, 2700 Industrial Parkway South, Marinette, Wisconsin. BRRTS No. 02-38-580694. August 23.

PZ-37-12 / PZ-36-19 and PZ-37-29 were recommended by DNR to monitor a “groundwater flow path from losing section of Ditch A”; however, this pathway does not exist this far south. While losing conditions have been observed in the North Branch of Ditch A, north of the confluence of the North Branch and West Branch (i.e. approximately Madsen Road and further north), gaining conditions have been observed in the West Branch and further south in Ditch A. The recommended monitoring wells are significantly further south of the segment of Ditch A in which losing conditions were observed, and therefore, would not be suitable for monitoring groundwater downgradient of a losing segment of Ditch A. As described in the August 23, 2023 comment letter, there is no plausible transport pathway from the losing segment of Ditch A to the PZ-36 and PZ-37 well clusters. Additionally, the on-going investigation at location “L” (Rader Road) is expected to support that such a pathway does not exist.

PZ-41-17 was recommended by DNR to “further evaluate cause and significance of PFAS”. Given the relative magnitude of PFAS concentrations at this well in comparison to upgradient and nearby monitoring wells and VAP samples, this appears to be an isolated source of PFAS unrelated to the FTC. As stated above in Response #1 and in the SISR, this well is located quite close to a closed, unlined former municipal landfill.

Installation of a monitoring well at location “u” was recommended based on the PFAS results from the 2-foot sampling interval from 37 to 39 feet below ground surface (ft bgs) at VAP-63. At this VAP location, samples were collected from a total of five depth intervals spaced approximately 10 feet apart vertically. Of the four other intervals, two intervals above (17-19 ft bgs and 27-29 ft bgs) and one interval below (47-49 ft bgs) the 37 to 39 ft bgs interval had no detections of PFAS; the remaining interval from 6 to 8 ft bgs contained low level estimated concentrations of PFBA and PFBS only. While PFOA was detected at 35 ng/L in the 37 to 39 ft bgs interval, the distribution of PFAS in groundwater at this location is not consistent with Site-related PFAS impacts.

Tyco Response to Recommendation #2b (Additional Bedrock Monitoring Wells):

The DNR recommended including two additional existing bedrock monitoring wells (PZ-64-67 and MW003D) and two new monitoring wells (locations “m” and “n”) in the Interim LTM Plan. Of these four locations, MW003D will be included in the Interim LTM Plan as a replacement location for MW118D-R. Tables 1 and 2 and Figures 2 and 4 of the Interim LTM Plan have been revised to reflect this change. The revised tables and figures are provided as enclosures with this response letter.

The DNR recommended including PZ-64-67 in the monitoring program; however, this well is expected to be converted to a groundwater extraction well associated with the GETS. Additional information related to the implementation of this well conversion was recently provided in the June 2024 GETS Short Term Monitoring Report #3 as Appendix A.

No additional bedrock monitoring well are currently planned at location “m”, which was recommended by DNR to monitor “concentration and stability at the FTC property boundary”. Approximately mid-way between location “m” and existing bedrock well PZ-4D, an attempt was previously made to install a bedrock monitoring well (i.e., as part of the PZ-69 well cluster) during the 2022 investigation work. As reported in the SISR, no water-bearing fractures were encountered at this location; therefore, a bedrock monitoring well could not be installed. PZ-4D, as well as all other bedrock monitoring wells within the footprint of the Site-related PFAS plume or within the Boundary Zone monitoring network, will be monitored regularly.

As indicated in the May 20, 2024 Response to March 21, 2024 Comments on the Stanton Street Site Investigation Status Report, no bedrock monitoring well will be installed near location “n”. Bedrock drilling

completed for the FTC and Stanton Street projects has shown that the shallow bedrock aquifer is highly heterogeneous, that hydraulically active fractures are not present in all places, and that vertical connections between the overburden and bedrock can vary significantly from location to location. Despite these complexities, multiple lines of evidence have already conclusively shown that the FTC bedrock plume migrates along a path towards the Menominee River that passes beneath the Stanton Street Site. As such, this location would not add value to the assessment of bedrock groundwater quality in this portion of the plume.

Tyco Response to Recommendation #2c (Additional Overburden Monitoring Wells):

The DNR has recommended installation of monitoring wells at six locations identified as locations “o” through “t”. Tyco will install additional monitoring wells at all locations except location “q”, which is approximately where existing GETS monitoring location U10 (in Ditch B) is located. At GETS monitoring location U10, surface water PFAS concentrations continue to be monitored and streambed groundwater has been monitored in the past. In consideration of these data, along with data from surrounding NR-141 compliant monitoring wells, an additional well at location “q” is not necessary to confirm plume stability.

Tables 1 and 2 and Figures 2 through 5 of the Interim LTM Plan (enclosed) have been revised to be inclusive of the additional monitoring well installations. Monitoring wells will be installed in accordance with the procedures and methods described in the February 2022 Additional Site Investigation Work Plan and the March 2024 Quality Assurance Project Plan. This work is expected to be completed in Fall 2024; however, the schedule will be dependent upon obtaining access to locations and driller availability.

The anticipated screen intervals for the new wells are as follows:

| Location | Proposed Screen Interval | Justification |
|----------|--|--|
| “o” | 5 to 20 ft bgs | <ul style="list-style-type: none"> Confirm northwestern plume boundary in the location of VAP-32 |
| “p” | 5 to 20 ft bgs | <ul style="list-style-type: none"> Confirm northwestern plume boundary in the location of VAP-13 |
| “r” | To be determined based on VAP sampling | <ul style="list-style-type: none"> Confirm western plume boundary |
| “s” | To be determined based on VAP sampling | <ul style="list-style-type: none"> Confirm PFAS concentrations and plume stability at the FTC Site boundary |
| “t” | 35 to 40 ft bgs | <ul style="list-style-type: none"> Confirm southeastern plume boundary at VAP-21/TW-02 |

Recommendation #3 (Monitoring Well Subtractions): *If JCI/Tyco would like to off-set some of the additions recommended above, the DNR has identified three monitoring wells currently included in the Interim Monitoring Plan where PFAS sampling is not necessarily needed (see **Attachment A Table**). These wells could be subtracted from the monitoring program at this time. The DNR also understands that JCI/Tyco may propose subtracting or reducing the sampling frequency at the other monitoring wells during the 5-year monitoring period based on its evaluation of the PFAS sampling results.*

Tyco Response to Recommendation #3:

The DNR recommended removing three monitoring wells (PZ-35-48, TW-04, and TW-01) from the Interim LTM Plan. Tyco agrees with removing PZ-35-48 and TW-01 from the Interim LTM Plan. TW-04 will be retained at this time. If it is determined that location “K” should be monitored instead of TW-04, this adjustment will be made to the sampling plan.

Tables 1 and 2 and Figures 2 and 5 of the Interim LTM Plan (enclosed) have been revised to reflect these changes.

Recommendation #4 (Groundwater Sampling Frequency): *JCI/Tyco proposed 2-years of quarterly sampling to be used in trend analysis for ten monitoring wells. The DNR recommends quarterly sampling used for trend analysis at the additional monitoring wells listed below in. (These additions could be offset by reducing the sampling frequency at other monitoring wells that JCI/Tyco proposed for quarterly sampling, also noted below.)*

- *Include monitoring wells PZ-28-75 (or new well “n”), PZ-61-11, VAP-73, “E” and “K.”*
- *Reduce frequency at monitoring wells PZ-26-11, PZ-60-20, PZ-78-74, MW-100-68, “C” and “G.”*

Tyco Response to Recommendation #4:

Tyco agrees to add the following existing and new monitoring wells (currently being installed) to the quarterly sampling plan:

- Existing Monitoring Wells: PZ-28-75 and PZ-61-11
- New Monitoring Wells: PZ-73-32 (screened from 27 to 32 ft bgs based on VAP-73); PZ-74-32 and PZ-74-87 (“E”; screened from 22 to 32 ft bgs and 82 to 87 ft bgs, respectively)

At this time, data is being collected to determine if location “K” should be included in the Interim LTM Plan. Tyco will inform the DNR of the status and proposed sampling frequency of location “K” following the evaluation of data collected at this location.

Tyco will reduce the sampling frequency at all suggested monitoring well locations. Table 2 of the Interim LTM Plan (enclosed) has been revised to reflect this change.

Recommendation #5 (Surface Water): *Remove surface water sampling point SW-31 (at Ditch C) and add surface water sampling point SW-43 (at Ditch E) to the Interim Monitoring Plan. The reasons for these recommendations are noted below.*

- *Surface water sampling point SW-30 is also included in the Interim Monitoring Plan for Ditch C, and the PFAS results are similar, and thus redundant, to those for surface water sampling point SW-31.*
- *Sampling of surface water at Ditch E was not included in the Interim Monitoring Plan. However, because the concentrations of PFAS detected in Ditch E are similar to those detected in Ditch C, inclusion of surface water sampling point SW-43 is warranted to document PFAS trends in Ditch E.*

Also, Table 3 and Figure 6 of the Interim Monitoring Plan identify surface water monitoring points SG-A1, SG-23, SG-50 and SG-53 as being part of the GETS monitoring plan. The DNR is not aware of these being part of the monitoring for the GETS. Please verify and update the table and figure, if needed.

