

Tyco Fire Products LP

Land Applied Biosolids Interim Site Status Update Report

BRRTS No. 02-38-583856

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Land Applied Biosolids Interim Site Status Update Report

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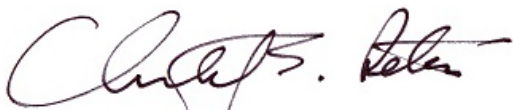
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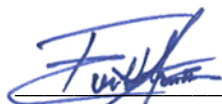
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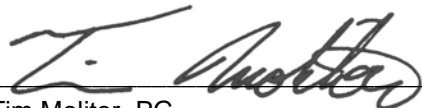
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Acronyms and Abbreviations

µg/kg	micrograms per kilogram
Arcadis	Arcadis U.S., Inc.
CSM	conceptual site model
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
POTW	publicly owned treatment works
Report	Land Applied Biosolids Interim Site Status Update Report
Tyco	Tyco Fire Products LP
USEPA	United States Environmental Protection Agency
WDNR	Wisconsin Department of Natural Resources
Work Plan	Land Applied Biosolids Preliminary Assessment/Site Investigation Work Plan

Executive Summary

This Land Applied Biosolids Interim Site Status Update Report (Report) is submitted pursuant to the Wisconsin Department of Natural Resources (WDNR) correspondence dated February 9, 2022, in response to the Land Applied Biosolids Preliminary Assessment/Site Investigation Work Plan (Work Plan) submitted by Tyco. Tyco submits this Report as part of its proactive approach to assisting the WDNR to better understand per- and polyfluoroalkyl substances (PFAS) contamination throughout the Marinette, Wisconsin region, including helping the WDNR to develop a more complete understanding of the many potential sources of PFAS affecting the region. As part of that larger effort, this Report provides the WDNR with an interim update and investigation plan regarding Tyco's evaluation of PFAS in biosolids that originated from the City of Marinette publicly owned treatment works (POTW), which may have been impacted both by Tyco's historic operations, as well as numerous other potential contributors of PFAS to the Marinette POTW. Although this Report is intended to assist the WDNR in organizing information from WDNR files regarding other potential PFAS sources in biosolids in this region, investigation of fields associated with such other sources of PFAS is not within the scope of Tyco's investigation, given that such fields would have been affected by landspreading of biosolids having no connection to Tyco or its historic operations in Marinette.

Tyco and the WDNR have had several communications since February 2022 related to ongoing record requests needed to select candidate fields for preliminary assessment/site investigation work. The WDNR has represented to Tyco that as of September 14, 2022 all data that the WDNR could obtain has either been provided or is in the process of being provided to Tyco. Since the WDNR has not to date provided all the needed and requested information, data sets are incomplete. Tyco nonetheless submits this Report and will move forward now in order to continue progress.

Tyco has obtained its current dataset through multiple WDNR public records requests related to permitted land applications of biosolids in Marinette and Oconto Counties, Wisconsin. The intent of these data requests was for both Tyco and the WDNR to better understand current site conditions and past activities, which, in turn, will allow (1) Tyco to formulate a work plan regarding fields that may have been impacted by landspreading activities related to the Marinette POTW and (2) the WDNR to develop a plan to comprehensively identify and address WDNR's internal records showing numerous other potential sources of PFAS in this area.

As part of Tyco's ongoing discussions with the WDNR regarding these data requests, Tyco prioritized the requests into two Tranches: Tranche 1 and Tranche 2. The Tranche 1 requested data was intended to close essential data gaps and thereby allow Tyco to begin the Phase 1 Desktop Document Review for selection of candidate fields to perform investigation activities. At this stage of the investigation, without WDNR assistance, Tyco has no ability or authority to obtain the records necessary to fill these gaps. This information is important to place soil boring locations and/or determine where on adjacent fields biosolids from other entities were placed. This is important as other party applications could interfere with this investigation as Tyco is only evaluating potential PFAS impacts related to fields which were land applied with City of Marinette POTW biosolids which may have been impacted by Tyco's historic operations. As to Tranche 2, the WDNR has compiled records and has stated as of the time of this Report that it is in the process of providing those documents to Tyco.

There are no current applicable standards for PFAS concentrations in biosolids issued by either the EPA or the state of Wisconsin. Therefore, Tyco reviewed PFAS regulations and guidance issued by surrounding states. The State of Michigan has issued guidance for applications of biosolids based on PFAS solids through its Interim Strategy for the Land Application of Biosolids Containing PFAS. Wisconsin has adopted this strategy to allow for

continued land applications of biosolids. The land application values provided by the Michigan Interim Strategy for PFAS are not based on a risk assessment or health-based values. They are instead based on levels that are indicative of different PFAS sources: industrial applications and domestic waste.

Review of data provided from the WDNR's internal records shows that between Crop Year 1997 and through to the present day (Crop Year 2022) the WDNR has granted 1,111 unique biosolid land application permitted fields across Marinette and Oconto Counties, which resulted in more than 1.1 billion gallons of biosolids being land applied during that time. The WDNR's internal records indicate that these biosolids came from municipal wastewater operations (in Marinette and elsewhere), paper manufacturers, private septic vendors, and others (**Figure 1**).

The WDNR continues to approve biosolid land applications as part of its ongoing permit program. Approximately two million gallons of biosolids were spread in Marinette County and more than 2.6 million gallons of biosolids were spread in Oconto County during Crop Year 2022 under WDNR permits. The WDNR internal records indicate that the 2022 biosolids sources included domestic septic, food manufacturing by-products, municipal wastewater sludge, and paper manufacturers. Given that the Marinette POTW ceased landspreading biosolids in 2018, none of the WDNR's permitted biosolid land applications since that time would be associated with the Marinette POTW.

The available data from Tranche 1 was evaluated and selection of candidate fields were identified based on two screening criteria:

1. Fields that, based on current information, appear to have only received biosolids from City of Marinette POTW, and;
2. Fields that are not adjacent to fields that received biosolids from sources other than the City of Marinette POTW.

A geospatial identification of the 61 land applied biosolids field sites, as part of the partial data set provided by the WDNR, was completed (**Figure 2**). Fourteen candidate fields meet the above criteria, and Arcadis will mail initial questionnaires to the owners of those fields. Following receipt and review of the property history questionnaires, and after reviewing available data that has been provided or will be provided by the WDNR, Tyco will develop the preliminary individual conceptual site models (CSMs) for each of the 14 fields. After evaluation of the information, a narrowed group of up to 6 fields will continue to the Phase 2 Initial Field Data Screening stage, assuming the owner(s) grant access.

1 Introduction

On behalf of Tyco Fire Products LP (Tyco), Arcadis U.S., Inc. (Arcadis) has prepared this Land Applied Biosolids Interim Site Status Update Report (Report) on (1) the status of the biosolid permit application data review and (2) proposed interim action for select fields within Marinette and Oconto Counties, Wisconsin. This Report is being submitted pursuant to the Wisconsin Department of Natural Resources (WDNR) correspondence dated February 9, 2022, in response to the Land Applied Biosolids Preliminary Assessment/Site Investigation Work Plan (Work Plan) (Arcadis 2021), requesting submittal of an interim site investigation report (**Appendix A**). Tyco and WDNR have had numerous communications since February 2022 related to ongoing record requests needed to select candidate fields for preliminary assessment/site investigation work.

The WDNR has represented to Tyco that as of September 14, 2022 all data that the WDNR could obtain has either been provided or is in the process of being provided to Tyco. Since the WDNR has not to date provided all the needed and requested information, data sets are incomplete. Tyco nonetheless submits this Report and will move forward now in order to continue progress. Although Tyco has diligently pursued data for this project and made its best attempts to close any data gaps, there are limits on Tyco's ability to obtain such information that do not constrain the WDNR. Even based on this incomplete dataset, however, records obtained from the WDNR make clear that there are numerous sources of biosolids throughout the study area other than the Marinette publicly owned treatment works (POTW). It is also clear that, although Marinette POTW ceased landspreading biosolids as of 2018, biosolids from these other sources continue to be used in this area, up through and including this year.

Although neither the United States Environmental Protection Agency (USEPA) nor the WDNR has set standards governing biosolids, this Report summarizes the initial screening criteria applied to interim field selection using all available information obtained to date. This Report also provides the list of candidate fields for evaluation. Final field selection will not occur until receipt of field owner surveys. The final field selection and associated rationale will be detailed in a subsequent site status update report, along with the selection of a background field, which will be based on data still in process of being provided to Tyco by the WDNR.

2 Background

There are no current applicable standards for per- and polyfluoroalkyl substances (PFAS) concentrations in biosolids issued by either the USEPA or the state of Wisconsin. Therefore, Tyco reviewed PFAS regulations and guidance issued by surrounding states.

2.1 Biosolids PFAS Regulatory Review

A review of relevant biosolids PFAS regulations and guidance is summarized below.

- USEPA is completing a biosolids risk assessment for two PFAS compounds, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The results of this study are scheduled to be released by December 2024. No USEPA guidance or screening criteria are available at this time for PFAS impacted biosolids.

- Currently, the State of Wisconsin has no standards for PFAS concentrations in biosolids, but Wisconsin has adopted Michigan's interim strategy related to PFAS levels in biosolids to allow for continued landspreading.
- In 2021, the State of Michigan implemented an Interim Strategy for the Land Application of Biosolids Containing PFAS. This interim strategy requires PFAS analysis prior to the submittal of land applications. PFOS at or above 125 micrograms per kilogram ($\mu\text{g}/\text{kg}$) is considered "Industrially Impacted" and is prohibited for use in land applications. For PFOS concentrations at or above 50 $\mu\text{g}/\text{kg}$ but below 125 $\mu\text{g}/\text{kg}$, Michigan suggests reducing land application rates to no more than 1.5 dry tons per acre to reduce the overall loading to the site (Michigan Department of Environment, Great Lakes, and Energy, Water Resources Division, 2022). Michigan enacted this interim strategy as a preventative measure until USEPA completes its biosolids studies and provides recommendations. The land application values for PFAS are not based on a risk assessment or health-based values. They are instead based on levels that are indicative of different PFAS sources: PFAS from industrial applications versus PFAS from domestic waste. No health risk-based screening levels are currently available for the application of biosolids in the State of Michigan.
- The State of Minnesota has convened a Legislative-Citizen Commission on Minnesota Resources research project to study the potential impacts of land applied substances, including biosolids. The project is intended to identify concentrations of PFAS found within biosolids and how, once land applied, the PFAS in the biosolids may impact groundwater, surface water, soil, and crops (Minnesota Pollution Control Agency, 2022). At this time, Minnesota has not issued PFAS guidance or screening criteria for biosolids.
- The State of Illinois has no standards for PFAS concentrations in biosolids.
- The State of Iowa has no standards for PFAS concentrations in biosolids.

2.2 Documents and Data Summary

Tyco has made multiple WDNR public records requests for data related to permitted land applications of biosolids in Marinette and Oconto Counties. The intent of these data requests was for both Tyco and the WDNR to gain additional understanding of current site conditions and past activities. In addition, the data will provide context for any future findings associated with the treated fields, which will allow Tyco to evaluate fields potentially impacted by historic landspreading activities of the Marinette POTW, while also allowing the WDNR to continue its independent work on fields that may have been impacted by numerous other potential sources of PFAS.

Tyco notes that understanding and addressing biosolids in this area necessitates complete information about where, when, and how biosolids were applied in this area, as well as the areas that surround such locations. Although Tyco has diligently pursued this information and appreciates the WDNR's assistance in providing the information it has conveyed to date, there are limits on what Tyco can obtain, whether by itself or in coordination with the WDNR.

