

Tyco Fire Products LP

PRIVATE WELL SAMPLING WORK PLAN – LAND APPLIED BIOSOLIDS

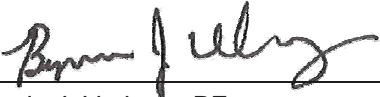
Marinette and Oconto Counties, Wisconsin

BRRTS No. 02-38-583856

March 2020



Lisa Rutkowski
Project Environmental Scientist



Benjamin J. Verburg, PE
Principal Engineer



Michael F. Bedard
Project Lead/Associate Vice President

PRIVATE WELL SAMPLING WORK PLAN – LAND APPLIED BIOSOLIDS

Marinette and Oconto Counties,
Wisconsin

BRRTS# 02-38-583856

Prepared for:

Tyco Fire Products LP
2700 Industrial Parkway South
Marinette, Wisconsin 54143

Prepared by:

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

Our Ref.:

WI001605

Date:

March 16, 2020

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

CONTENTS

Introduction	1
Work Plan Overview	2
Sample Procedure	2
Prior to Sample Collection	2
During Sample Collection	3
After Sample Collection	3
Quality Assurance/Quality Control	5
Data review and Decision process	6
Project Communication	6
Initial Outreach	6
Non-responsive Property Outreach	6
Scheduling	6
Toll-free Phone Line	7
Results Letters	7
Notification of Resampling	7
WDNR Communication	7
Closing	7
Professional Certification	8

APPENDIX

- A Request for Access and Private Well Drinking Water Sampling Correspondence and Private Drinking Water Well Survey

INTRODUCTION

This *Private Well Sampling Work Plan – Land Applied Biosolids* (work plan) has been prepared by Tyco Fire Products LP (Tyco) to sample private drinking water wells in the vicinity of fields where biosolids were land applied by the City of Marinette. Tyco is conducting this work under oversight by the Wisconsin Department of Natural Resources (WDNR).

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that have been manufactured and used in a variety of industries around the globe, including in the United States, since the 1940s. These substances have been used in non-stick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics, some firefighting foams, and products that resist grease, water, and oil. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are the most widely produced and studied of these chemicals.

The United States Environmental Protection Agency (USEPA) classifies PFAS as a category of "emerging contaminants". In May 2016, the USEPA issued a drinking water Lifetime Health Advisory Level (HAL) for two PFAS, specifically the combined concentrations of PFOA and PFOS, of 70 nanograms per liter (ng/L, or parts per trillion [ppt]). On June 21, 2019, the Wisconsin Department of Health Services (WDHS) sent to the WDNR the 10th Cycle of Groundwater Standard Proposals that recommended a groundwater standard of 20 ppt for PFOA and PFOS individually and combined.

During wastewater treatment, organic material is produced and consolidated. This organic material is referred to as "biosolids". Biosolids can be beneficially used, meaning rather than treating the biosolids as waste and placing them in a landfill, they can be recycled to provide a benefit. Biosolids are often applied to soil as a source of nutrients and to replenish soil organic matter. This is referred to as land application or landspreading. Biosolids can be applied to any type of soil. A common use is to apply biosolids to agricultural fields to increase field productivity (USEPA 2000).

Land application of biosolids can reduce the need for chemical fertilizers. Biosolids improve soil properties, including texture and water holding capacity. Some of the nutrients included in biosolids are nitrogen and phosphorus. The nutrients in biosolids have a number of advantages to inorganic fertilizers. The biosolid nutrients are organic and release slowly to plants. The biosolid nutrients are less water soluble than inorganic fertilizers. Both of these properties result in a lower potential for biosolids nutrients to run off into surface waters and leach into groundwater than inorganic fertilizers (USEPA 2000).

Untreated biosolids are examined for four primary categories: unacceptably high levels of heavy metals, disease causing organisms (called pathogens), attracting disease causing organisms (e.g., rodents, mosquitoes, and other vector attractants), and odor. To protect against these adverse effects, land application of biosolids are regulated by the United States 40 Code of Federal Regulation (CFR) Part 503. These regulations describe the sampling and analysis requirements that confirm the biosolids meet the applicable criteria and operational standards. Criteria are set for metals. Operational standards are set for pathogens and vector attractants. The regulations also describe management practices for how biosolids can be land applied. The regulations include record keeping and reporting requirements for where, when, and how much biosolids are applied.