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Wisconsin Department of Natural Resources
June 3, 2024

Tyco Response to Recommendation #5:

Tyco agrees to the recommended removal of SW-31 and the addition of SW-43 to the Interim LTM Plan. Tables 3 and 4 and Figure 6 (enclosed) of the Interim LTM plan have been revised to reflect this change.

Surface water elevations at benchmark locations SG-A1, SG-23, SG-50, and SG-53 are included in the GETS monitoring reports. Most recently, surface water elevations for these locations were reported in Table 11 of the June 2024 GETS Short Term Monitoring Report #3.

Recommendation #6 (Reporting): *The DNR requests that JCI/Tyco complete the following when reporting the results for sampling conducted for the Interim Monitoring Plan.*

- *Include PFAS results for surface water sampling point SW-26 (Ditch A), which is being collected as part of the monitoring of the Ditch A treatment system.*
- *Include the GETS data collected from similar dates in presentation of the data (e.g., figures to depict the distribution of PFAS in groundwater) or as needed to evaluate the monitoring results.*
- *Report out on results from bedrock monitoring wells (figures and tables) as a distinct grouping and move PZ-1D and PZ-4D from the reporting for the GETS to reporting for the Interim Monitoring Plan.*
- *Include fluorotelomer sulfonates (FTSs) in evaluations used to derive conclusions from the data.*

Tyco Response to Recommendation #6:

Tyco agrees to the DNR-recommended reporting requests.

Sincerely,
Arcadis U.S., Inc.



Matthew Coleman
Project Scientist

CC. D. Nelson, Tyco
S. Wahl, Tyco
S. Potter, Arcadis

Enclosures:

Tables

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Wisconsin Department of Natural Resources
June 3, 2024

Figures

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Tables

Table 1
Monitoring Well Construction
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Year Installed | Zone | Northing | Easting | Ground Elevation (ft NAVD88) | Top of Casing Elevation (ft NAVD88) | Survey Date | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Surface Finish |
|--|---------|----------------|------|-----------|------------|------------------------------|-------------------------------------|-------------|---------------------------------|------------------------------------|----------------|
| FTC (non-GETS) Plume Well Group | | | | | | | | | | | |
| HMW-2-3S ¹ | FTC | - | S | 461171.6 | 2576750.1 | 611.3 | 613.19 | 12/06/22 | 6 | 16 | SU |
| HMW-2-3D ¹ | FTC | - | D | 461173.3 | 2576753.0 | 611.4 | 614.37 | 12/06/22 | 32 | 42 | SU |
| FTC-2S | FTC | 1993 | S | 462333.2 | 2577206.6 | 611.3 | 611.08 | 05/10/21 | 5 | 15 | FM |
| FTC-2D | FTC | 1993 | D | 462335.3 | 2577215.4 | 611.5 | 611.15 | 05/10/21 | 27 | 32 | FM |
| FTC-31 | FTC | 1995 | S | 462049.3 | 2577284.7 | NA | 610.28 | 08/16/16 | 3 | 13 | FM |
| FTC-34S | FTC | 1996 | S | 462115.2 | 2577669.0 | NA | 608.50 | 08/16/16 | 3 | 13 | FM |
| FTC-34D | FTC | 1996 | D | 462117.0 | 2577666.1 | NA | 608.72 | 08/16/16 | 28 | 33 | FM |
| FTC-44 | FTC | 2003 | S | 461808.4 | 2577590.8 | NA | 611.30 | 08/16/16 | 5 | 15 | SU |
| PZ-1D | FTC | 2010 | BR | 463765.5 | 2579848.6 | NA | 606.2 | 08/16/16 | 63.5 | 68.5 | SU |
| PZ-4S ² | FTC | 2010 | D | NA | NA | NA | 607.89 | NA | 36 | 41 | SU |
| PZ-4D | FTC | 2010 | BR | 462514.6 | 2578515.2 | 605.8 | 607.9 | 01/07/21 | 68.5 | 73.5 | SU |
| PZ-11 | FTC | NA | D | 461872.6 | 2578131.0 | NA | 611.41 | 04/29/16 | 41 | 46 | SU |
| PZ-14S | FTC | NA | S | 462736.7 | 2577956.9 | NA | 610.77 | 08/16/16 | 4 | 19 | SU |
| PZ-14D | FTC | NA | D | 462739.6 | 2577964.8 | NA | 611.15 | 08/16/16 | 25 | 35 | SU |
| PZ-67-16 | FTC | 2022 | S | 462134.2 | 2576628.1 | 611.8 | 611.43 | 08/31/22 | 6 | 16 | FM |
| PZ-9 | FTC | NA | D | 463351.7 | 2578076.4 | NA | 611.16 | 08/16/16 | 38 | 43 | SU |
| PZ-19 | FTC | NA | D | 463133.7 | 2580048.4 | NA | 608.70 | 04/29/16 | 27 | 37 | SU |
| PZ-59-21 | Offsite | 2022 | S | 463843.5 | 2575547.5 | 613.6 | 613.12 | 08/31/22 | 11 | 21 | FM |
| PZ-65-16 | FTC | 2022 | S | 463214.8 | 2577133.1 | 610.1 | 609.72 | 08/31/22 | 6 | 16 | SU |
| PZ-65-33 | FTC | 2022 | D | 463220.8 | 2577133.1 | 609.9 | 610.09 | 08/31/22 | 28 | 33 | SU |
| PZ-67-40 | FTC | 2022 | D | 462145.5 | 2576625.0 | 611.7 | 611.35 | 08/31/22 | 35 | 40 | FM |
| PZ-68-16 | FTC | 2022 | S | 462087.9 | 2575878.5 | 610.9 | 613.51 | 08/31/22 | 6 | 16 | SU |
| PZ-68-26 | FTC | 2022 | D | 462079.6 | 2575878.1 | 611.0 | 613.92 | 08/31/22 | 21 | 26 | SU |
| PZ-68-66 | FTC | 2022 | BR | 462099.6 | 2575885.2 | 610.9 | 613.55 | 12/06/22 | 61 | 66 | SU |
| PZ-69-24 | FTC | 2022 | S | 462530.0 | 2579219.3 | 612.3 | 614.75 | 12/06/22 | 14 | 24 | SU |
| PZ-69-43 | FTC | 2022 | D | 462533.4 | 2579214.7 | 614.5 | 612.23 | 12/06/22 | 38 | 43 | SU |
| Northern Plume Well Group | | | | | | | | | | | |
| PZ-28-14 | Offsite | 2019 | S | 467125.0 | 2583162.7 | 594.7 | 594.41 | 09/09/21 | 9 | 14 | FM |
| PZ-28-54 | Offsite | 2019 | D | 467123.2 | 2583168.6 | 594.8 | 594.47 | 09/09/21 | 49 | 54 | FM |
| PZ-28-75 | Offsite | 2020 | BR | 467127.7 | 2583152.3 | 594.6 | 594.29 | 01/07/21 | 65 | 75 | FM |
| PZ-63-60 | Offsite | 2022 | BR | 466843.7 | 2582055.9 | 594.7 | 594.15 | 12/06/22 | 55 | 60 | FM |
| MW003D | Stanton | - | BR | 470592.1 | 2584078.7 | 584.6 | 587.27 | NA | 45 | 50 | SU |
| MW013S-R | Offsite | 2022 | S | 469102.59 | 2583254.96 | 589.94 | 589.35 | 12/06/22 | 9 | 19 | FM |
| MW013M-R | Offsite | 2022 | D | 469092.91 | 2583271.22 | 589.86 | 589.26 | 12/06/22 | 30 | 35 | FM |
| MW013D-R | Offsite | 2022 | BR | 469097.89 | 2583262.63 | 589.91 | 589.60 | 12/06/22 | 41 | 46 | FM |
| MW125S-20 | Offsite | 2020 | S | 468124.9 | 2582658.0 | 596.5 | 596.16 | 01/07/21 | 10 | 20 | FM |
| MW125M-35 | Offsite | 2020 | D | 468123.8 | 2582646.8 | 596.6 | 596.26 | 01/07/21 | 30 | 35 | FM |
| MW125D-60 | Offsite | 2020 | BR | 468123.1 | 2582652.0 | 596.4 | 596.03 | 01/07/21 | 50 | 60 | FM |
| MW128S-17 | Offsite | 2022 | S | 468745.6 | 2584546.1 | 595.6 | 595.14 | 12/06/22 | 7 | 17 | FM |
| MW128M-30 | Offsite | 2022 | D | 468739.6 | 2584544.3 | 595.7 | 595.16 | 12/06/22 | 25 | 30 | FM |
| MW129S-21 | Offsite | 2022 | S | 468500.1 | 2585920.6 | 586.1 | 585.33 | 12/06/22 | 11 | 21 | FM |
| MW129M-45 | Offsite | 2022 | D | 468494.0 | 2585918.9 | 586.0 | 585.57 | 12/06/22 | 40 | 45 | FM |
| MW042D | Stanton | - | BR | 469846.6 | 2584162.1 | NA | 587.2 | NA | 50 | 55 | SU |
| MW046D | Stanton | - | BR | 469473.3 | 2585481.9 | NA | 585.0 | NA | 53.5 | 58.51 | SU |
| MW064D | Stanton | - | BR | 469426.3 | 2584598.4 | NA | 588.8 | NA | 51.7 | 56.69 | SU |