Within these constraints, as part of Tyco's ongoing discussions with the WDNR regarding these data requests, Tyco prioritized the requests into two Tranches: Tranche 1 and Tranche 2. The Tranche 1 requested data is intended to close essential data gaps and thereby allow Tyco to begin the Phase 1 Desktop Document Review for selection of candidate fields to perform investigation activities. At this stage of the investigation, without WDNR assistance, Tyco has no ability or authority to obtain the records necessary to fill these gaps. For example, only 34% of the Land Application Records Worksheet(s) (3400-056) were supplied for the City of Marinette POTW

applications (**Table 1**), and no Application Records Worksheet(s) were supplied for any of the other parties who also spread biosolids in the vicinity of the City of Marinette POTW applied fields. The Application Records Worksheet(s) outline landspreading field locations, application rate calculations, and provide biosolid nutrient data. This information is important to place soil boring locations and/or determine where on adjacent fields biosolids from other entities were placed. This is important as other party applications could interfere with this investigation as Tyco is only evaluating potential PFAS impacts related to fields which were land applied with City of Marinette POTW biosolids, which may have been impacted by Tyco's historic operations. The WDNR has stated that it has also compiled Tranche 2 records and is in the process of providing those documents to Tyco at the time of this Report.

The WDNR has represented that the agency has provided all of the data available in its files related to the public records (**Table 1** through **Table 4**) associated with the Tranche 1 request, but not all of the records requested are available for Tyco to evaluate, as summarized below:

- Land Application Summary Report(s) (3400-55):
 - 98% of data received for the City of Marinette POTW (**Table 1**).
 - 100% of data received for the City of Peshtigo POTW (**Table 2**).
 - 0% of data received for neighboring land application sites (**Table 3**).
- Land Application Approval Forms (3400-122):
 - 80% of data received for the City of Marinette POTW (**Table 1**).
 - 13% of data received for all City of Peshtigo POTW land application sites, with 36% of data received from a narrowed group of City of Peshtigo POTW land application sites (**Table 2**).
 - 77% of data received for neighboring land application sites (**Table 3**).
- Field Maps associated with Land Application Approval Forms (3400-122):
 - 84% of data received for the City of Marinette POTW (**Table 1**).
 - 28% of data received for all City of Peshtigo POTW land application sites, with 77% of data received from a narrowed group of City of Peshtigo POTW land application sites (**Table 2**).
 - 93% of data received for neighboring land application sites (**Table 3**).

As the remaining records cannot be fulfilled at this time, Tyco has performed a preliminary evaluation of all the available data from Tranche 1 to select candidate fields to perform investigative activities. The process and output of that screening are discussed in **Sections 3** and **4**.

As mentioned previously, the WDNR has represented that the agency is in the process of providing the data requested from Tranche 2. This data is required prior to Tyco selecting a background field for use in the investigation activities.

3 Interim Phase 1 Desktop Document Review

Tyco has reviewed all available data related to the Tranche 1 data package provided by the WDNR. The WDNR has indicated that the WDNR itself does not currently possess additional data and—for purposes of this interim report—setting aside additional efforts the WDNR could take to obtain such data; therefore Tyco conducted a pre-selection process to identify fields that could potentially be chosen for the Phase 2 Initial Field Data Screening (Arcadis 2021). The final selection of fields will be based on outreach survey responses from landowners and will be subsequently detailed in a site status update report.

3.1 Summary of Data Assessment

Review of data provided from the WDNR's records in Tranche 1 shows 1,111 unique biosolid land application fields permitted by the WDNR across Marinette and Oconto Counties which resulted in over 1.1 billion gallons of biosolids being spread between Crop Year 1997 and Crop Year 2022. These biosolids came from municipal wastewater operations, paper manufacturers, private septic vendors, and others (**Figure 1**). Note that biosolid land applications are still occurring under WDNR permits. It is also clear that, although Marinette POTW ceased landspreading biosolids as of 2018, biosolids from these other sources continue to be used in this area, up through and including this year. For example, based on the permits and other documents Tyco received from the WDNR, over 2.3 million gallons of biosolids were spread in Marinette County and more than 2.6 million gallons of biosolids were spread in Oconto County during Crop Year 2022. These records demonstrate that the 2022 biosolids sources included domestic septic, food manufacturing byproducts, municipal wastewater sludge, and paper manufacturers. To date, Tyco has not received data showing that any current or historic permitted land applied biosolids were tested for PFAS prior to land applications.

3.2 Background Field

At this time, the identification of a background field to be included in the Phase 2 Initial Field Data Screening has not been finalized. This field will be identified following review of the Tranche 2 data package still to be provided by the WDNR. However, due to the nature of data collected and provided to the WDNR related to the spreading of biosolids, the determination of a background field that did not receive biosolids or is free from PFAS-related products used in farming operations may not be feasible. Given this potential complication, and to expedite the process, Tyco may need the WDNR's assistance with the identification of appropriate background field candidates. The field identified for the background will be indicated in a site status update report.

4 Interim Field Selection

The available data from Tranche 1 was evaluated and candidate fields were identified based on two screening criteria:

1. Fields that, based on current information, appear to have only received biosolids from the City of Marinette POTW, and;
2. Fields that are not adjacent to fields that received biosolids from sources other than the City of Marinette POTW.

A geospatial identification of the 61 land applied biosolids field sites, as part of the partial dataset provided by the WDNR, was completed (**Figure 2**). Fourteen candidate fields meet the criteria stated above (**Table 5**). Arcadis will mail initial questionnaires to the owners of these fields (see **Section 4.2**) and begin to develop preliminary individual conceptual site models.

4.1 Preliminary Conceptual Site Models

Tyco will develop the preliminary individual CSMs for each of the 14 candidate fields following receipt and review of the property history questionnaires, and a review of available data that has been provided or will be provided by the WDNR. After evaluation of the information, Tyco plans to propose a narrowed group of up to six fields sites

that will continue to the Phase 2 Initial Field Data Screening, provided the owner(s) grant access (Arcadis 2021). Some criteria that may be used during the selection of this narrowed group are:

- Spatial proximity to additional land application sites using accurate locations.
- Spatial proximity to populated areas.
- Land applied biosolid application rates, cumulative volumes, estimated field loading, and years that biosolids were applied.

4.2 Outreach Surveys

To expedite the final field selection process, questionnaires were sent on September 30, 2022 to 14 owners of fields that are documented to have received biosolids from a single source, the City of Marinette POTW (**Appendix B**). As outlined in the Work Plan (Arcadis 2021), the field owner questionnaire is intended to provide additional details for each property to facilitate future access and engagement, further inform the individual field CSMs, and further inform the Phase 2 field selection. In addition to this initial mailing, questionnaires will be mailed to the field owners of the remaining 47 fields (for a total of 61 fields) to complete the process. The questionnaires include a request for return within 60 days of receipt. This communication effort may require assistance from the WDNR.

5 Project Schedule and Reporting

Following submittal of this Report, Tyco will finalize the Phase 1 Desktop Document Review concurrently with receipt of the field property questionnaires. Based on receipt, completion of the Phase 1 Desktop Document Review that includes development of individual field CSMs will provide the information needed to select the final fields from the interim 14 fields. Tyco also looks forward to continuing to receive key documents as necessary from the WDNR and following receipt of Tranche 2 data to work with the WDNR on the background field selection.

Following final field and background field selection, Tyco will move to complete the Phase 2 Initial Field Data Screening, which is expected to take place in either early winter of 2022 (weather providing) or spring 2023 pending questionnaire receipt, access from each property owner, permit approval by any other necessary entities, and subcontractor availability. Within 60 days of completion of the field data collection, a report documenting the field activities and investigation findings will be submitted to the WDNR. As always, Tyco will also keep the WDNR apprised of its progress through Tyco's and the WDNR's regular cadence of communications on this and other projects Tyco is undertaking.

6 References

Arcadis, 2021. Land Applied Biosolids Preliminary Assessment / Site Investigation Work Plan, BRRTS No. 02-38-583856. December 23.

Michigan Department of Environment, Great Lakes, and Energy, Water Resources Division, 2022. Land Application of Biosolids Containing PFAS – Interim Strategy, Updated April 2022.

Minnesota Pollution Control Agency, 2022. PFAS Monitoring Plan, Document No. p-gen1-22b. March 2022.

USEPA, 2022. Risk Assessment of Pollutants in Biosolids. <https://www.epa.gov/biosolids/risk-assessment-pollutants-biosolids>. Accessed September 29, 2022.

Tables

Table 1
Additional Data Request for City of Marinette POTW Land Applications
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

City of Marinette Land Applied Biosolids	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms	Land Application Records Worksheet	Field Maps
WDNR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	98%	80%	34%	84%
21589	Y	Y	Y	N	Y
21616	Y	Y	N	N	Y
21618	Y	Y	N	N	Y
21619	Y	Y	Y	N	N
21620	Y	Y	N	N	Y
21621	Y	Y	N	N	N
21631	Y	Y	N	N	N
21637	Y	Y	N	N	N
21638	Y	Y	N	N	N
21639	Y	Y	N	N	N
23948	Y	Y	Y	N	Y
23996	Y	Y	Y	N	Y
23997	Y	Y	Y	N	Y
24016	Y	Y	Y	Y	Y
24032	Y	Y	Y	N	Y
32298	Y	Y	Y	Y	Y
32300	Y	Y	Y	Y	Y
32302	Y	Y	Y	Y	Y
32712	Y	Y	Y	Y	Y
38724	Y	Y	Y	N	Y
38725	Y	Y	Y	N	Y
38727	Y	Y	Y	Y	Y
38728	Y	Y	Y	Y	Y
46051	Y	Y	Y	N	Y
46183	Y	Y	N	N	N
50944	Y	Y	Y	N	Y
50945	Y	Y	Y	N	Y
50946	Y	Y	Y	N	Y
50947	Y	Y	Y	N	Y
51051	Y	Y	Y	Y	Y
52288	Y	Y	Y	N	Y
52289	Y	Y	Y	N	Y
52290	Y	Y	Y	N	Y

Notes on Page 2

Table 1
Additional Data Request for City of Marinette POTW Land Applications
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

City of Marinette Land Applied Biosolids	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms	Land Application Records Worksheet	Field Maps
WDNR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	98%	80%	34%	84%
52291	Y	Y	Y	N	Y
52293	Y	Y	Y	N	Y
52294	Y	Y	Y	N	Y
52295	Y	Y	Y	N	Y
55388	Y	Y	Y	N	Y
57582	Y	Y	Y	N	Y
57697	Y	Y	Y	N	Y
57698	Y	Y	Y	N	Y
62081	Y	Y	Y	Y	Y
64135	Y	Y	Y	N	Y
64136	Y	Y	Y	Y	Y
64137	Y	Y	Y	N	Y
77299	Y	Y	Y	Y	Y
77300	Y	Y	Y	Y	Y
77302	Y	Y	Y	Y	Y
77303	Y	Y	Y	Y	Y
81386	Y	Y	N	Y	N
81402	Y	Y	N	Y	N
81403	Y	Y	N	Y	N
81404	Y	Y	Y	Y	Y
81419	Y	Y	Y	N	Y
81586	Y	Y	Y	Y	Y
81587	Y	Y	Y	Y	Y
89662	Y	Y	Y	Y	Y
89700	Y	N	Y	N	Y
90992	Y	Y	Y	N	Y
95629	Y	Y	Y	N	Y
96849	Y	Y	Y	N	Y

General Notes

Information reviewed was provided to Tyco by the WDNR in Open Records Requests received in 2019, 2021, and 2022.

--- = not applicable

Y = record is documented in possession of Tyco Fire Products LP.