PRIVATE WELL SAMPLING WORK PLAN – LAND APPLIED BIOSOLIDS

The USEPA oversees the implementation of 40 CFR Part 503. Under 40 CFR Part 501, USEPA can delegate the authority for this regulation to states. USEPA has delegated authority for the biosolids land application to the WDNR. Wisconsin regulates biosolids land application under Wisconsin Administrative Code (WAC) Chapter NR 214. This regulation describes how biosolids can be land applied, vehicle requirements for land application, and monitoring requirements. The WDNR issues permits for this activity and requires routine reporting and management plans.

The City of Marinette Wastewater Treatment Plant (WWTP) has historically land applied biosolids on privately owned farm fields. Biosolids land application activities conducted by the City of Marinette are permitted by the WDNR in accordance with WAC Chapter NR 214.

In June 2018, the City of Marinette notified the WDNR of elevated PFAS concentrations present in influent wastewater received by the WWTP. In July 2018, the City of Marinette identified elevated PFAS concentrations in biosolids generated by the WWTP from 2017 and 2018. In July 2018, the city of Marinette tested lines from five wastewater zones that discharge into its WWTP, and identified levels of PFAS in all five lines. The City of Marinette later dewatered, treated, and disposed of the biosolids that were generated at approximately the same time as those samples were collected, and therefore those biosolids were not land-applied. (Note that the City of Marinette's biosolids dewatering/treatment program was funded by Tyco). The City of Peshtigo also identified elevated PFAS concentrations in biosolids generated by its WWTP, and several farm fields have received biosolids from both WWTPs. The Marinette and Peshtigo areas contain numerous different industrial sites that are likely contributing sources of PFAS to the WWTPs. As a result, there are potentially multiple sources of PFAS that may have been present in the biosolids historically applied by the City of Marinette and City of Peshtigo WWTPs.

In September 2018, WDNR requested that the City of Marinette stop land application of biosolids. The WDNR identified 61 fields that received the City of Marinette biosolids land application from 1996 to 2018. In June 2019, WDNR requested that the City of Peshtigo stop land application of biosolids. This work plan describes the sampling approach for potable wells in the vicinity of fields where biosolids were land applied by the City of Marinette (and, as noted above, some of these fields also had biosolids applied by the City of Peshtigo).

WORK PLAN OVERVIEW

This work plan presents the proposed approach to sample private drinking water wells, analyze, and report the results. A communication plan is included that presents the approach to engaging parcel owners in the study area.

SAMPLE PROCEDURE

The sections that follow provide an overview of the private well sample procedures.

Prior to Sample Collection

Arcadis staff will coordinate a sampling date and time with each well's contact person. Upon arrival, Arcadis will provide introductions and let the resident/property owner know the purpose is to collect a

PRIVATE WELL SAMPLING WORK PLAN – LAND APPLIED BIOSOLIDS

potable well sample for PFAS analysis in accordance with previous correspondence provided to them regarding the sampling. Arcadis will request information from the property owner regarding the water system at each property. Information that will be recorded includes presence of water softeners, sediment traps, filters, and other water treatment features, as well as the location of these items. The Private Drinking Water Well Survey form is included in Appendix A.

Additional activities to be performed and procedures to be followed by the sampling team prior to potable well sample collection include:

- Don a new set of nitrile gloves immediately prior to sampling.
- Do not use gloved hands to subsequently handle papers, pens, clothes, or other non-sampling implements before collecting samples.
- Use the 2 to 250 milliliters high density polyethylene (HDPE) bottles that are supplied by the laboratory for each sample location.
- Sample bottle caps must remain on the bottle until immediately prior to sample collection, and the bottle must be sealed immediately after sample collection.