Table 1
Monitoring Well Construction
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Year Installed | Zone | Northing | Easting | Ground Elevation (ft NAVD88) | Top of Casing Elevation (ft NAVD88) | Survey Date | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Surface Finish |
|----------------------------------|---------|----------------|------|----------|-----------|------------------------------|-------------------------------------|-------------|---------------------------------|------------------------------------|----------------|
| Southern Plume Well Group | | | | | | | | | | | |
| TW-03 | Offsite | 2018 | S | 458244.3 | 2580830.6 | 598.3 | 598.07 | 11/06/18 | 10 | 20 | FM |
| MW-101-16 | Offsite | 2018 | S | 459912.1 | 2580497.8 | 603.4 | 603.18 | 09/06/18 | 6 | 16 | FM |
| MW-101-72 | Offsite | 2018 | D | 459907.9 | 2580496.3 | 603.5 | 603.20 | 09/06/18 | 62 | 72 | FM |
| PZ-33-12 | Offsite | 2019 | S | 460123.9 | 2582902.9 | 594.7 | 594.33 | 09/09/21 | 7 | 12 | FM |
| PZ-33-33 | Offsite | 2019 | D | 460123.7 | 2582897.4 | 594.6 | 594.33 | 09/09/21 | 28 | 33 | FM |
| PZ-33-67 | Offsite | 2019 | D | 460123.1 | 2582892.7 | 594.6 | 594.42 | 09/09/21 | 57 | 67 | FM |
| PZ-33-105 | Offsite | 2022 | BR | 459912.9 | 2582765.6 | 594.4 | 594.19 | 12/06/22 | 100 | 105 | FM |
| PZ-34-17 | Offsite | 2019 | S | 457159.4 | 2583554.2 | 591.1 | 590.78 | 09/09/21 | 7 | 17 | FM |
| PZ-34-84 | Offsite | 2019 | D | 457164.3 | 2583555.2 | 591.3 | 590.87 | 09/09/21 | 74 | 84 | FM |
| PZ-35-17 | Offsite | 2019 | S | 459506.0 | 2577175.7 | 608.7 | 608.18 | 09/09/21 | 7 | 17 | FM |
| PZ-35-37 | Offsite | 2019 | D | 459501.9 | 2577178.8 | 608.7 | 608.20 | 09/09/21 | 32 | 37 | FM |
| PZ-46-19 | Offsite | 2020 | S | 459758.8 | 2578839.8 | 604.3 | 603.91 | 01/07/21 | 9 | 19 | FM |
| PZ-46-40 | Offsite | 2020 | D | 459758.1 | 2578828.6 | 604.4 | 603.99 | 01/07/21 | 30 | 40 | FM |
| PZ-46-65 | Offsite | 2020 | D | 459757.7 | 2578819.8 | 604.2 | 603.82 | 01/07/21 | 60 | 65 | FM |
| PZ-70-17 | FTC | 2022 | S | 460233.9 | 2577370.9 | 608.7 | 611.46 | 12/06/22 | 7 | 17 | SU |
| PZ-70-33 | FTC | 2022 | D | 460231.0 | 2577365.8 | 608.6 | 611.11 | 12/06/22 | 28 | 33 | SU |
| PZ-70-55 | FTC | 2022 | D | 460222.5 | 2577349.2 | 609.2 | 611.95 | 12/06/22 | 50 | 55 | SU |
| PZ-70-83 | FTC | 2022 | BR | 460225.2 | 2577361.7 | 608.6 | 611.57 | 12/06/22 | 73 | 83 | SU |
| PZ-71-111 | Offsite | 2022 | BR | 461300.0 | 2580741.4 | 605.8 | 605.23 | 12/06/22 | 101 | 111 | FM |
| PZ-76-34 | Offsite | 2022 | D | 459789.7 | 2584628.1 | 592.8 | 592.29 | 12/06/22 | 29 | 34 | FM |
| Boundary Zone Well Group | | | | | | | | | | | |
| MW-100-32 | Offsite | 2018 | D | 457304.1 | 2578843.5 | 602.1 | 601.45 | 09/06/18 | 22 | 32 | FM |
| MW-100-68 | Offsite | 2018 | D | 457304.3 | 2578849.0 | 602.1 | 601.83 | 09/06/18 | 58 | 68 | FM |
| MW126S-20 | Offsite | 2020 | S | 469387.1 | 2581781.3 | 598.4 | 598.06 | 01/07/21 | 10 | 20 | FM |
| MW126D-40 | Offsite | 2020 | BR | 469386.5 | 2581775.5 | 598.4 | 597.79 | 01/07/21 | 30 | 40 | FM |
| TW-02 | Offsite | 2018 | S | 456286.9 | 2580955.6 | 594.1 | 593.85 | 11/06/18 | 10 | 20 | FM |
| TW-04 | Offsite | 2018 | S | 455223.9 | 2583148.3 | 593.9 | 593.60 | 11/06/18 | 10 | 20 | FM |
| TW-05 | Offsite | 2018 | S | 454646.6 | 2578511.1 | 597.8 | 597.52 | 11/06/18 | 10 | 20 | FM |
| PZ-26-11 | Offsite | 2019 | S | 466609.4 | 2579203.4 | 597.9 | 597.77 | 09/09/21 | 6 | 11 | FM |
| PZ-26-36 | Offsite | 2022 | BR | 466619.3 | 2579206.6 | 597.0 | 596.14 | 12/06/22 | 31 | 36 | FM |
| PZ-44-73 | Offsite | 2019 | D | 454734.7 | 2580183.8 | 595.2 | 594.63 | 09/09/21 | 63 | 73 | FM |
| PZ-60-20 | Offsite | 2022 | S | 461877.2 | 2574148.8 | 612.9 | 612.50 | 08/31/22 | 10 | 20 | FM |
| PZ-61-11 | Offsite | 2022 | S | 463970.7 | 2587161.1 | 585.4 | 584.99 | 08/31/22 | 6 | 11 | FM |
| PZ-62-62 | Offsite | 2022 | D | 466239.8 | 2586295.7 | 585.0 | 584.59 | 12/06/22 | 57 | 62 | FM |
| PZ-66-20 | FTC | 2022 | S | 460222.5 | 2575675.8 | 613.9 | 616.07 | 12/06/22 | 10 | 20 | SU |
| PZ-66-57 | FTC | 2022 | D | 460538.8 | 2575677.4 | 614.6 | 617.26 | 12/06/22 | 52 | 57 | SU |
| PZ-73-16 | Offsite | 2022 | S | 455740.3 | 2578713.6 | 601.7 | 601.23 | 12/06/22 | 6 | 16 | FM |
| PZ-73-75 | Offsite | 2022 | D | 455736.0 | 2578704.5 | 601.9 | 601.37 | 12/06/22 | 70 | 75 | FM |
| PZ-75-18 | Offsite | 2022 | S | 457336.4 | 2577001.7 | 605.5 | 605.13 | 12/06/22 | 8 | 18 | FM |
| PZ-77-16 | Offsite | 2022 | S | 458682.5 | 2575530.9 | 606.9 | 609.79 | 12/06/22 | 5.7 | 15.7 | SU |
| PZ-78-74 | Offsite | 2022 | BR | 467282.2 | 2586583.8 | 586.1 | 585.66 | 12/06/22 | 71.5 | 73.5 | FM |