N = record is absent and not documented in possession of Tyco Fire Products LP.

Table 2
Additional Data Request for City of Peshtigo POTW Land Applications
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

City of Peshtigo Land Applied Biosolids	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms ¹	Land Application Records Worksheet	Field Maps
WDR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	100%	13%	0%	28%
Various Fields (61 known fields with 226 individually documented biosolid land applications)	Y	Y	N	N	N
Subset of City of Peshtigo Land Applied Biosolids	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms	Land Application Records Worksheet	Field Maps
WDR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	100%	36%	0%	77%
21591	Y	Y	Y	N	Y
23926	Y	Y	N	N	N
23997	Y	Y	N	N	Y
24016	Y	Y	Y	N	Y
24032	Y	Y	N	N	Y
24041	Y	Y	N	N	N
24050	Y	Y	N	N	N
32293	Y	Y	N	N	N
32300	Y	Y	N	N	Y
32301	Y	Y	N	N	N
32302	Y	Y	N	N	Y
32712	Y	Y	N	N	Y
38727	Y	Y	N	N	Y
38728	Y	Y	N	N	Y
46051	Y	Y	Y	N	Y
51051	Y	Y	N	N	Y
51258	Y	Y	Y	N	Y
52291	Y	Y	Y	N	Y
52293	Y	Y	Y	N	Y
62081	Y	Y	N	N	Y
64135	Y	Y	Y	N	Y
111976	Y	Y	Y	N	Y

General Notes

Information reviewed was provided to Tyco by the WDNR in Open Records Requests received in 2019, 2021, and 2022.

¹ Land Application Approval Forms received from the WDNR to date for the City of Peshtigo POTW are presented as 11% complete. This percentage is based on the assumption that of the 4 years of forms (1996, 1999, 2000, 2003) that have been provided, approvals for 7 of the 61 known fields are included in this documentation.

--- = not applicable

Y = record is documented in possession of Tyco Fire Products LP.

N = record is absent and not documented in possession of Tyco Fire Products LP.

Record was provided to Tyco by WDNR in records request received August 5, 2022.

Table 3
Additional Data Request for Neighboring Biosolid Land Application Sites
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

WDNR Biosolids Data from Records Request(s)	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms	Land Application Records Worksheet	Field Maps
WDNR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	0%	77%	0%	93%
FibreK					
21619	Y	N	Y	N	Y
21622	Y	N	Y	N	Y
23874	Y	N	Y	N	Y
23949	Y	N	Y	N	Y
102764	Y	N	Y	N	Y
106093	Y	N	Y	N	Y
106096	Y	N	Y	N	Y
107109	Y	N	N	N	Y
107762	Y	N	N	N	Y
Harding Septic LLC					
21631	Y	N	N	N	Y
23966	Y	N	N	N	Y
46183	Y	N	N	N	Y
54979	Y	N	Y	N	Y
54981	Y	N	Y	N	Y
54983	Y	N	Y	N	Y
54984	Y	N	Y	N	Y
54985	Y	N	Y	N	Y
54986	Y	N	Y	N	Y
Jim's Septic Pumping Service					
37317	Y	N	Y	N	Y
37320	Y	N	Y	N	Y
Mark's Septic Service					
94129	Y	N	Y	N	Y
94163	Y	N	Y	N	Y
94164	Y	N	Y	N	Y
109884	Y	N	N	N	N

Notes on Page 2

Table 3
Additional Data Request for Neighboring Biosolid Land Application Sites
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

WDNR Biosolids Data from Records Request(s)	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms	Land Application Records Worksheet	Field Maps
WDNR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	0%	77%	0%	93%
Saputo Cheese USA Inc LENA					
62838	Y	N	Y	N	Y
62839	Y	N	Y	N	Y
64136	Y	N	Y	N	Y
109882	Y	N	Y	N	Y
St Paper LLC					
62838	Y	N	Y	N	Y
100172	Y	N	N	N	N

General Notes

Information reviewed was provided to Tyco by the WDNR in Open Records Requests received in 2019, 2021, and 2022.

--- = not applicable

Y = record is documented in possession of Tyco Fire Products LP.

N = record is absent and not documented in possession of Tyco Fire Products LP.

Record was provided to Tyco by the WDNR in records request received August 5, 2022.

Table 4
Summary of Neighboring Sites in Marinette County
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

WDNR Biosolids Data from Records Request(s)	Land Application Volumes	Annual Application Summary Reports	Land Application Approval Forms	Land Application Records Worksheet	Field Maps
WDNR Form #	---	3400-55	3400-122	3400-56	---
% documentation received	100%	0%	0%	0%	0%
A&B Septic	Y	N	N	N	N
Affordable Plumbing&Septics LLC	Y	N	N	N	N
Bat Pumping & Septic Service	Y	N	N	N	N
Brazeau SD 1 Wastewater Treatment Facility	Y	N	N	N	N
Coleman Wastewater Treatment Facility	Y	N	N	N	N
Crivitz Wastewater Treatment Facility	Y	N	N	N	N
Goodmen Sanitary District No 1 WWFT	Y	N	N	N	N
Goodmen Sanitary Plumbing & Heating, LLC	Y	N	N	N	N
Niagara Wastewater Treatment Facility	Y	N	N	N	N
Northland Mission Inc WWTF	Y	N	N	N	N
Norway Wastewater Treatment Facility	Y	N	N	N	N
Paul's Portable Toilets, LLC	Y	N	N	N	N
Suamico Sewage Collection System	Y	N	N	N	N
Superior Septic	Y	N	N	N	N
Verso Quinnesec LLC	Y	N	N	N	N
Wastewater Reuse and Management, LLC	Y	N	N	N	N
Wausaukee Wastewater Treatment Facility	Y	N	N	N	N

General Notes

Information reviewed was provided to Tyco by the WDNR in Open Records Requests received in 2019, 2021, and 2022.

--- = not applicable

Y = record is documented in possession of Tyco Fire Products LP.

N = record is absent and not documented in possession of Tyco Fire Products LP.

Table 5
Pre-Selection Field Criteria for Land Applied Biosolids
Land Applied Biosolids Interim Site Status Update Report
Tyco Fire Products LP

WDNR Form #	Fields with Received Biosolids from City of Marinette POTW and No Immediately Adjacent Field Applications	Relevant Documents and Information Have Been Located ^c	Missing Documents
21618	X	N	Land Application Approval Form, Applicator Field Notes
21637 ^a	X	N	Land Application Approval Form, Applicator Field Notes, Field Maps
50944	X	N	Applicator Field Notes
50945	X	N	Applicator Field Notes
50946	X	N	Applicator Field Notes
50947	X	N	Applicator Field Notes
55388 ^b	X	N	Applicator Field Notes
57582	X	N	Applicator Field Notes
57697	X	N	Applicator Field Notes
77303	X	Y	--
81404	X	Y	--
81419	X	N	Applicator Field Notes
81586	X	Y	--
81587	X	Y	--
Totals:	14	4	

General Notes

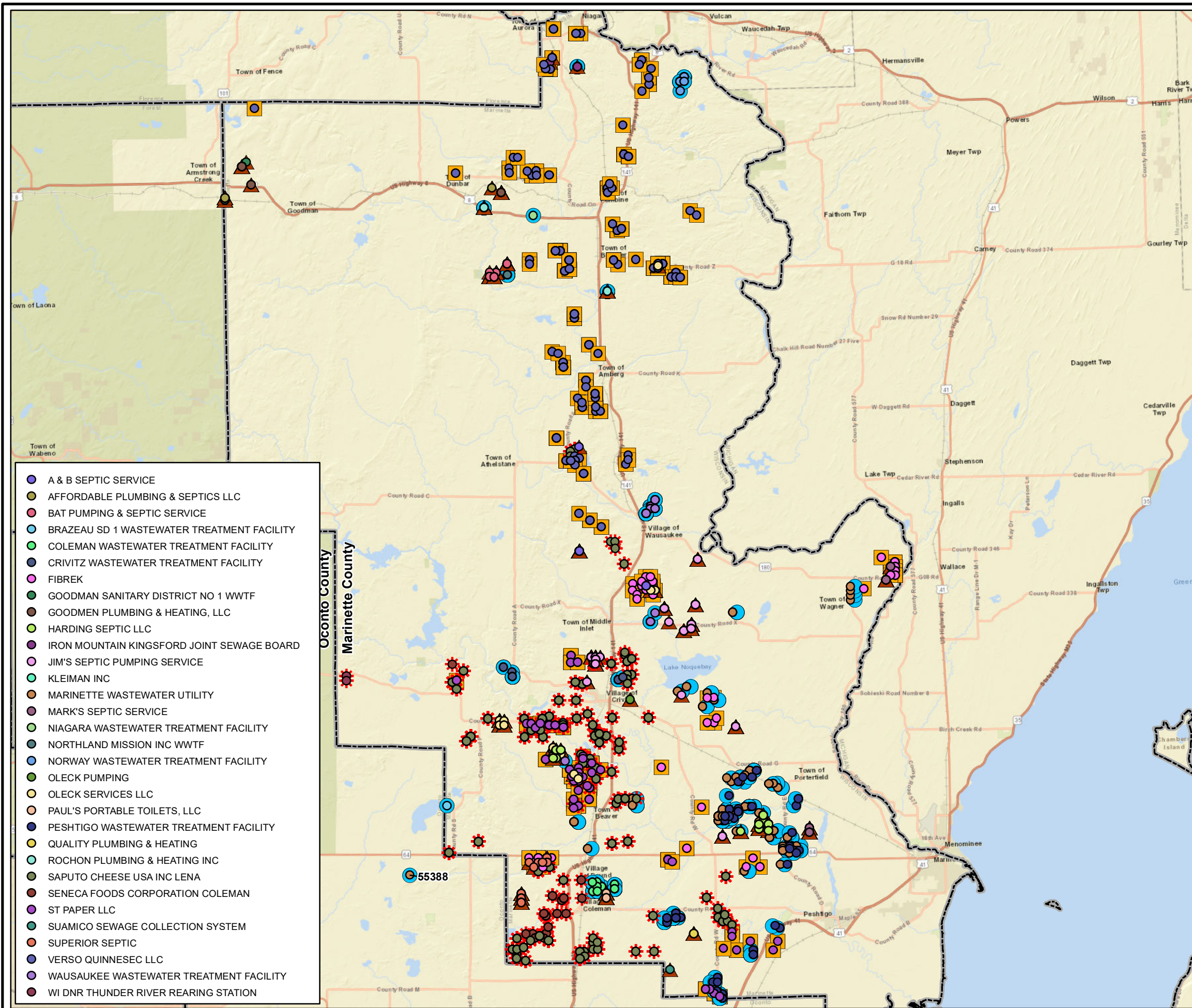
^a Field is in proximity to a reported fire that was extinguished with aqueous film-forming foam (AFFF); location of the fire is directly between the field location and Lake Noquebay.

^b Field is located in Oconto County.

^c Relevant documents and information include Land Application Volumes, Annual Application Summary Reports, Land Application Approval Forms, Applicator Field Notes, and Field Maps.