During Sample Collection

Potable water outfalls and taps are likely to vary. If possible, the team will avoid sampling from any taps fitted with Teflon tape or other PFAS-containing materials. Stainless steel and polyvinyl chloride materials are acceptable. The sampling team will collect unfiltered samples from a tap or port, as follows:

- Initiate flow from the water source and allow the system to flush for at least 3 minutes.
- Collect the sample into the HDPE bottle until the sample bottle is full (leaving slight headspace in the bottle is acceptable).
- Tightly screw on the polypropylene or HDPE cap.

After Sample Collection

Upon collection, the sample bottles will be placed in a sealed Ziploc® bag. Sample collection information will be recorded, including the sample identification (ID) and time of sampling on the sample bottle label, in the field notes, and on the chain-of-custody (COC) form. The COC form will be marked for standard analysis turnaround time. Samples will be placed in durable coolers, with enough ice to keep the sample temperature between 0 and 4 Celsius until delivered to the laboratory. Only “wet” ice will be used, with no use of “blue ice” or similar cold storage packets. PFAS sample coolers will be shipped via FedEx Priority Overnight delivery to:

Sample Receiving
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, California 95605-1500

Samples will be analyzed for all 36 PFAS compounds that are reportable using Method 537 - Modified. That list includes the following compounds:

PRIVATE WELL SAMPLING WORK PLAN – LAND APPLIED BIOSOLIDS

Analyte Description (1)	CAS Registry Number	RL	MDL	Units
Perfluorobutanoic acid (PFBA)	375-22-4	2.00	0.350	ng/L
Perfluoropentanoic acid (PFPeA)	2706-90-3	2.00	0.490	ng/L
Perfluorohexanoic acid (PFHxA)	307-24-4	2.00	0.580	ng/L
Perfluoroheptanoic acid (PFHpA)	375-85-9	2.00	0.250	ng/L
Perfluorooctanoic acid (PFOA)	335-67-1	2.00	0.850	ng/L
Perfluorononanoic acid (PFNA)	375-95-1	2.00	0.270	ng/L
Perfluorodecanoic acid (PFDA)	335-76-2	2.00	0.310	ng/L
Perfluoroundecanoic acid (PFUnA)	2058-94-8	2.00	1.10	ng/L
Perfluorododecanoic acid (PFDoA)	307-55-1	2.00	0.550	ng/L
Perfluorotridecanoic acid (PFTriA)	72629-94-8	2.00	1.30	ng/L
Perfluorotetradecanoic acid (PFTeA)	376-06-7	2.00	0.290	ng/L
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	2.00	0.890	ng/L
Perfluorobutanesulfonic acid (PFBS)	375-73-5	2.00	0.200	ng/L
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	2.00	0.460	ng/L
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	2.00	0.300	ng/L
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	2.00	0.170	ng/L
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	2.00	0.190	ng/L
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	2.00	0.540	ng/L
Perfluorononanesulfonic acid (PFNS)	68259-12-1	2.00	0.160	ng/L
Perfluorodecanesulfonic acid (PFDS)	335-77-3	2.00	0.320	ng/L
Perfluorooctanesulfonamide (FOSA)	754-91-6	2.00	0.350	ng/L
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	20.0	3.10	ng/L
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	20.0	1.90	ng/L
4:2 FTS	757124-72-4	20.0	5.20	ng/L
6:2 FTS	27619-97-2	20.0	2.00	ng/L
8:2 FTS	39108-34-4	20.0	2.00	ng/L
NEtFOSAM	4151-50-2	2.00	0.870	ng/L
MeFOSA	31506-32-8	2.00	0.430	ng/L
M-MeFOSE-M	24448-09-7	4.00	1.40	ng/L
N-EtFOSE-M	1691-99-2	2.00	0.850	ng/L
Perfluorododecanesulfonic acid (PFDoS)	79780-39-5	2.00	0.450	ng/L
F-53B Major	756426-58-1	2.00	0.240	ng/L

PRIVATE WELL SAMPLING WORK PLAN – LAND APPLIED BIOSOLIDS

Analyte Description (1)	CAS Registry Number	RL	MDL	Units
HFPO-DA (GenX)	13252-13-6	4.00	1.50	ng/L
F-53B Minor	763051-92-9	2.00	0.320	ng/L
10:2 FTS	120226-60-0	2.00	0.190	ng/L
DONA	919005-14-4	2.00	0.180	ng/L

Notes:

(1) = Samples may also be collected for additional non-PFAS analytical testing

CAS = Chemical Abstracts Service

MDL = Method Detection Limit

All disposable sampling materials will be treated as single use and disposed appropriately after sampling at each location. Samples from each residence will be kept in their own dedicated cooler with the appropriate quality assurance samples.