Table 1
Monitoring Well Construction
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Year Installed | Zone | Northing | Easting | Ground Elevation (ft NAVD88) | Top of Casing Elevation (ft NAVD88) | Survey Date | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Surface Finish |
|------------------------------------|---------|----------------|------|----------|-----------|------------------------------|-------------------------------------|-------------|---------------------------------|------------------------------------|----------------|
| GETS Well Group³ | | | | | | | | | | | |
| PZ-3 | FTC | 2010 | D | 462780.0 | 2579903.6 | NA | 609.2 | 08/16/16 | 38.0 | 43 | SU |
| PZ-15S | FTC | NA | S | 463911.0 | 2579668.7 | 605.2 | 608.2 | 05/10/21 | 4.0 | 19 | SU |
| PZ-15D | FTC | NA | D | 463914.2 | 2579671.3 | 605.0 | 608.2 | 05/10/21 | 22.0 | 32 | SU |
| PZ-16S | FTC | NA | S | 463910.1 | 2579069.6 | NA | 609.3 | 04/29/16 | 4.0 | 19 | SU |
| PZ-16D | FTC | NA | D | 463913.8 | 2579072.1 | NA | 609.0 | 04/29/16 | 28.0 | 38 | SU |
| PZ-18D | FTC | NA | D | 462752.5 | 2579763.4 | NA | 609.6 | 08/16/16 | 37.0 | 47 | SU |
| PZ-22S | FTC | NA | S | 462770.3 | 2579826.4 | NA | 609.7 | 04/29/16 | 10.0 | 20 | SU |
| PZ-22D | FTC | NA | D | 462767.2 | 2579825.1 | NA | 609.6 | 04/29/16 | 31.0 | 41 | SU |
| PZ-23 | Offsite | 2017 | D | 464564.7 | 2580218.1 | 597.9 | 597.6 | 05/24/22 | 35.0 | 40 | FM |
| PZ-24-17 | Offsite | 2019 | S | 461565.5 | 2580738.8 | 605.2 | 604.8 | 09/09/21 | 7.0 | 17 | FM |
| PZ-24-47 | Offsite | 2019 | D | 461570.2 | 2580738.9 | 605.6 | 604.7 | 09/09/21 | 37.0 | 47 | FM |
| PZ-25-17 | Offsite | 2019 | S | 465263.6 | 2579969.3 | 598.6 | 598.3 | 09/09/21 | 7.0 | 17 | FM |
| PZ-29-17 | Offsite | 2019 | S | 465386.4 | 2581734.1 | 593.9 | 593.6 | 09/09/21 | 7.0 | 17 | FM |
| PZ-29-43 | Offsite | 2019 | D | 465386.3 | 2581729.5 | 593.8 | 593.5 | 09/09/21 | 38.0 | 43 | FM |
| PZ-29-68 | Offsite | 2020 | BR | 465386.4 | 2581721.4 | 593.7 | 593.5 | 01/07/21 | 58.0 | 68 | FM |
| PZ-30-12 | Offsite | 2019 | S | 464126.0 | 2582520.2 | 594.6 | 594.3 | 09/09/21 | 7.0 | 12 | FM |
| PZ-30-45 | Offsite | 2019 | D | 464123.4 | 2582525.0 | 594.5 | 594.2 | 09/09/21 | 35.0 | 45 | FM |
| PZ-30-59 | Offsite | 2019 | D | 464121.2 | 2582529.1 | 594.4 | 594.2 | 09/09/21 | 54.0 | 59 | FM |
| PZ-31-17 | Offsite | 2019 | S | 462494.2 | 2582369.0 | 595.8 | 595.5 | 09/09/21 | 7.0 | 17 | FM |
| PZ-31-40 | Offsite | 2019 | D | 462490.8 | 2582364.0 | 595.7 | 595.4 | 09/09/21 | 35.0 | 40 | FM |
| PZ-31-53 | Offsite | 2019 | D | 462491.4 | 2582374.6 | 595.8 | 595.2 | 09/09/21 | 48.0 | 53 | FM |
| PZ-32-18 | Offsite | 2019 | S | 461901.1 | 2583990.8 | 591.6 | 591.2 | 09/09/21 | 8.0 | 18 | FM |
| PZ-32-72 | Offsite | 2019 | D | 461908.3 | 2583990.8 | 591.7 | 591.2 | 09/09/21 | 67.0 | 72 | FM |
| PZ-45-31 | Offsite | 2020 | D | 463858.4 | 2579412.7 | 605.7 | 607.9 | 01/07/21 | 21.0 | 31 | SU |
| PZ-47-40 | FTC | 2021 | D | 463488.1 | 2578741.0 | 608.2 | 611.0 | 09/09/21 | 35 | 40 | SU |
| PZ-51-38 | Offsite | 2021 | D | 463344.4 | 2582027.2 | 594.9 | 594.4 | 09/09/21 | 33.0 | 38 | FM |
| PZ-53-40 | Offsite | 2021 | D | 461921.2 | 2582490.5 | 596.0 | 595.7 | 09/09/21 | 35 | 40 | FM |
| PZ-55-64 | Offsite | 2021 | D | 462662.5 | 2580658.8 | 616.5 | 616.3 | 09/09/21 | 59 | 64 | FM |
| PZ-56-42 | Offsite | 2021 | D | 463289.6 | 2580664.2 | 605.9 | 605.4 | 09/09/21 | 37.2 | 42.2 | FM |
| PZ-57-38 | Offsite | 2021 | D | 462908.7 | 2583829.9 | 594.3 | 594.0 | 09/09/21 | 33.0 | 38 | FM |
| PZ-58-40 | Offsite | 2022 | D | 462256.6 | 2582444.3 | 596.6 | 596.4 | 08/31/22 | 35.0 | 40 | FM |
| PZ-58-50 | Offsite | 2022 | D | 462249.5 | 2582444.4 | 596.8 | 596.4 | 12/06/22 | 45.0 | 50 | FM |
| MW-EX-2 | FTC | 2021 | D | 463835.9 | 2579741.4 | 604.4 | 606.8 | 12/06/22 | 19.5 | 29.5 | SU |
| MW-EX-3 | Offsite | 2021 | D | 464476.0 | 2580784.0 | 592.5 | 594.9 | 12/06/22 | 22.0 | 27 | SU |
| MW-EX-4 | Offsite | 2021 | D | 464231.5 | 2581108.9 | 592.9 | 595.5 | 12/06/22 | 22.0 | 27 | SU |
| MW-EX-5 | Offsite | 2021 | D | 463913.1 | 2581502.3 | 592.3 | 594.5 | 12/06/22 | 45.0 | 50 | SU |

Table 1
Monitoring Well Construction
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Year Installed | Zone | Northing | Easting | Ground Elevation (ft NAVD88) | Top of Casing Elevation (ft NAVD88) | Survey Date | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Surface Finish |
|---|---------|----------------|------|----------|-----------|------------------------------|-------------------------------------|-------------|---------------------------------|------------------------------------|----------------|
| Deep Monitoring Well Network⁴ | | | | | | | | | | | |
| DMW-01 | Offsite | 2023 | BR | 459755.8 | 2578796.8 | 604.4 | 605.8 | 05/19/23 | 153.0 | 460 | SU |
| DMW-02 | Offsite | 2023 | BR | 459892.0 | 2582759.9 | 594.2 | 595.8 | 05/19/23 | 168.0 | 500 | SU |
| DMW-03 | Offsite | 2023 | BR | 455458.8 | 2581137.1 | 593.8 | 595.6 | 12/06/23 | 153.0 | 510 | SU |
| DMW-04 | Offsite | 2023 | BR | 457140.0 | 2583550.1 | 591.1 | 590.8 | 12/06/23 | 168.0 | 500 | SU |

Notes:

- (1) Bottom of screen is measured total depth, but all were soft bottoms. HMW-2-3 series wells have slotted screens with threaded joints.
- (2) The top of casing elevation for PZ-4S is not available. The groundwater elevation shown has been estimated by calculating the approximate top of casing elevation by measuring the length of the stickup above ground surface and adding the length to the surveyed ground surface elevation at nearby PZ-4D.
- (3) The GETS well network is inclusive of all monitoring wells that are sampled and/or gauged in accordance with the GETS LTM Plan (Arcadis 2021); however select wells identified in other LTM well network groups (e.g. PZ-68-16 in the FTC Well Network) are gauged as part of the GETS LTM.
- (4) The deep monitoring well network is inclusive of monitoring wells that are sampled and/or gauged in accordance with the Deep Aquifer Bedrock Well Design and Long-Term Monitoring Work Plan (Arcadis 2022). These monitoring wells are not screened and are open borehole at the depths indicated in the table.

Vertical Datum: North American Vertical Datum (NAVD) 1988

Acronyms/Abbreviations:

bgs = below ground surface

ft = feet

FTC = Fire Technology Center

LTM = long term monitoring

GETS = groundwater extraction and treatment system

NA = not available

Zone screened abbreviations: S = shallow overburden < 25 feet deep; D = deep overburden > 25 feet deep; BR = bedrock

Surface finish abbreviations: FM = flush mount; SU = stick up

Table 2
Groundwater Monitoring Plan
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Zone | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Year 1: Semi-Annual Sampling - All Wells in All Groups; Quarterly Sampling - Select Boundary Zone Wells | | | | Year 2 ¹ : Annual Sampling - Boundary Zone, Northern and Southern Plume Groups; Semi-Annual Sampling - FTC; Quarterly Sampling - Select Boundary Zone Wells | | | | Year 3: Annual/Biennial Sampling - All MWs in All Groups | Year 4 ² : Annual Sampling - FTC, Northern and Southern Plume Groups | Year 5: Annual/Biennial Sampling - All MWs in All Groups | |
|----------------------------------|---------|------|---------------------------------|------------------------------------|--|----|----|----|---|----|----|----|---|--|---|---|
| | | | | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q2/Q4 ³ | Q2/Q4 ³ | Q2/Q4 ³ | |
| FTC (non-GETS) Well Group | | | | | | | | | | | | | | | | |
| HMW-2-3S | FTC | S | 6 | 16 | | X | | X | | X | | X | | X | | X |
| HMW-2-3D | FTC | D | 32 | 42 | | X | | X | | X | | X | | X | | X |
| FTC-2S | FTC | S | 5 | 15 | | X | | X | | X | | X | | X | | X |
| FTC-2D | FTC | D | 27 | 32 | | X | | X | | X | | X | | X | | X |
| FTC-31 | FTC | S | 3 | 13 | | X | | X | | X | | X | | X | | X |
| FTC-34S | FTC | S | 3 | 13 | | X | | X | | X | | X | | X | | X |
| FTC-34D | FTC | D | 28 | 33 | | X | | X | | X | | X | | X | | X |
| FTC-44 | FTC | S | 5 | 15 | | X | | X | | X | | X | | X | | X |
| PZ-1D | FTC | BR | 63.5 | 68.5 | | X | | X | | X | | X | | X | | X |
| PZ-4S | FTC | D | 36 | 41 | | X | | X | | X | | X | | X | | X |
| PZ-4D | FTC | BR | 68.5 | 73.5 | | X | | X | | X | | X | | X | | X |
| PZ-11 | FTC | D | 41 | 46 | | X | | X | | X | | X | | X | | X |
| PZ-14S | FTC | S | 4 | 19 | | X | | X | | X | | X | | X | | X |
| PZ-14D | FTC | D | 25 | 35 | | X | | X | | X | | X | | X | | X |
| PZ-67-16 | FTC | S | 6 | 16 | | X | | X | | X | | X | | X | | X |
| PZ-9 | FTC | D | 38 | 43 | | X | | X | | X | | X | | X | | X |
| PZ-19 | FTC | D | 27 | 37 | | X | | X | | X | | X | | X | | X |
| PZ-59-21 | Offsite | S | 11 | 21 | | X | | X | | X | | X | | X | | X |
| PZ-65-16 | FTC | S | 6 | 16 | | X | | X | | X | | X | | X | | X |
| PZ-65-33 | FTC | D | 28 | 33 | | X | | X | | X | | X | | X | | X |
| PZ-67-40 | FTC | D | 35 | 40 | | X | | X | | X | | X | | X | | X |
| PZ-68-16 | FTC | S | 6 | 16 | | X | | X | | X | | X | | X | | X |
| PZ-68-26 | FTC | D | 21 | 26 | | X | | X | | X | | X | | X | | X |
| PZ-68-66 | FTC | BR | 61 | 66 | | X | | X | | X | | X | | X | | X |
| PZ-69-24 | FTC | S | 14 | 24 | | X | | X | | X | | X | | X | | X |
| PZ-69-43 | FTC | D | 38 | 43 | | X | | X | | X | | X | | X | | X |
| Location "s" at FTC boundary | FTC | S/D | TBD | TBD | | X | | X | | X | | X | | X | | X |