--- = not applicable

Figures



- A & B SEPTIC SERVICE
- AFFORDABLE PLUMBING & SEPTICS LLC
- BAT PUMPING & SEPTIC SERVICE
- BRAZEAU SD 1 WASTEWATER TREATMENT FACILITY
- COLEMAN WASTEWATER TREATMENT FACILITY
- CRIVITZ WASTEWATER TREATMENT FACILITY
- FIBREK
- GOODMAN SANITARY DISTRICT NO 1 WWTF
- GOODMEN PLUMBING & HEATING, LLC
- HARDING SEPTIC LLC
- IRON MOUNTAIN KINGSFORD JOINT SEWAGE BOARD
- JIM'S SEPTIC PUMPING SERVICE
- KLEIMAN INC
- MARINETTE WASTEWATER UTILITY
- MARK'S SEPTIC SERVICE
- NIAGARA WASTEWATER TREATMENT FACILITY
- NORTHLAND MISSION INC WWTF
- NORWAY WASTEWATER TREATMENT FACILITY
- OLECK PUMPING
- OLECK SERVICES LLC
- PAUL'S PORTABLE TOILETS, LLC
- PESHTIGO WASTEWATER TREATMENT FACILITY
- QUALITY PLUMBING & HEATING
- ROCHON PLUMBING & HEATING INC
- SAPUTO CHEESE USA INC LENA
- SENECA FOODS CORPORATION COLEMAN
- ST PAPER LLC
- SUAMICO SEWAGE COLLECTION SYSTEM
- SUPERIOR SEPTIC
- VERSO QUINNESEC LLC
- WAUSAUKEE WASTEWATER TREATMENT FACILITY
- WI DNR THUNDER RIVER REARING STATION

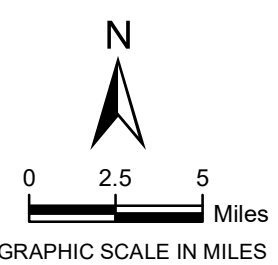
- LEGEND:**
- ★ FOOD MANUFACTURER
 - ▲ SEPTIC
 - WASTEWATER
 - PAPER
 - ▭ COUNTY OUTLINES



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

NOTES:

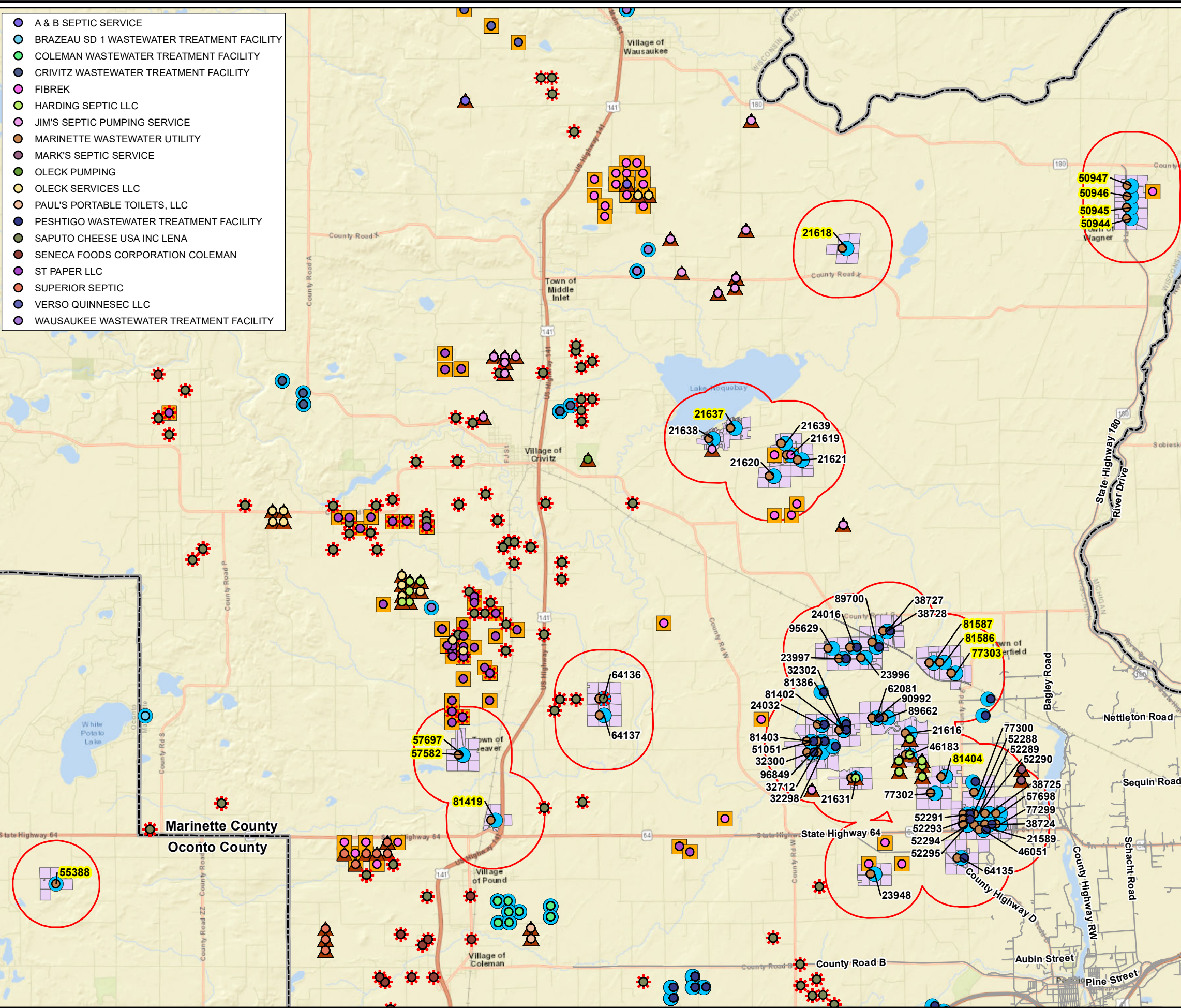
1. All permitted land applied biosolids sites shown have approximate locations based on quarter-quarter section data. Although some sites have more accurately defined locations, not all site data has been received; as such to not mix results only quarter-quarter locations were used.
2. All data in this figure was obtained from the WDNR in Open Record responses dated March 17 and August 5, 2022.



LAND APPLIED BIOSOLIDS INTERIM SITE
 STATUS UPDATE REPORT
 MARINETTE AND OCONTO COUNTIES, WISCONSIN

LAND APPLIED BIOSOLIDS MAP

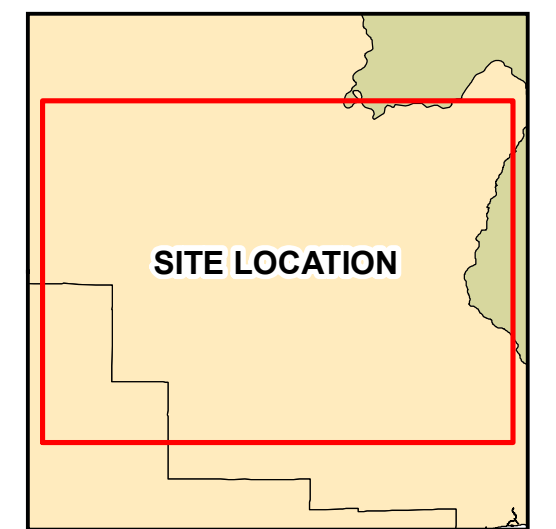
ARCADIS | **FIGURE 1**



LEGEND:

- * FOOD MANUFACTURER
- ▲ SEPTIC
- WASTEWATER
- PAPER
- PARCELS WITHIN 1200 FOOT BUFFER
- 1 MILE BUFFER OF PARCEL CONTAINING CITY OF MARINETTE LAND APPLICATION SITE
- COUNTY OUTLINES

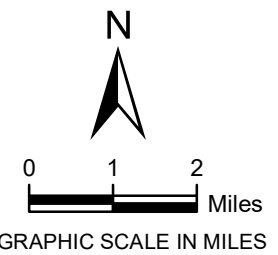
50947 MARINETTE WASTEWATER UTILITY SITE ID
 - YELLOW HIGHLIGHTED ID'S ARE CANDIDATE FIELDS



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

NOTES:

1. All permitted land applied biosolid sites shown have approximate locations based on quarter-quarter section data. Although some sites have more accurately defined locations, not all site data has been received; as such to not mix results only quarter-quarter locations were used.
2. All data in this figure was obtained from the WDNR in Open Record responses dated March 17 and August 5, 2022.



**LAND APPLIED BIOSOLIDS INTERIM SITE STATUS UPDATE REPORT
 MARINETTE AND OCONTO COUNTIES, WISCONSIN**

LAND APPLIED BIOSOLIDS PROPERTIES THAT MEET PRE-SELECTION FIELD CRITERIA

Appendix A

WDNR Correspondence



February 9, 2022

MS. DENICE NELSON
JOHNSON CONTROLS, INC
5757 N. GREEN BAY AVENUE
MILWAUKEE, WI 53209

MR. SCOTT WAHL
TYCO FIRE PRODUCTS LP
1 STANTON STREET
MARINETTE, WI 54143

Via Email Only to denice.karen.nelson@jci.com and scott.wahl@jci.com

SUBJECT: *Land-Applied Biosolids Preliminary Assessment Plan*
JCI/Tyco Biosolids – Multiple Landspreading Fields
BRRTS #02-38-583856

Dear Ms. Nelson and Mr. Wahl:

On December 23, 2021, the Wisconsin Department of Natural Resources (DNR) received the *Land Applied Biosolids Preliminary Assessment/Site Investigation Work Plan* (the “Preliminary Assessment Plan”). The report was submitted by Arcadis U.S., Inc. (Arcadis) on behalf of Johnson Controls, Inc. and Tyco Fire Products LP (JCI/Tyco) and was accompanied by the appropriate fee of \$700 required under Wisconsin Administrative Code (Wis. Adm. Code) § NR 749.04(1), for formal DNR review and response.

The DNR reviewed the Preliminary Assessment Plan, including the cover letter where JCI/Tyco stated that they will provide bottled water to certain properties¹; however, they will not conduct additional testing of potentially affected drinking water receptors. The DNR reminds JCI/Tyco that they are required to make a good faith effort to sample potentially affected drinking water receptors under Wis. Adm. Code § NR 716.13(16).

The DNR finds that the Preliminary Assessment Plan is designed to gather initial screening data but is not designed as a field investigation to determine the nature, degree and extent of contamination in all affected media per Wis. Adm. Code § NR 716.11. The DNR reminds JCI/Tyco that a site investigation work plan that complies with Wis. Adm. Code § NR 716.09 (a “NR 716 SIWP”) was listed in the July 3, 2019 responsible party letter and remains a requirement for this case that has not been met. JCI/Tyco may complete the Preliminary Assessment to help define the scope for the NR 716 SIWP, and must submit an NR 716 SIWP at completion of the work in accordance with Wis. Adm. Code § NR 716.11.

If you do not submit a NR 716 SIWP designed to meet all applicable site investigation requirements (Wis. Adm. Code ch. NR 716) and do not make a good faith effort to sample potentially drinking water receptors (Wis. Adm. Code § NR 716.13(16)) you are choosing to not comply with applicable state laws.

¹ A list of properties to be offered bottled water was provided to the DNR on January 25, 2022.

Background

In 2018, the city of Marinette notified the DNR of per and polyfluoroalkyl substances (PFAS) contamination present in influent wastewater received by the Marinette Wastewater Treatment Plant (WWTP) and in biosolids generated by the WWTP. From 1997 to 2017, a total of 61 fields in Marinette and Oconto counties were approved to accept biosolids from the WWTP. The fields where PFAS-contaminated biosolids from the city of Marinette were land applied between 1997 and 2017 are identified herein as the “Site;” maps of the Site are included in **Attachment A**.