Quality Assurance/Quality Control

Avoiding cross-contamination from PFAS-containing materials during this sampling will be of utmost importance given the very low detection limits for the analyses that will be conducted for these compounds. As such, materials with the potential to contain PFAS will not be used during the sampling (including PTFE pipe tape, pipe thread pastes that contain PTFE, PTFE sample tubing, food wrappers, water resistant/proof clothing, or waterproof field books).

For quality control purposes, a duplicate sample will be taken approximately every ten samples.

Sample information, including sample ID and date/time collected, will be recorded on the provided bottle labels and attached to the sample bottles immediately after sealing the bottles. This information also will be recorded on the COC form provided by the laboratory, in a Potable Water Supply Sampling Log, and in the sampling team’s field notes. A signed copy of the COC form will be provided to the laboratory whenever a sample cooler is delivered to the laboratory. A copy of each COC form will be kept with the field notes and sampling logs.

After receipt from the laboratory, Arcadis will conduct a preliminary data quality review and complete a Level II data validation. If the data are deemed usable by the preliminary review and Level II data validation, the sample results will be communicated to well owners/users after completion of the preliminary data quality review, as outlined in the “Project Communication” section below. After completion of the preliminary data quality review, Arcadis will conduct a more comprehensive validation of the data (Level IV data validation). The timeframe for the Level IV validation may vary based on the amount of time required for the laboratory to send additional Quality Assurance/Quality Control information to Arcadis, and the number of samples under review. The anticipated timeframe for completion of Level IV validation is approximately 4 weeks after receipt of complete data and associated backup information from the laboratory. If any changes to the reported sampling results become necessary after completion of the Level IV validation, the well owners/users and WDNR will be notified of those changes.

If the data are found to be unusable after either the preliminary review and Level II data validation or the Level IV data validation, Arcadis will consult with WDNR about next steps. The well may be resampled after coordination with the well owner or contact person if data are found to be unusable.

DATA REVIEW AND DECISION PROCESS

Data comparison will be used to evaluate whether potable water will be supplied. Potable well water samples will be compared to the following screening levels:

- The analytical laboratory reporting limit for the method of 2 ng/L for PFOA and PFOS.
- The WDHS 10th Cycle of Groundwater Standard Proposals groundwater standard of 20 ng/L for PFOA and PFOS individually and combine.
- The USEPA HAL for the combined values of PFOA and PFOS, of 70 ng/L.

PROJECT COMMUNICATION

Initial Outreach

Using publicly available tax maps, Arcadis staff will identify all parcels and relevant owner information within 1,200 feet of fields where biosolids from the Marinette MWTP were historically applied as fertilizer. Owners will receive a letter via overnight courier requesting access to their property for the purpose of sampling their drinking water well(s) for PFAS. A copy of this letter is included in Appendix A. Owners will be provided a toll-free phone number they can call to schedule sampling before the end of March 2020. Owners will be asked to call the toll-free number if there is no well on the property and Arcadis will update the project files accordingly. Owners will also receive a postage-paid survey they can fill out if they prefer to mail in responses instead of calling the toll-free number.

Non-responsive Property Outreach

Approximately ten business days after initial outreach, any owners who have not yet responded will be sent a second copy of their initial outreach letter via United States Postal Service Certified Mail. Delivery status will be documented as either “Delivered” or “Returned.” Approximately 10 days after the Certified Mail letters are sent, Arcadis will attempt to reach homeowners by phone if the phone number is publicly available. Arcadis will leave one voicemail message requesting a response or attempt two calls with no answer.