Table 2
Groundwater Monitoring Plan
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Zone | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Year 1: Semi-Annual Sampling - All Wells in All Groups; Quarterly Sampling - Select Boundary Zone Wells | | | | Year 2 ¹ : Annual Sampling - Boundary Zone, Northern and Southern Plume Groups; Semi-Annual Sampling - FTC; Quarterly Sampling - Select Boundary Zone Wells | | | | Year 3: Annual/Biennial Sampling - All MWs in All Groups | Year 4 ² : Annual Sampling - FTC, Northern and Southern Plume Groups | Year 5: Annual/Biennial Sampling - All MWs in All Groups | |
|----------------------------------|---------|------|---------------------------------|------------------------------------|--|---|---|---|---|---|---|----------------|---|--|---|---|
| | | | | | | | | | | | | | | | | |
| Northern Plume Well Group | | | | | | | | | | | | | | | | |
| PZ-28-14 | Offsite | S | 9 | 14 | | X | | X | | | | X ⁴ | X | X | X | X |
| PZ-28-54 | Offsite | D | 49 | 54 | | X | | X | | | | X ⁴ | X | X | X | X |
| PZ-28-75 | Offsite | BR | 65 | 75 | X | X | X | X | X | X | X | X ⁴ | X | X | X | X |
| PZ-63-60 | Offsite | BR | 55 | 60 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW003D | Stanton | BR | 45 | 50 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW013S-R | Offsite | S | 9 | 19 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW013M-R | Offsite | D | 30 | 35 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW013D-R | Offsite | BR | 41 | 46 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW125S-20 | Offsite | S | 10 | 20 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW125M-35 | Offsite | D | 30 | 35 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW125D-60 | Offsite | BR | 50 | 60 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW128S-17 | Offsite | S | 7 | 17 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW128M-30 | Offsite | D | 25 | 30 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW129S-21 | Offsite | S | 11 | 21 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW129M-45 | Offsite | D | 40 | 45 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW042D | Stanton | BR | 50 | 55 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW046D | Stanton | BR | 53.5 | 58.51 | | X | | X | | | | X ⁴ | X | X | X | X |
| MW064D | Stanton | BR | 51.7 | 56.69 | | X | | X | | | | X ⁴ | X | X | X | X |
| Church St MW (PZ-63) | Offsite | S | TBD | TBD | | X | | X | | | | X ⁴ | X | X | X | X |
| 10th St MW(s) | Offsite | S/D | TBD | TBD | | X | | X | | | | X ⁴ | X | X | X | X |
| Location "o" near VAP-32 | Offsite | S | 5 | 20 | | X | | X | | | | X ⁴ | X | X | X | X |

Table 2
Groundwater Monitoring Plan
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Zone | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Year 1: | | | | Year 2 ¹ : | | | Year 3: | Year 4 ² : | Year 5: | |
|----------------------------------|---------|------|---------------------------------|------------------------------------|---|---|---|---|--|---|---|----------------|-----------------------|---------|--|
| | | | | | Semi-Annual Sampling - All Wells in All Groups; Quarterly Sampling - Select Boundary Zone Wells | | | | Annual Sampling - Boundary Zone, Northern and Southern Plume Groups; Semi-Annual Sampling - FTC; Quarterly Sampling - Select Boundary Zone Wells | | | | | | Annual/Biennial Sampling - All MWs in All Groups |
| Southern Plume Well Group | | | | | | | | | | | | | | | |
| TW-03 | Offsite | S | 10 | 20 | | X | | X | | | | X ⁴ | X | X | X |
| MW-101-16 | Offsite | S | 6 | 16 | | X | | X | | | | X ⁴ | X | X | X |
| MW-101-72 | Offsite | D | 62 | 72 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-33-12 | Offsite | S | 7 | 12 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-33-33 | Offsite | D | 28 | 33 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-33-67 | Offsite | D | 57 | 67 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-33-105 | Offsite | BR | 100 | 105 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-34-17 | Offsite | S | 7 | 17 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-34-84 | Offsite | D | 74 | 84 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-35-17 | Offsite | S | 7 | 17 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-35-37 | Offsite | D | 32 | 37 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-46-19 | Offsite | S | 9 | 19 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-46-40 | Offsite | D | 30 | 40 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-46-65 | Offsite | D | 60 | 65 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-70-17 | FTC | S | 7 | 17 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-70-33 | FTC | D | 28 | 33 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-70-55 | FTC | D | 50 | 55 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-70-83 | FTC | BR | 73 | 83 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-71-111 | Offsite | BR | 101 | 111 | | X | | X | | | | X ⁴ | X | X | X |
| PZ-76-34 | Offsite | D | 29 | 34 | | X | | X | | | | X ⁴ | X | X | X |
| Green Gable Rd MW (PZ-72) | Offsite | D | TBD | TBD | | X | | X | | | | X ⁴ | X | X | X |
| 1 - Shore Dr MW (PZ-74-32) | Offsite | D | TBD | TBD | X | X | X | X | X | X | X | X ⁴ | X | X | X |
| 2 - Shore Dr MW (PZ-74-87) | Offsite | D | TBD | TBD | X | X | X | X | X | X | X | X ⁴ | X | X | X |

Table 2
Groundwater Monitoring Plan
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| Well ID | Area | Zone | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Year 1: Semi-Annual Sampling - All Wells in All Groups; Quarterly Sampling - Select Boundary Zone Wells | | | | Year 2 ¹ : Annual Sampling - Boundary Zone, Northern and Southern Plume Groups; Semi-Annual Sampling - FTC; Quarterly Sampling - Select Boundary Zone Wells | | | | Year 3: Annual/Biennial Sampling - All MWs in All Groups | Year 4 ² : Annual Sampling - FTC, Northern and Southern Plume Groups | Year 5: Annual/Biennial Sampling - All MWs in All Groups | |
|---------------------------------|---------|------|---------------------------------|------------------------------------|--|---|---|---|---|---|---|----------------|---|--|---|---|
| | | | | | | | | | | | | | | | | |
| Boundary Zone Well Group | | | | | | | | | | | | | | | | |
| MW-100-32 | Offsite | D | 22 | 32 | X | X | X | X | X | X | X | X ⁴ | X | | | X |
| MW-100-68 | Offsite | D | 58 | 68 | | X | | X | | | | X ⁴ | X | | | X |
| MW126S-20 | Offsite | S | 10 | 20 | | X | | X | | | | X ⁴ | X | | | X |
| MW126D-40 | Offsite | BR | 30 | 40 | | X | | X | | | | X ⁴ | X | | | X |
| TW-02 | Offsite | S | 10 | 20 | | X | | X | | | | X ⁴ | X | | | X |
| TW-04 ⁵ | Offsite | S | 10 | 20 | X | X | X | X | X | X | X | X ⁴ | X | | | X |
| TW-05 | Offsite | S | 10 | 20 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-26-11 | Offsite | S | 6 | 11 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-26-36 | Offsite | BR | 31 | 36 | X | X | X | X | X | X | X | X ⁴ | X | | | X |
| PZ-44-73 | Offsite | D | 63 | 73 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-60-20 | Offsite | S | 10 | 20 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-61-11 | Offsite | S | 6 | 11 | X | X | X | X | X | X | X | X ⁴ | X | | | X |
| PZ-62-62 | Offsite | D | 57 | 62 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-66-20 | FTC | S | 10 | 20 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-66-57 | FTC | D | 52 | 57 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-73-16 | Offsite | S | 6 | 16 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-73-75 | Offsite | D | 70 | 75 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-75-18 | Offsite | S | 8 | 18 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-77-16 | Offsite | S | 5.7 | 15.7 | | X | | X | | | | X ⁴ | X | | | X |
| PZ-78-74 | Offsite | BR | 71.5 | 73.5 | | X | | X | | | | X ⁴ | X | | | X |
| Stanley Ln MW (PZ-73-32) | Offsite | D | TBD | TBD | X | X | X | X | X | X | X | X ⁴ | X | | | X |
| Madsen Rd MW (MW-100) | Offsite | BR | TBD | TBD | | X | | X | | | | X ⁴ | X | | | X |
| Madsen Rd MW | Offsite | BR | TBD | TBD | | X | | X | | | | X ⁴ | X | | | X |
| Rader Rd MW(s) | Offsite | S/D | TBD | TBD | | X | | X | | | | X ⁴ | X | | | X |
| 4th St MW (PZ-78) | Offsite | S | TBD | TBD | | X | | X | | | | X ⁴ | X | | | X |
| Lincoln St MW | Offsite | BR | TBD | TBD | | X | | X | | | | X ⁴ | X | | | X |
| Location "p" near VAP-13 | Offsite | S | 5 | 20 | | X | | X | | | | X ⁴ | X | | | X |
| Location "r" north of PZ-66 | Offsite | S/D | TBD | TBD | | X | | X | | | | X ⁴ | X | | | X |
| Location "t" near TW-02 | Offsite | D | 35 | 40 | | X | | X | | | | X ⁴ | X | | | X |