JCI/Tyco’s industrial operations in Marinette were identified as sources of PFAS in the city’s biosolids that were land applied to the Site (testing by the city of Marinette found that PFAS levels in sanitary sewer zones servicing JCI/Tyco’s facilities were approximately 20 times higher than other zones in the city). On July 3, 2019, the DNR notified JCI/Tyco of its responsibilities to address PFAS contamination at the Site where the city of Marinette’s biosolids were land applied, including sampling of public and private water supply wells to help determine the extent of groundwater contamination (Wis. Adm. Code § NR 716.13 (16)) and submitting a NR 716 SIWP. The correspondence between JCI/Tyco and the DNR that followed was documented in the DNR’s September 14, 2021 letter citing JCI/Tyco with a Notice of Non-compliance (NON). On October 7, 2021, the DNR hosted a call for JCI/Tyco and its representatives to discuss the requirements listed in the NON.

Summary of JCI/Tyco’s Preliminary Assessment Plan

The DNR’s understanding of the Preliminary Assessment Plan is summarized below. The work is divided into two phases – Phase 1 Document Review and Phase 2 Initial Field Data.

In Phase 1, JCI/Tyco will review information and records provided by the DNR, the cities of Marinette and Peshtigo and the owners of the 61 fields comprising the Site, and use this information to select a subset of fields for sampling. Information on quantity of biosolids applied to a field, PFAS results from drinking water wells tested near each field, local geology, property use and ability to access the fields will also factor into the field selection. JCI/Tyco plans to sample up to six of the 61 fields and one background field (a field in the area with no known land application of biosolids).

The Preliminary Assessment Plan does not provide the specific criteria JCI/Tyco will use to select the fields to be sampled in Phase 2; however, JCI/Tyco will submit a document that summarizes the information reviewed and the fields to be sampled prior to implementing Phase 2.

In Phase 2, JCI/Tyco will install up to five direct push borings at each of the selected fields. One boring will be installed near the center of the field and the others around the perimeter. The target depth of each boring will be 30 feet; a composite soil sample will be collected from the upper 2 feet and another from the 2 feet above the first encounter of wet soils. A temporary 1-inch PVC monitoring well will be installed in each boring; the well will be screened where water is first encountered with a 5 to 10-foot well screen. This first encountered water may represent perched water and not the water table. JCI/Tyco will collect a water sample and measure the water level after each temporary well is developed. The temporary well will be removed and the borehole abandoned when sampling is complete. Prior to abandonment the location and vertical elevation of the wells will be surveyed. The soil and water samples will be submitted for analysis for PFAS in accordance with the 2021 Revised Quality Assurance Project Plan (QAPP) and the water levels will be used to estimate the direction of local groundwater flow.

JCI/Tyco plans to complete the field sampling in the third or fourth quarter of 2022 and will submit a report documenting the field data within 60 days after completion of the work.

DNR Review

The Preliminary Assessment Plan does not meet the requirements of a Wis. Adm. Code § NR 716.09 site investigation work plan. JCI/Tyco may proceed with the Preliminary Assessment to gather information to scope and submit a NR 716 SIWP at completion of the work. The DNR's review comments on the Preliminary Assessment are provided below.

JCI/Tyco and its representatives requested DNR records related to the Site to assist in their assessment – these past requests and the DNR's responses are summarized in **Attachment B**. On January 23, 2022, JCI/Tyco submitted a request for additional records; the DNR will provide JCI/Tyco with a written response that further explains the records it has provided to date and will ask JCI/Tyco for clarification on their most recent request. The DNR will provide responsive records once clarification is received.

Waiting for response to the additional request for records before proceeding with selection of fields to sample in the Preliminary Assessment is not approved. To date, the DNR has provided JCI/Tyco with sufficient information to select fields for sampling in Phase 2. The DNR has provided JCI/Tyco with the following:

- The 61 fields approved to receive biosolids from the city of Marinette WWTP (i.e., the “Site”):
 - Figures identifying the specific areas approved for landspreading (see **Attachment A**) and the reported size (acreage) of each field.
 - Reported data of the quantity and year(s) that biosolids from the city of Marinette WWTP were landspread on each field.
 - Reported data on the facility names, material type, and quantity by year of application for all entities to report landspreading on any of these 61 specific fields.
- All fields reported to receive industrial, municipal, and septage wastewaters via landspreading in Marinette and Oconto counties:
 - Reported field size (acreage), PLSS legal description, and latitude and longitude coordinates for the center point of the of the quarter-quarter section containing each field.
 - Reported data on the facility names, material type, and quantity by year of application for all entities to report landspreading on any of these permitted fields.

After you receive and review the DNR's more detailed explanation of information previously provided, please contact the DNR if you have specific questions or examples of evaluations where you need further assistance to proceed with selection of fields for Phase 2.

Please address the following comments in a submittal to the DNR prior to starting the Phase 2 field work.

In the Preliminary Assessment Plan, JCI/Tyco suggests its approach aligns with the biosolids land application study completed by Michigan Department of Environment, Great Lakes, and Energy (EGLE)². The DNR compared the two studies and found several key differences. Four differences are presented below and requests for clarification or considerations for the proposed the Preliminary Assessment are highlighted in italics.

² https://www.michigan.gov/documents/egle/PFAS-Biosolids-Field-Reports-Summary-WRD_723013_7.pdf

1. EGLE used USDA soils maps, regional groundwater flow information, and local surface water drainage to select sample locations. (a) *The Preliminary Assessment Plan does not specify these data evaluations. Will similar data be used to select fields and boring locations for sampling in Phase 2?*
2. EGLE characterized soil concentrations on the land application fields using composite soil samples collected from decision units (DUs) defined for each field. Soil was collected using a 3/4" diameter soil corer to a depth of 1-foot and composited from nine aliquots in each DU. (a) *Explain how soil samples collected from five direct push borings in the selected fields (ranging in size from 3 to 105 acres) will be representative of the PFAS concentrations in each field and if field size is expected to affect the results.*
3. EGLE collected groundwater from permanent 2-inch monitoring wells and installed shallow and deep wells at several locations to also assess the vertical migration in the groundwater. (a) *Assessment of vertical migration is recommended to further the conclusions that may be drawn from the Preliminary Assessment.* (b) *Consider constructing some or all wells as NR-141 compliant permanent monitoring wells, which are required for the site investigation. If access or other site-specific considerations necessitate use of temporary 1-inch wells during the Preliminary Assessment, request approval under Wis. Adm. Code § NR 141.29 and include rationale.*
4. EGLE collected surface water samples from local ponds, creeks, perched water (i.e., standing water in the fields), and drain tile. (a) *Collect surface water samples to further the conclusions that may be drawn from the Preliminary Assessment and help scope the NR 716 SIWP.* (b) *Consider pairing the surface water samples with sediment samples.*

The remainder of the DNR's review comments are independent of comparison to EGLE's study.

5. *Timing of Field Work:* Conduct the Phase 2 sampling as soon as practicable. As stated above, JCI/Tyco has sufficient information to select fields for the Preliminary Assessment, and can begin work to select fields and obtain access from landowners.
6. *Selection of Fields:* Drinking water well identified on map panels 2, 3, and 7 (**Attachment A**) had the highest concentration of PFAS in wells tested and a high density of wells over recommended groundwater standards. Fields on these three map panels should be include in the Preliminary Assessment or justification should be provided for why fields in these area were not selected for testing.
7. *Number of Samples:* The plan for the Preliminary Assessment indicates "up to" six of the 61 fields and "up to" five borings per field. The DNR considers these as the minimum and not the maximum number of sample locations. If access or local conditions prevent sampling at a particular location, select and complete sampling at an alternative location. Consider including contingency fields in the selection process in the event that access to a selected field is denied.
8. *Shallow Bedrock:* Describe how groundwater will be characterized in locations with shallow bedrock, and update the sampling plan to collect and test soil from the bottom 2 feet of the boring if refusal occurs before groundwater is detected. A spot check of the available well construction logs at the Site finds that the depth to bedrock may be as shallow as 10 feet in some areas (e.g., map panels 3, 4, 6, 7, and 9 in **Attachment A**), and groundwater may not be present in the shallow soils.
9. *Survey:* Measure the ground surface elevation for all groundwater monitoring wells and any additional soil borings not completed as wells.
10. *Documentation Report:* Include an NR 716 SIWP with submittal of the documentation report for this Preliminary Assessment. JCI/Tyco may use findings and conclusions from the Preliminary Assessment to help scope the NR 716 SIWP.

Schedule and Next Steps

Please follow these next steps to demonstrate progress in completing the Preliminary Assessment and development of an NR 716 SIWP.

- **By June 1, 2022:** Submit a report to the DNR that responds to the comments in this letter, documents the work completed for Phase 1 and summarizes the criteria used to select fields to sample in Phase 2.
 - o Include maps identifying the fields selected for sampling, the proposed boring/well locations and the private wells locations and testing results within the buffer zone for each field.
 - o Document that access agreements are in place for the fields selected for sampling and submit a schedule for conducting the Phase 2 field work as soon as access for sampling is permitted by the landowners.
- Within **60 days** after completion of Phase 2, submit a documentation report that includes a NR 716 SIWP. As a reminder, sampling water supply wells that may be affected by the contamination remains a requirement for the field investigation at the Site (Wis. Adm. Code § NR 716.13(16)).

Failure to take the actions required by Wis. Stat. § 292.11 to address this contamination will cause the DNR to consider this case for additional enforcement actions including referral to the Department of Justice. Please be aware Wis. Stat. § 292.99(1) authorizes the Department of Justice to seek penalties of up to \$5,000 per day and Wis. Adm. Code § NR 728.05 authorizes the DNR to seek penalties for violations of applicable rules, including Wis. Adm. Code ch. NR 716 site investigation requirements. Additionally, please be advised that the DNR is authorized under Wis. Stat. § 292.94 to assess non-reimbursable fees for any reports you are required to submit as part of additional enforcement actions.

If you have any questions about this letter, or wish to set up the proposed meeting, please contact me, the DNR Project Manager, at (608) 622-8606 or Alyssa.Sellwood@wisconsin.gov.

Sincerely,



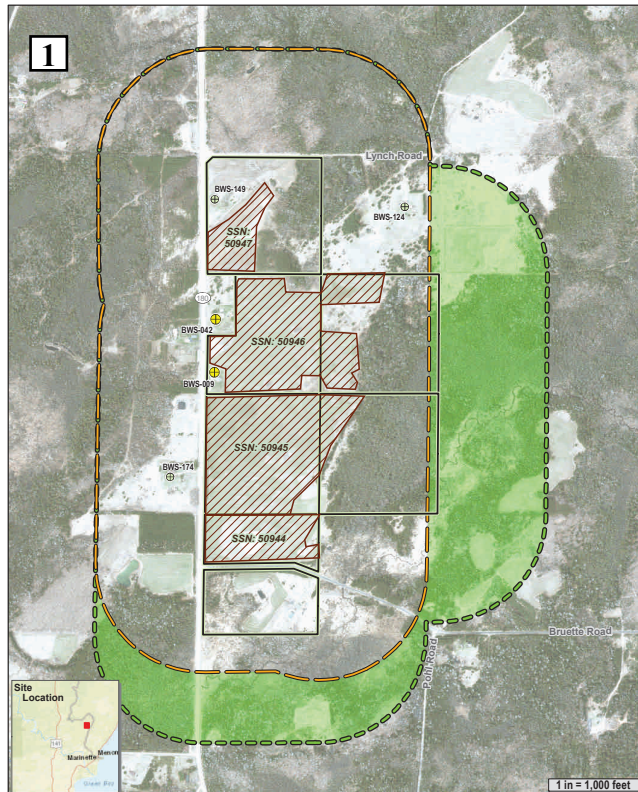
Alyssa Sellwood, PE
Complex Sites Project Manager
Remediation & Redevelopment Program

Attachments: Attachment A: Copy of Maps of Fields from September 14, 2021 NON
Attachment B: Summary of Previous Records Requests and Response

cc: Jodie Peotter, DNR (via email: Jodie.peotter@wisconsin.gov)
Alexis Heim Peter, DNR (via email: Alexis.Peter@wisconsin.gov)

JCI/Tyco BRTS 02-38-583856

Portable Well PFAS Sampling Areas Near Biosolid Landspreading Fields



JCI/Tyco sampled potable well (Mar 2020 - Apr 2021)
 (Well locations and results provided by JCI/Tyco)

- ⊕ PFAS not detected
- ⊕ PFAS < proposed Cycle 11 groundwater standards
- ⊕ PFAS >= proposed Cycle 11 groundwater standards

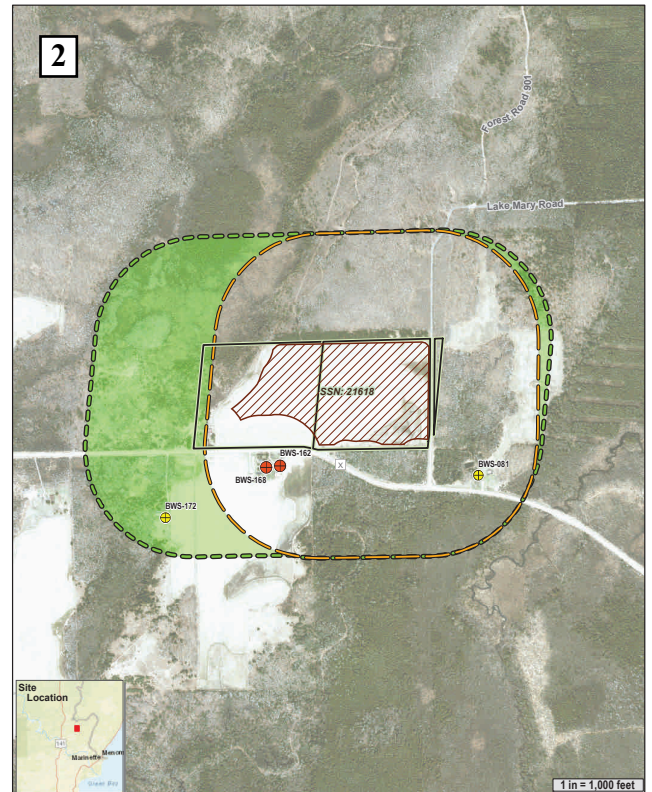
JCI/Tyco provided 1,200' buffer (initial buffer)
 LAG biosolid field (see note)
 Property boundary with field approved for landspreading city of Marinette biosolids

1,200' buffer from applicable property boundary
 Buffer area to be added to JCI/Tyco's study

NOTE: LAG is DNR's Land Application Geo-database. LAG areas are based on desktop review, legal descriptions and landowner-provided information and are for reference purposes only. The mapped areas are not necessarily reflective of where biosolids were spread, but are those areas suitable for sewage sludge spreading pursuant to ch. NR 204 requirements that the city of Marinette was approved to use.

JCI/Tyco BRTS 02-38-583856

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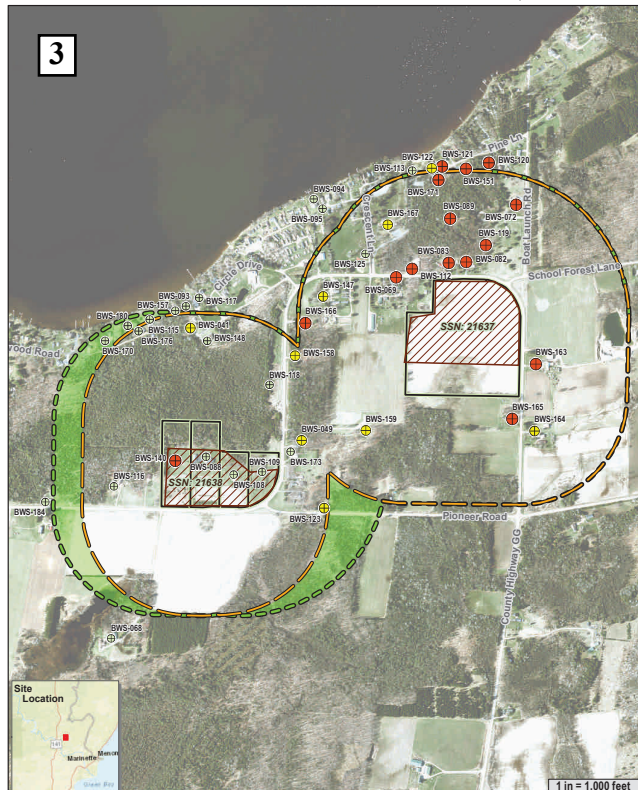
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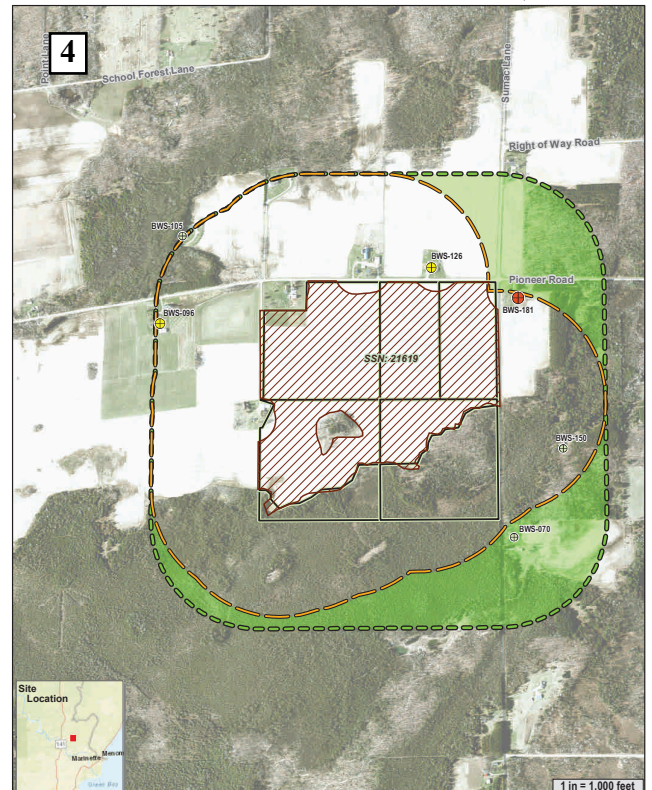
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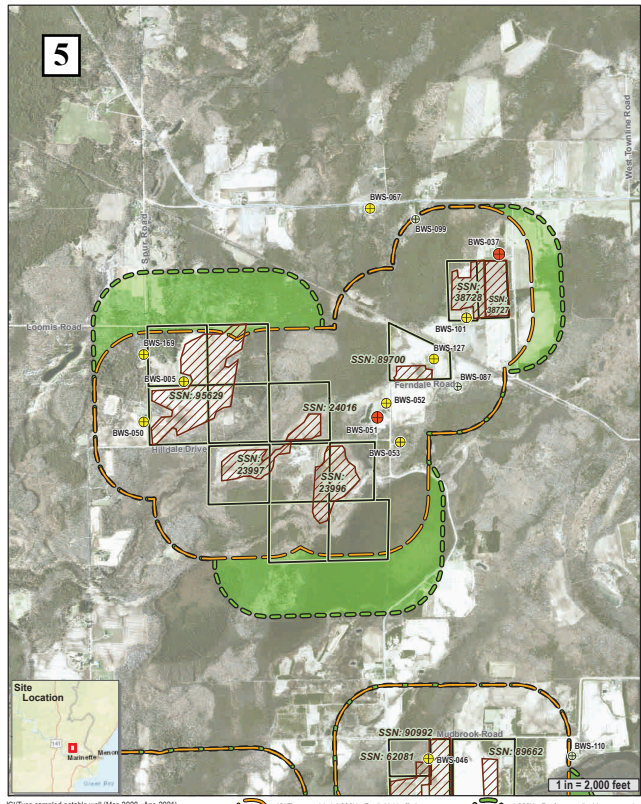
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(Well locations and results provided by JCI/Tyco)

- ⊕ PFAS not detected
- ⊕ PFAS < proposed Cycle 11 groundwater standards
- ⊕ PFAS >= proposed Cycle 11 groundwater standards

JCI/Tyco provided 1,200' buffer (initial buffer)

- ⊕ LAG biosolid field (see note)
- ⊕ Property boundary with field approved for landspreading city of Marinette

1,200' buffer from applicable property boundary

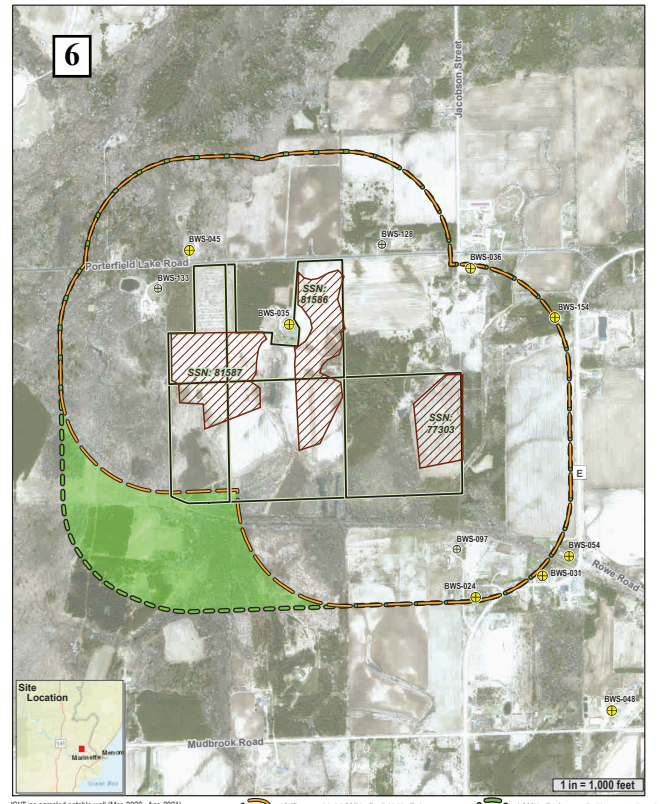
- ⊕ Buffer area to be added to JCI/Tyco's study

1 in = 2,000 feet

NOTE: LAG is DNR's Land Application Geo-database. LAG areas are based on desktop review, legal descriptions and landowner-provided information and are for reference purposes only. The mapped areas are not necessarily reflective of where biosolids were spread, but are those areas suitable for sewage sludge spreading pursuant to ch. NR 204 requirements that the city of Marinette was approved to use.