Table 2
Groundwater Monitoring Plan
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Well ID | Area | Zone | Depth to Top of Screen (ft bgs) | Depth to Bottom of Screen (ft bgs) | Year 1: Semi-Annual Sampling - All Wells in All Groups; Quarterly Sampling - Select Boundary Zone Wells | Year 2 ¹ : Annual Sampling - Boundary Zone, Northern and Southern Plume Groups; Semi-Annual Sampling - FTC; Quarterly Sampling - Select Boundary Zone Wells | Year 3: Annual/Biennial Sampling - All MWs in All Groups | Year 4 ² : Annual Sampling - FTC, Northern and Southern Plume Groups | Year 5: Annual/Biennial Sampling - All MWs in All Groups |
|---------|------|------|---------------------------------|------------------------------------|--|---|---|--|---|
|---------|------|------|---------------------------------|------------------------------------|--|---|---|--|---|

Notes:

All wells will be sampled for PFAS via Modified 537 method.

All wells will be gauged during sampling; at minimum, comprehensive rounds of gauging across all well groups will be completed semi-annually in years 1 and 2; in years 3 to 5, comprehensive gauging will be completed annually during the Q4 sampling event.

This monitoring plan shows the most conservative sampling approach in years 2 and 4; some wells may be removed or the sampling frequency may be reduced pending results from years 1 and 2.

(1) FTC - sampling at redundant wells will be reduced from semi-annual to annual; N. Plume and S. Plume - annual sampling will be reduced to biennial sampling at wells with 2 rounds of "clean" or identified as redundant; Boundary Zone - A subset of wells may be sampled quarterly, all other wells will be sampled annually or reduced to biennially if identified as redundant.

(2) FTC - all wells sampled annually; N. Plume and S. Plume - No sampling at any wells previously reduced to biennial sampling; Boundary Zone - No sampling, all wells reduced to biennial.

(3) The results of previous semi-annual sampling events will determine the timing of subsequent annual sampling events (i.e., annual sampling in Yr 4 and Yr 5 will be completed during the time of year that previously exhibited overall higher PFAS concentrations across all monitoring zones).

(4) N. Plume, S. Plume and Boundary Zone - The results of previous semi-annual sampling events will determine the timing of the Yr 3 annual sampling event (i.e., Yr 3 annual sampling will be completed during the time of year that previously exhibited overall higher PFAS concentrations across all monitoring zones).

(5) DNR-recommended location "K" is currently being investigated. If it is determined, based on investigation data, that location "K" should be monitored, this adjustment will be made to the sampling plan.

Vertical Datum: North American Vertical Datum (NAVD) 1988

Acronyms/Abbreviations:

bgs = below ground surface

ft = feet

FTC = Fire Technology Center

GETS = groundwater extraction and treatment system

NA = not available

Zone screened abbreviations: S = shallow overburden < 25 feet deep; D = deep overburden > 25 feet deep; BR = bedrock

Surface finish abbreviations: FM = flush mount; SU = stick up

Table 3
Surface Water Monitoring Locations
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Location ID | Approximate Northing | Approximate Easting | Ditch | Monitoring Task |
|---|----------------------|---------------------|-------|-----------------|
| Interim LTM Surface Water Monitoring Locations | | | | |
| SW-10 | 454622.33 | 2577900.45 | A | Sampling |
| SW-12 | 457345.63 | 2578759.81 | A | Sampling |
| SW-30 | 464592.04 | 2587793.91 | C | Sampling |
| SW-33 | 456798.96 | 2583460.17 | D | Sampling |
| SW-36 | 460092.70 | 2582005.37 | AD | Sampling |
| SW-43 | 454983.87 | 2582961.67 | E | Sampling |
| SG-10 | 454651.16 | 2577823.71 | A | Gauging |
| SG-12 | 457336.70 | 2578735.48 | A | Gauging |
| SG-13 | 457326.57 | 2577401.97 | A | Gauging |
| SG-26 | 459954.13 | 2579450.05 | A | Gauging |
| SG-36 | 460101.02 | 2582119.10 | D | Gauging |
| SG-45 | 460015.76 | 2580829.09 | AD | Gauging |
| SG-47 | 457379.72 | 2575405.66 | A | Gauging |
| SG-48 | 456484.65 | 2578250.39 | A | Gauging |
| GETS LTM Surface Water Monitoring Locations¹ | | | | |
| SW-U10 | 464304.96 | 2577216.74 | B | Sampling |
| SW-U03 | 464584.05 | 2579775.41 | B | Sampling |
| SW-M09 | 464609.37 | 2580872.38 | B | Sampling |
| SW-M07 | 464231.65 | 2581309.05 | B | Sampling |
| SW-M04 | 463543.51 | 2582099.25 | B | Sampling |
| SW-M01 | 462918.11 | 2582479.07 | B | Sampling |
| SW-L09 | 461725.52 | 2583542.17 | B | Sampling |
| SG-A1 | 462175.88 | 2576923.70 | A | Gauging |
| SG-23 | 463399.53 | 2576808.46 | A | Gauging |
| SG-50 | 463376.34 | 2576546.61 | A | Gauging |
| SG-53 | 463645.42 | 2575386.62 | B | Gauging |
| SG-U10 | 464305.27 | 2577082.23 | B | Gauging |
| SG-U03 | 464616.87 | 2580026.83 | B | Gauging |
| SG-M09 | 464728.45 | 2580715.44 | B | Gauging |
| SG-M01 | 462816.30 | 2582507.70 | B | Gauging |
| SG-L09 | 461731.81 | 2583377.89 | B | Gauging |
| Ditch A Treatment System Surface Water Monitoring Location² | | | | |
| SW-26 | 459950.56 | 2579428.92 | A | Sampling |

Notes:

(1) GETS LTM Surface Water Monitoring Locations are listed for reference purposes only and are monitored in accordance with the GETS LTM plan (Arcadis 2021).

(2) Ditch A treatment system surface water monitoring location SW-26 is listed for reference purposes only. This location is monitored in accordance with the Response to Comments on the Semi-Annual O&M Progress Report #8 for the Ditch A Interim Action Treatment System (Arcadis 2023).

Acronyms/Abbreviations:

LTM = Long Term Monitoring

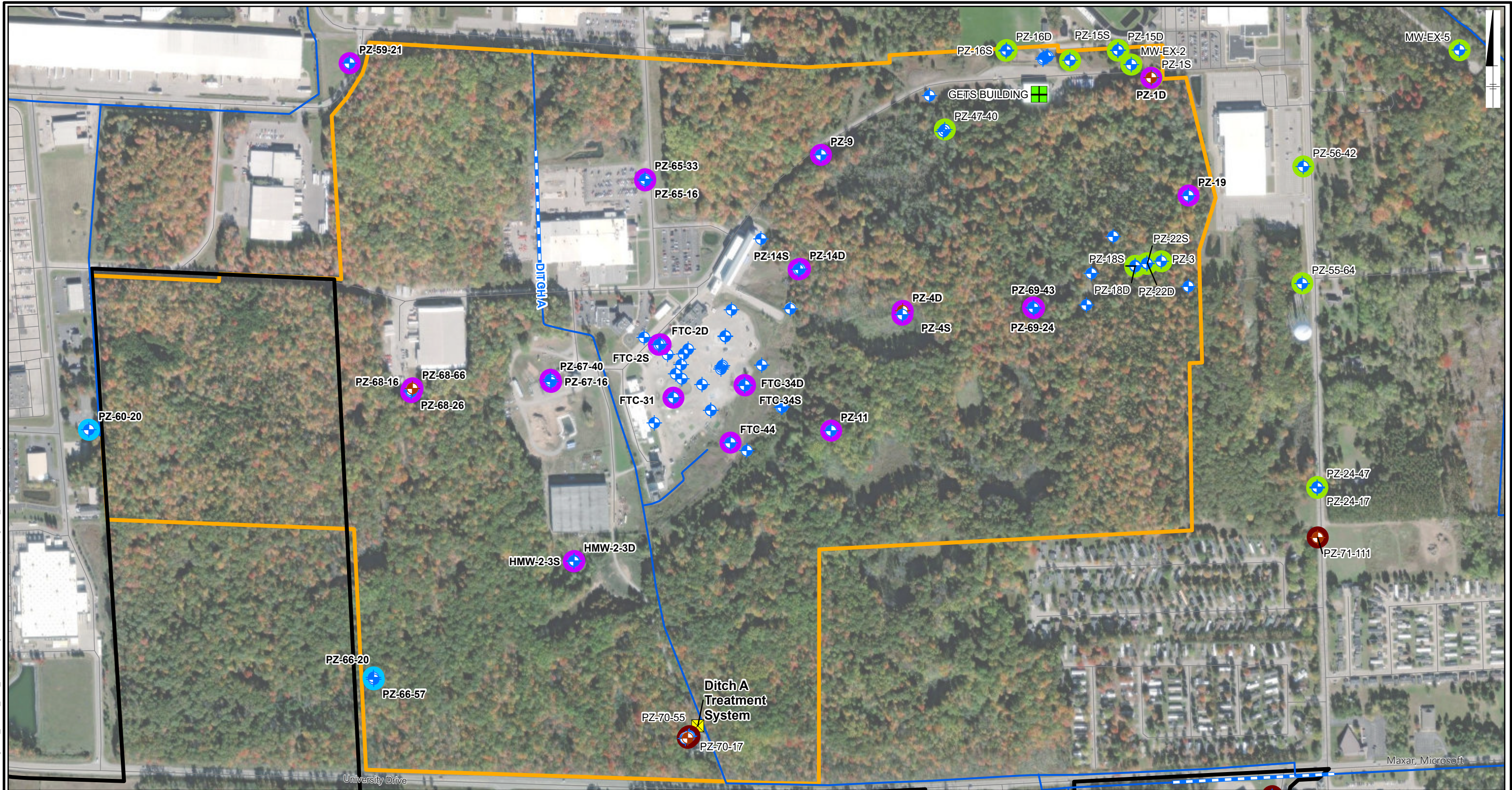
SW = Surface Water

SG = Staff Gauge

Table 4
Surface Water Sampling Plan
Interim LTM Plan
Tyco Fire Technology Center
Marinette, Wisconsin

| Location ID | Approximate Northing | Approximate Easting | Ditch | Year 1-5: Semi-Annual Sampling | | | |
|-------------|----------------------|---------------------|-------|-----------------------------------|----|----|----|
| | | | | Q1 | Q2 | Q3 | Q4 |
| SW-10 | 454622.33 | 2577900.45 | A | | X | | X |
| SW-12 | 457345.63 | 2578759.81 | A | | X | | X |
| SW-30 | 464592.04 | 2587793.91 | C | | X | | X |
| SW-33 | 456798.96 | 2583460.17 | D | | X | | X |
| SW-36 | 460092.70 | 2582005.37 | AD | | X | | X |
| SW-43 | 454983.87 | 2582961.67 | E | | X | | X |

Figures



LEGEND

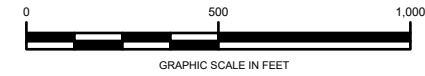
- APPROXIMATE MARINETTE CITY BOUNDARY
- APPROXIMATE FTC SITE PROPERTY BOUNDARY
- ROAD
- DITCH OR STREAM
- CULVERT

- OVERBURDEN MONITORING WELL OR PIEZOMETER
- BEDROCK MONITORING WELL OR PIEZOMETER
- GETS BUILDING
- SURFACE WATER TREATMENT SYSTEM

- MONITORING ZONES:**
- FTC (NON-GETS)
 - SOUTHERN PLUME
 - BOUNDARY ZONE
 - GETS NETWORK

NOTES:

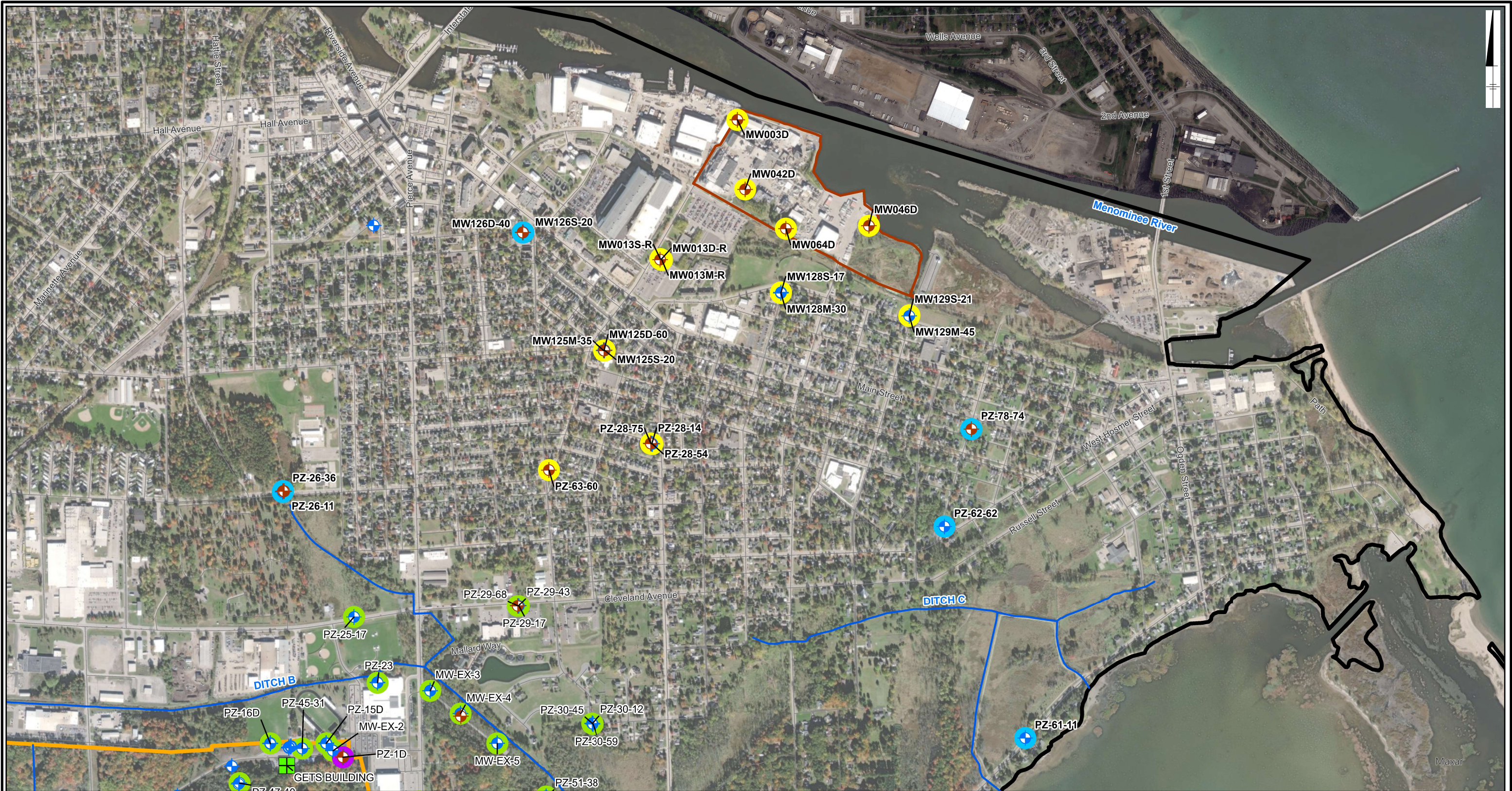
- GETS MONITORING WELLS ARE IDENTIFIED FOR REFERENCE PURPOSES ONLY. MONITORING OF GETS NETWORK MONITORING WELLS IS COMPLETED IN ACCORDANCE WITH THE GETS LTM PLAN (ARCADIS, 2021).
- ACRONYMS:
GETS - GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
FTC - FIRE TECHNOLOGY CENTER
- AERIAL IMAGERY SOURCE: ESRI MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY



TYCO FIRE TECHNOLOGY CENTER
MARINETTE, WISCONSIN
**INTERIM LONG TERM MONITORING PLAN FOR
GROUNDWATER AND SURFACE WATER**

**FTC (NON-GETS) PLUME AND BOUNDARY
ZONE WELL NETWORK**

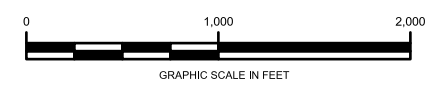
T:\ENV\TYCO\PRO_REPORT_FIGURES\FTC\Investigation_Interim_LTM_Plan\Investigation_Interim_LTM_Plan.aprx Figure4_NORTHERN PLUME SAMPLING ZONE5/27/2024 6:34 PM Last Saved By: yadav0264