JCI/Tyco BRTS 02-38-583856

Portable Well PFAS Sampling Areas Near Biosolid Landspreading Fields



JCI/Tyco sampled potable well (Mar. 2020 - Apr. 2021)
(Well locations and results provided by JCI/Tyco)

- ⊕ PFAS not detected
- ⊕ PFAS < proposed Cycle 11 groundwater standards
- ⊕ PFAS >= proposed Cycle 11 groundwater standards

JCI/Tyco provided 1,200' buffer (initial buffer)

- ⊕ LAG biosolid field (see note)
- ⊕ Property boundary with field approved for landspreading city of Marinette

1,200' buffer from applicable property boundary

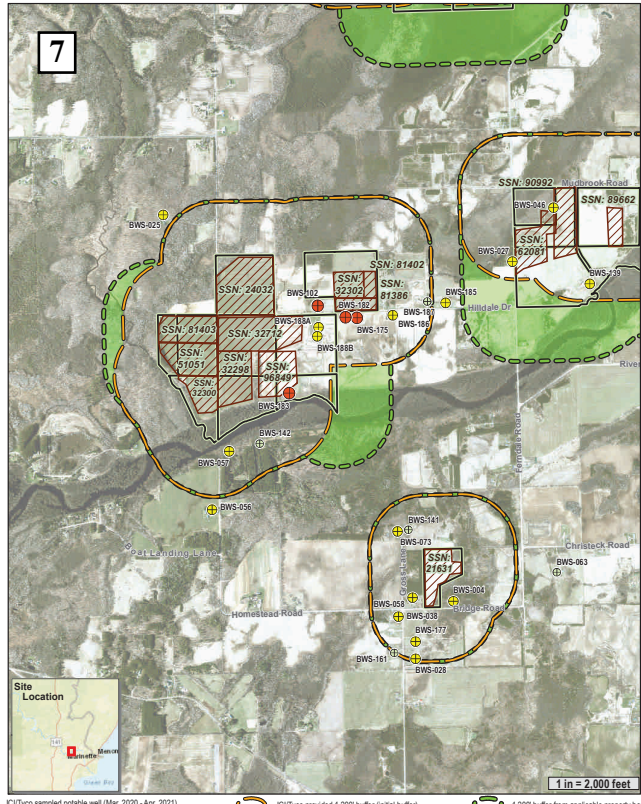
- ⊕ Buffer area to be added to JCI/Tyco's study

1 in = 1,000 feet

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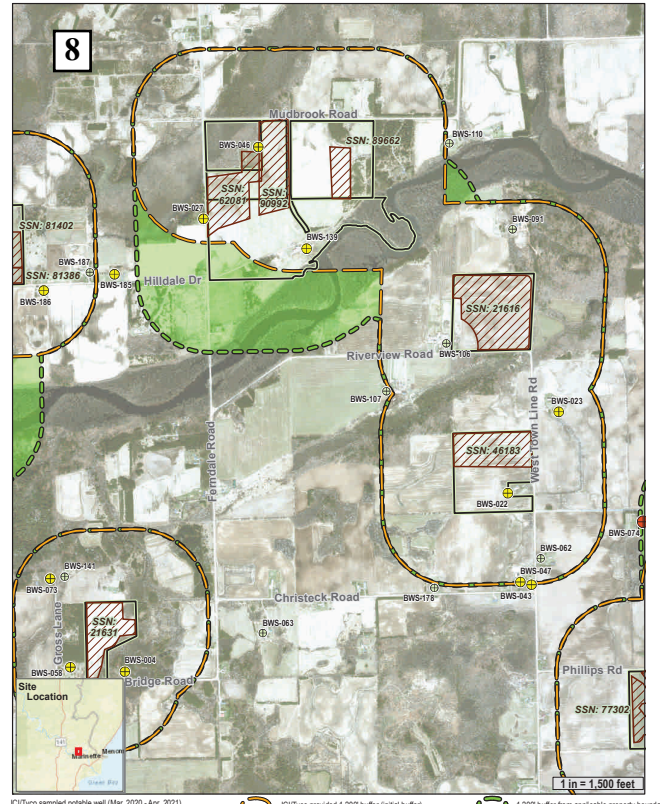
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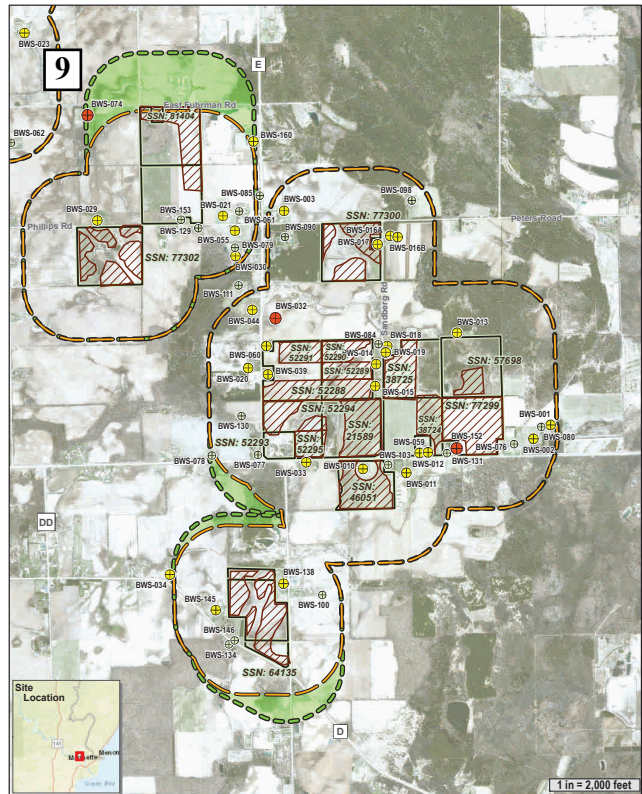
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1 in = 1,500 feet

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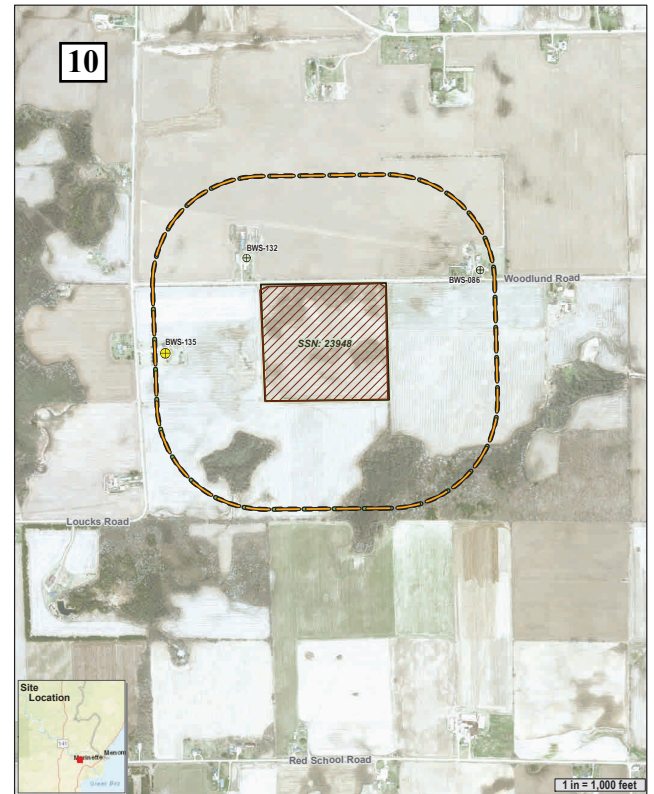
1,200' buffer from applicable property boundary

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JCI/Tyco BRTS 02-38-583856

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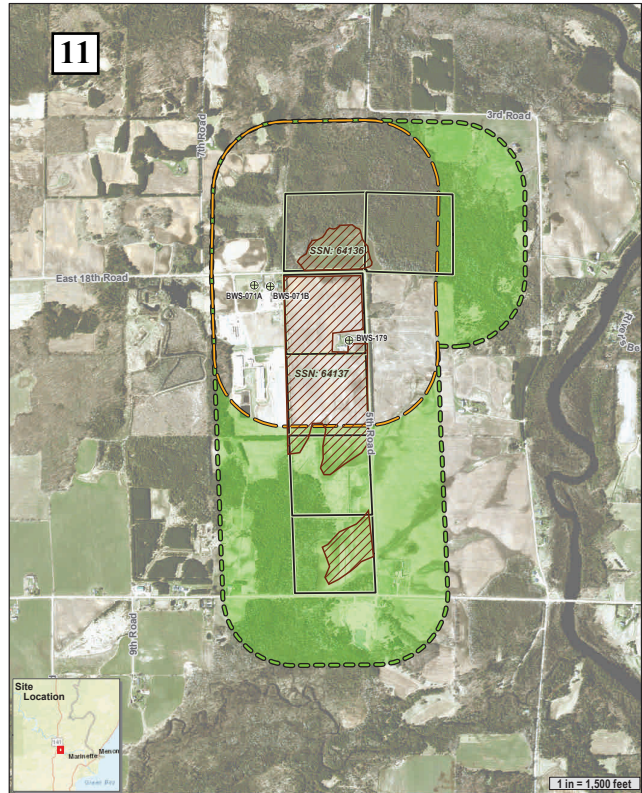
1,200' buffer from applicable property boundary

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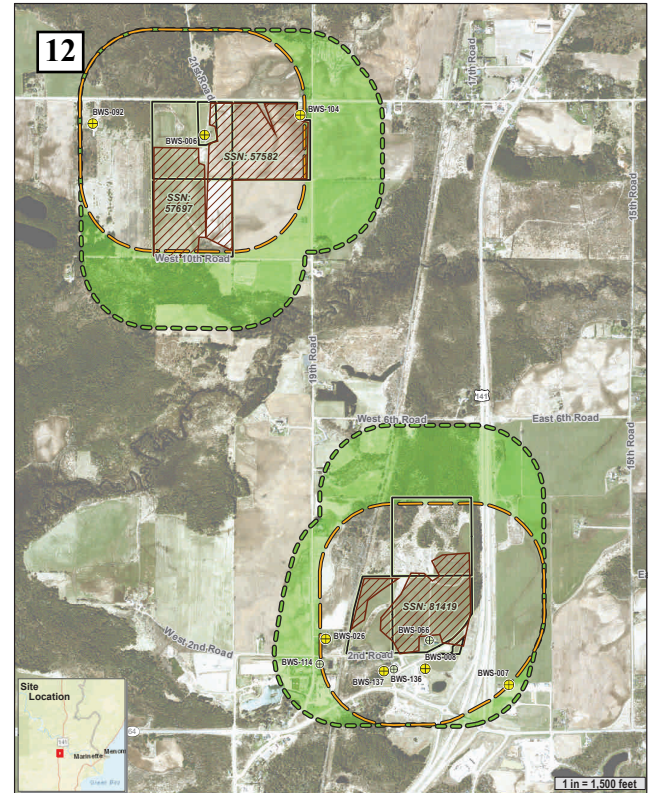
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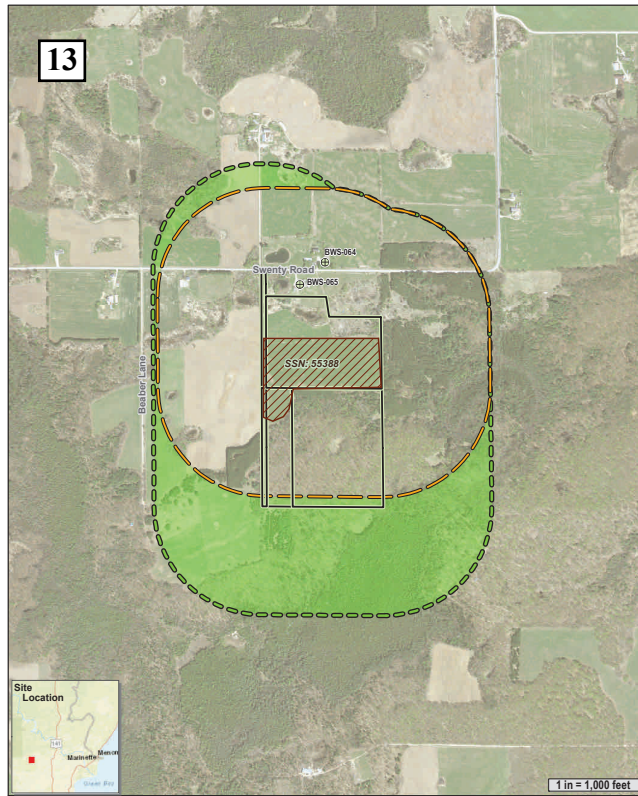
1,200' buffer from applicable property boundary









- ⊕ Buffer area to be added to JCI/Tyco's study

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JCI/Tyco BRRTS 02-38-583856

Potable Well PFAS Sampling Areas Near Biosolid Landspreading Fields



- JCI/Tyco sampled potable well (Mar 2020 - Apr 2021)
(Well locations and results provided by JCI/Tyco)
-  PFAS not detected
 -  PFAS < proposed Cycle 11 groundwater standards
 -  PFAS >= proposed Cycle 11 groundwater standards
 -  JCI/Tyco provided 1,200' buffer (initial buffer)
 -  LAG biosolid field (see note)
 -  Property boundary with field approved for landspreading city of Marinette biosolids
 -  1,200' buffer from applicable property boundary
 -  Buffer area to be added to JCI/Tyco's study

NOTE: LAG is DNR's Land Application Geo-database. LAG areas are based on desktop review, legal descriptions and landowner-provided information and are for reference purposes only. The mapped areas are not necessarily reflective of where biosolids were spread, but are those areas suitable for sewage sludge spreading pursuant to ch. NR 204 requirements that the city of Marinette was approved to use.

Summary of Records Requests

JCI/Tyco and its outside legal counsel (Foley & Lardner LLP) have requested records from the DNR related to the Site. A summary of these prior requests and the DNR's responses are as follows:

- July 2019¹: Foley & Lardner LLP submitted an request for records pertaining to testing data for sanitary sewer zones discharging to the city of Marinette WWTP; permits and documents pertaining to the city of Marinette's sludge management procedures and landspreading of biosolids and those same documents for other entities approved to landspread on same fields as the city of Marinette; and information on other sources of contamination on landspreading fields and responsible party letters associated with BRRTS 02-38-586856. The DNR provided over 650 responsive records; a partial response in October 2019 and the full release of records in December 2019.
- March 2021: Foley & Lardner LLP submitted an open records request for all PFAS documentation and data that the DNR has within a 10 mile radius of specified areas. The DNR does not retain data in this way, and provided Foley an opportunity to refine their request so that it is not unduly burdensome. Foley declined and the request was closed out.
- October 2021: JCI/Tyco submitted a request for records pertaining to land application of biosolids from the Marinette WWTF, and other landspreading from industrial and domestic sources from 2010 - present. The DNR prepared a spreadsheet for JCI/Tyco that summarized these records available from 2010 to 2020 for the townships where the city of Marinette landspread biosolids. The spreadsheet prepared for JCI/Tyco named regulated entities and included the year, discharge quantity, field location and acreage where their sludge/biosolids were land applied. The data and a cover memo explaining the data were released to JCI/Tyco in December 2021.
- January 14, 2022: In a call, JCI/Tyco requested all available records pertaining to land application of biosolids from the Marinette WWTF, and other landspreading from industrial and domestic sources from back to 1996² for Marinette and Oconto counties. The DNR prepared spreadsheets for JCI/Tyco that named the regulated entities and included the year, discharge quantity, field location and acreage where their industrial, municipal, or septage wastewaters were land applied. The field location reported from the database is a PLSS legal description and latitude and longitude representing the center of the quarter-quarter section of the permitted field. The data was released to JCI/Tyco on January 14, 2022.
- On January 23, 2022, JCI/Tyco submitted request for records, to which the DNR will respond to clarify records previously provided and will then provide responsive records.

In addition to these records, the DNR prepared maps for each of the 61 fields outlining the areas permitted to receive city of Marinette biosolids. These maps were provided to JCI/Tyco on September 14, 2021 (copies in **Attachment A**).

¹ In the Screening Assessment, JCI/Tyco refers to a February 2019 request for records. The DNR does not have a request for records associated with the Site from this date, but does have one dated July 18, 2019.

² Data provided to JCI/Tyco inadvertently did not capture the data reported from the year 1996. The reported data from 1996 will be provided to JCI/Tyco to correct this inadvertent omission.

Appendix B

Property History Questionnaire

Owner 1
Owner 2
Address 1
Address 2

Arcadis U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee
Wisconsin 53202
www.arcadis.com

Subject: Property History Questionnaire
City of Marinette POTW Land-Applied Biosolids

Location: Parcel #xxx-xxxxx.xxx

Date: September 30, 2022

Dear Neighbor:

In cooperation with the Wisconsin Department of Natural Resources (WDNR), Arcadis, on behalf of Tyco Fire Products LP (Tyco) is conducting a thorough data review of public records as they relate to biosolids use on fields. For the purpose of this letter, biosolids are solid organic matter recovered from wastewater treatment processes that are commonly used as fertilizer on agricultural land. Biosolids from the City of Marinette POTW were historically applied on privately owned farm fields in Marinette County and Oconto County. The City of Marinette applied for approval to conduct these biosolid land application activities, which were permitted by WDNR in accordance with Wisconsin Administrative Code Chapter NR 214. City of Marinette biosolids were last applied to fields in 2017, and biosolids generated since that time have not been land applied.

In June 2018, the City of Marinette notified WDNR of elevated per- and polyfluoroalkyl substance (PFAS) concentrations in influent wastewater received by the POTW. In July 2018, the City of Marinette identified PFAS concentrations in biosolids generated by the POTW. PFAS are widely used in many existing consumer products. According to the EPA (U.S. Environmental Protection Agency), PFAS are used to make carpets, clothing, fabrics for furniture, paper packaging for food such as microwave popcorn bags and fast-food wrappers, firefighting foams, in other materials (e.g., cookware) that are resistant to water, grease, or stains, and in some shampoos, dental floss and cosmetics.

During this data review, Tyco is evaluating records for fields identified by WDNR as having historically received biosolids from the City of Marinette Publicly Owned Treatment Works (POTW).

You are receiving this letter as initial records from the WDNR have identified that the property located at <Site PIN/Site Address> historically received land applied biosolids from the City of Marinette. In an effort to fully understand land use and relevant history, and as part of the data review, a questionnaire has been drafted to gather additional information for this field.

Questionnaire: Enclosed is a 1-page questionnaire requesting relevant farm and land use information about your property/properties. Please fill out the form and return it to us in the self-addressed, stamped envelope. If we have not received the enclosed questionnaire within 60 days of postmark, we will make additional attempts to contact you.

Privacy of Data: We fully respect your privacy, meaning your personal information will be kept confidential to the extent possible. For example, we will assign a unique identification code to each property history questionnaire that will be used in any data review documents. For official reporting to government agencies, we will only provide such information that is required by that agency.

«Owner_1»

«Owner_2»

September 30, 2022

Thank you. We appreciate your cooperation and participation in this important effort. Please call the Tyco Environmental Assessment Team at **(800) 314-1381** with any questions or concerns.

Sincerely,
Arcadis U.S., Inc.

XX XX

Enc. Property History Questionnaire

Please complete the following questions to the best of your knowledge during your ownership or with knowledge from previous ownership. This information will be used to help understand your field's condition. Please return this completed questionnaire in the provided self-addressed/stamped envelope within 60 days of receipt.

1. Estimated total tillable acreage:			
2. Has the field been used for anything other than farming?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
3. How often is the field tilled?	Annually <input type="checkbox"/>	Semi-Annual <input type="checkbox"/>	Other <input type="checkbox"/>
4. Have deep-tilling (>1-foot) practices been used at this field?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
5. Have irrigation practices been used at this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If irrigation has been used, what type(s)?	Center pivot irrigation <input type="checkbox"/>	Traveling gun irrigation <input type="checkbox"/>	Other <input type="checkbox"/>
If irrigation has been used, what was the source(s) of water?	Well water <input type="checkbox"/>	Surface water (pond, river) <input type="checkbox"/>	Municipal water <input type="checkbox"/>
6. Have cover crops been used at this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If yes, what type(s) of cover crops have been planted?	Grasses <input type="checkbox"/>	Legumes <input type="checkbox"/>	Other <input type="checkbox"/>
7. Has animal manure been spread on this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If yes, what type(s) of animal manures have been used?	Solid cow manure <input type="checkbox"/>	Liquid cow manure <input type="checkbox"/>	Other <input type="checkbox"/>
If yes, how often was it applied?	Annually <input type="checkbox"/>	Semi-Annual <input type="checkbox"/>	Other <input type="checkbox"/>
If yes, was the manure from your farm fields?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If it was not produced on your farm, who provided the manure?			
8. Has septic waste been applied to this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If yes, how often was it applied?	Annually <input type="checkbox"/>	Semi-Annual <input type="checkbox"/>	Other <input type="checkbox"/>
9. Have fertilizers other than biosolids (e.g., manure, septic, wood pulp sludge) been used at this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If used, what type(s) of fertilizers?	N-P-K <input type="checkbox"/>	Micronutrients (B, S, Zn...) <input type="checkbox"/>	Other <input type="checkbox"/>
If fertilizers have been used, how often was the application?	Annually <input type="checkbox"/>	Semi-Annual <input type="checkbox"/>	Other <input type="checkbox"/>
10. Have herbicides been used on this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If used, what type(s) of herbicides?	Glyphosate <input type="checkbox"/>	Alachlor, metolachlor, and/or acetochlor <input type="checkbox"/>	Other <input type="checkbox"/>
If herbicides have been used, how often was the application?	Annually <input type="checkbox"/>	Semi-Annual <input type="checkbox"/>	Other <input type="checkbox"/>
11. Have pesticides been used on this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
If used, what type(s) of pesticides?	Atrazine <input type="checkbox"/>	Chlorpyrifos <input type="checkbox"/>	Other <input type="checkbox"/>
If pesticides have been used, how often was the application?	Annually <input type="checkbox"/>	Semi-Annual <input type="checkbox"/>	Other <input type="checkbox"/>
12. Do you have a current nutrient management plan in place?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If yes, when was the nutrient management plan last revised?	Within last year <input type="checkbox"/>	One to five years ago <input type="checkbox"/>	> 5 years ago <input type="checkbox"/>
12. Do you have a current manure management plan in place?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If yes, when was the manure management plan last revised?	Within last year <input type="checkbox"/>	One to five years ago <input type="checkbox"/>	> 5 years ago <input type="checkbox"/>
13. Is or was bulk silage stored on this field?	Current practice <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
Does/did the silage have documented leachate?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
14. Have any soil samples been collected within the last 4 years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If yes, is the data available?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
15. Do you have animals on the property?	Currently <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
How many animals have been kept on this field at one time?	< 15 animals <input type="checkbox"/>	15 to 50 animals <input type="checkbox"/>	> 50 animals <input type="checkbox"/>
If animals have been kept, what type(s) of animals?	Cattle <input type="checkbox"/>	Poultry <input type="checkbox"/>	Other <input type="checkbox"/>
16. Is there drain tile present at the field?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If yes, where does the water drain to?	Existing water body <input type="checkbox"/>	Dug channel/ditch <input type="checkbox"/>	Other <input type="checkbox"/>
17. Does the field have septic or drain fields?	Currently <input type="checkbox"/>	In the past <input type="checkbox"/>	Never <input type="checkbox"/>
Is the location of the septic and/or drain fields known?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
18. Have any fires occurred at this field or adjacent properties?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If yes, was fire suppressant (foam) used?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>
If yes, when did the fire(s) occur?	Before 1970 <input type="checkbox"/>	Between 1970 and 2015 <input type="checkbox"/>	After 2015 <input type="checkbox"/>

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Wisconsin 53202
Phone: 414 276 7742
Fax: 414 276 7603
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