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- APPROXIMATE MARINETTE CITY BOUNDARY
- APPROXIMATE STANTON STREET FACILITY PROPERTY BOUNDARY
- APPROXIMATE FTC SITE PROPERTY BOUNDARY
- ROAD
- DITCH OR STREAM
- CULVERT
- BEDROCK MONITORING WELL OR PIEZOMETER
- OVERBURDEN MONITORING WELL OR PIEZOMETER
- GETS BUILDING
- MONITORING ZONES:**
- NORTHERN PLUME
- BOUNDARY ZONE
- GETS NETWORK
- FTC (NON-GETS)

NOTES:
 1. GETS MONITORING WELLS ARE IDENTIFIED FOR REFERENCE PURPOSES ONLY. MONITORING OF GETS NETWORK MONITORING WELLS IS COMPLETED IN ACCORDANCE WITH THE GETS LTM PLAN (ARCADIS, 2021).
 2. ACRONYMS:
 GETS - GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
 FTC - FIRE TECHNOLOGY CENTER
 3. AERIAL IMAGERY SOURCE: ESRI MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY



TYCO FIRE TECHNOLOGY CENTER
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**INTERIM LONG TERM MONITORING PLAN FOR
 GROUNDWATER AND SURFACE WATER**

**NORTHERN PLUME AND BOUNDARY ZONE
 WELL NETWORK**

ARCADIS | **FIGURE 4**

T:\ENVY\COI_PRO_REPORT\FIGURES\FTCInvestigation_Interim_LTM_Plan\Investigation_Interim_LTM_Plan.aprx Figure5_SOUTHERN PLUME SAMPLING ZONE5/27/2024 6:34 PM Last Saved By: yadavs0264



LEGEND

- ▭ PRIVATE WELL SAMPLING AREA
- APPROXIMATE MARINETTE CITY BOUNDARY
- APPROXIMATE FTC SITE PROPERTY BOUNDARY
- ROAD
- DITCH OR STREAM
- CULVERT
- ⊕ OVERBURDEN MONITORING WELL OR PIEZOMETER
- ⊕ BEDROCK MONITORING WELL OR PIEZOMETER
- ⊕ DEEP BEDROCK MONITORING WELL
- SURFACE WATER TREATMENT SYSTEM
- MONITORING ZONES:**
- FTC (NON-GETS)
- SOUTHERN PLUME
- BOUNDARY ZONE
- GETS NETWORK
- DEEP MONITORING WELL NETWORK

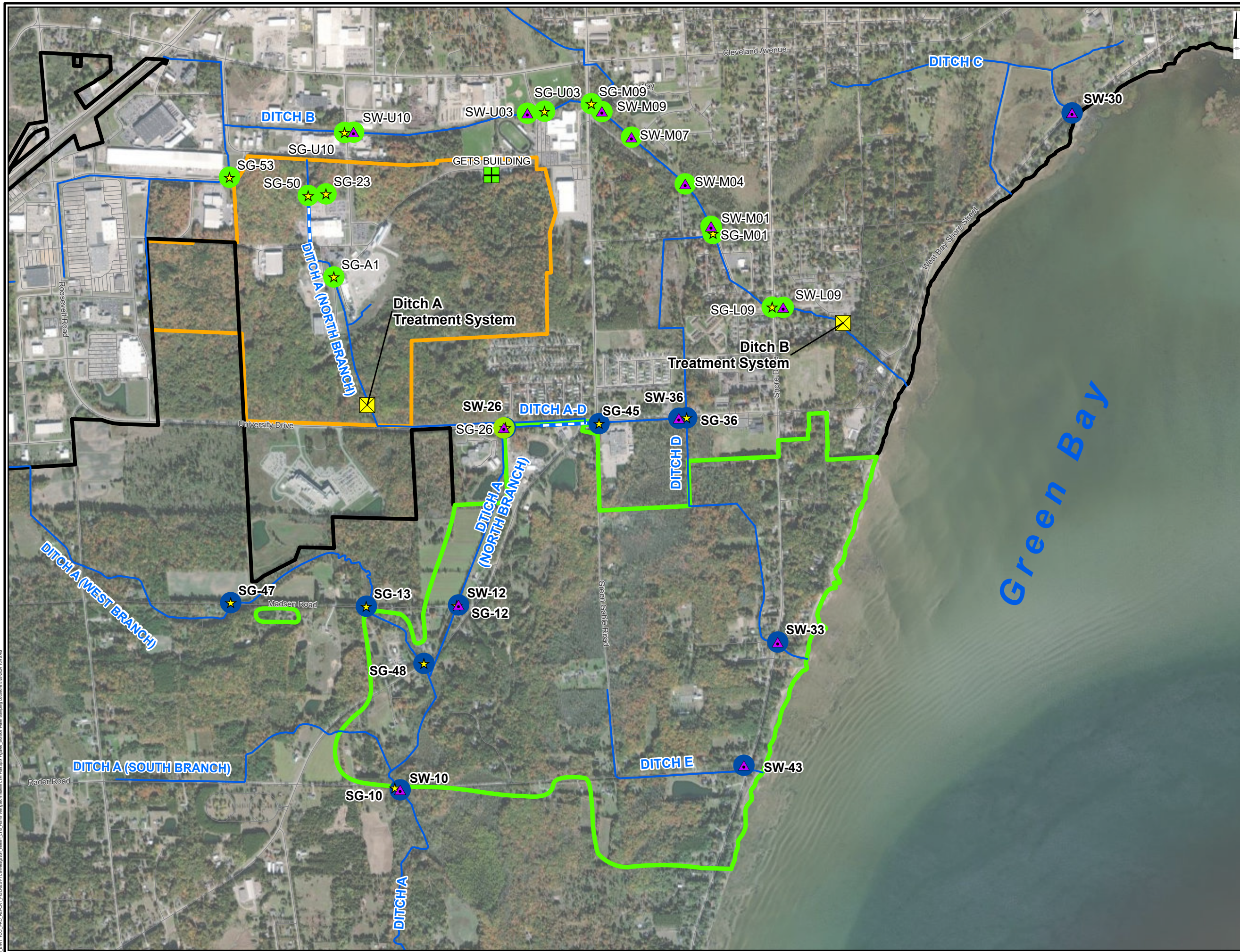
NOTES:

1. GETS MONITORING WELLS AND DEEP BEDROCK MONITORING WELLS ARE IDENTIFIED FOR REFERENCE PURPOSES ONLY. MONITORING OF GETS NETWORK WELLS IS COMPLETED IN ACCORDANCE WITH THE GETS LTM PLAN (ARCADIS, 2021). MONITORING OF THE DEEP MONITORING WELL NETWORK IS COMPLETED IN ACCORDANCE WITH THE DEEP AQUIFER BEDROCK WELL DESIGN AND LONG-TERM MONITORING WORK PLAN (ARCADIS 2022).
2. ACRONYMS:
 GETS - GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
 FTC - FIRE TECHNOLOGY CENTER
3. AERIAL IMAGERY SOURCE: ESRI MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

TYCO FIRE TECHNOLOGY CENTER
 MARINETTE, WISCONSIN
**INTERIM LONG TERM MONITORING PLAN FOR
 GROUNDWATER AND SURFACE WATER**

**SOUTHERN PLUME AND BOUNDARY ZONE
 WELL NETWORK**

FIGURE
5



LEGEND

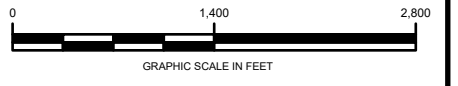
- APPROXIMATE FTC SITE PROPERTY BOUNDARY
- PRIVATE WELL SAMPLING AREA
- APPROXIMATE MARINETTE CITY BOUNDARY
- ROAD
- CULVERT
- DITCH OR STREAM
- SURFACE WATER SAMPLING
- STAFF GAUGE
- GETS BUILDING
- SURFACE WATER TREATMENT SYSTEM

MONITORING ZONES:

- INTERIM LTM SURFACE WATER MONITORING LOCATION
- GETS LTM SURFACE WATER MONITORING LOCATION
- DITCH A TREATMENT SYSTEM MONITORING LOCATION

NOTES:

- MONITORING OF DITCH B IS COMPLETED IN ACCORDANCE WITH THE GETS LTM PLAN (ARCADIS, 2021). SURFACE WATER SAMPLE LOCATION SW-26 IS MONITORED IN ACCORDANCE WITH THE RESPONSE TO COMMENTS ON THE SEMI-ANNUAL O&M PROGRESS REPORT #8 FOR THE DITCH A INTERIM ACTION TREATMENT SYSTEM (ARCADIS 2023).
- ACRONYMS:
 FTC - FIRE TECHNOLOGY CENTER
 GETS - GROUNDWATER EXTRACTION AND TREATMENT SYSTEM
 LTM - LONG TERM MONITORING
- AERIAL IMAGERY SOURCE: ESRI MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY



TYCO FIRE TECHNOLOGY CENTER
 MARINETTE, WISCONSIN
**INTERIM LONG TERM MONITORING PLAN FOR
 GROUNDWATER AND SURFACE WATER**

SURFACE WATER MONITORING LOCATIONS

T:\ENVI\TYCO_PRC_REPORT_FIGURE6\TYCO\Investigation_Station_LTM_Plan\Map_Figures\Surface_Water_Sampling_Locations_20230204_10:45 AM