Arcadis will document outreach efforts and provide a summary of when letters were shipped, received, and phone calls attempted for all non-responsive properties to WDNR.

Scheduling

Property owners will be able to select a day for sampling. Arcadis will organize all sampling requests for each day and will call owners the day before their scheduled sampling date to let them know within a 2-

hour window what time the sampling team will be arriving at their property. Sampling will generally be completed between the hours of 7:00 am and 7:00 pm Monday through Friday. Reasonable accommodations will be made on a case-by-case basis for residents who are not available during these hours.

Toll-free Phone Line

Arcadis will staff the Tyco Environmental Assessment Call Line (800-314-1381) from 8:00 AM to 4:00 PM central Monday through Friday. Calls received during off hours or while all operators are busy will be forwarded to a voicemail box. If the caller leaves a message requesting a call back, responses will occur within one business day.

Results Letters

Results letters will be provided to the applicable well owners/users within ten business days of Arcadis receiving results from the laboratory.

Notification of Resampling

As noted in the Quality Assurance/Quality Control section above, if any changes to the reported sampling results become necessary after completion of the Level IV validation, the well owners/users and WDNR will be notified of those changes via letter. If resampling due to data quality issues, the well owner/user will be contacted via letter (and telephone if a phone number is available), and re-sampling will be scheduled.

WDNR Communication

Tyco will provide WDNR with:

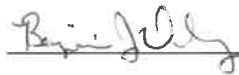
- Copies of the Results Letters, at the same time that they are provided to the applicable well owners/users.
- Weekly updates that summarize the work to date, including any problems with contacting well owners/users, the number of wells sampled, and the status of receipt of results.
- A Comprehensive Report in early May 2020.

CLOSING

Tyco continues to work directly with residents, community leaders and other federal, state and local agencies on this important sampling work, and will continue to keep the community informed of these activities.

PROFESSIONAL CERTIFICATION

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

 Principal Engineer, 31794-006

Signature, Title and P.E. Number



ATTACHMENT A

Request for Access and Private Well Drinking Water Sampling
Correspondence and Private Drinking Water Well Survey



[Owner Name]
[Owner Address]
[Owner City, St Zip]

Arcadis U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202
800-314-1381
www.arcadis.com

Subject:
Request for Access and Private Well Drinking Water Sampling at
[Property Address]
[Property City, WI ZZZZZ]

February 24, 2020

Dear Owner / Occupant:

In cooperation with the Wisconsin Department of Natural Resources (WDNR), Tyco Fire Products LP (Tyco) is conducting an inventory and testing of certain private drinking water wells in the area to determine whether certain per- and polyfluoroalkyl substances (PFAS) are present. Additionally, tests may also be conducted for the presence of lead, 1,4-dioxane, and/or pesticides. Please note that this testing will not provide a comprehensive analysis of overall water quality. Drinking water sampling is being conducted on behalf of Tyco by Arcadis, an environmental engineering/consulting firm. The WDNR and Wisconsin Department of Health Services (WDHS) are providing regulatory oversight.

If you have a residential structure on your property that gets its drinking water from a private well, your property is eligible for this testing. However, structures that use private wells for drinking water for animals or livestock or for other purposes aside from human drinking water would not be eligible. We are asking to sample and test the drinking water well on your property between now and the end of March for this effort. The test is free of charge and we will share results with you promptly. We will also help answer questions you may have about the sampling process and results.

Please Call to Schedule your Sampling and Testing: Please call the Tyco Environmental Assessment Team at (800) 314-1381 to schedule your sampling or, just as importantly, to let us know there are no drinking water wells on your property. If more convenient, you can instead fill out the attached survey and send it back in the postage-paid envelope provided.

Scheduling: When you call the Tyco Environmental Assessment Team at (800) 314-1381, you will select a day and timeframe convenient for you for water sampling at your property. Then, one day before the sampling is scheduled to occur, we will confirm with you a 2-hour sampling appointment window. Sampling will generally be done on weekdays between the hours of 7:00 am and 7:00 pm. If these times are not convenient for you, we will arrange for an appropriate time that works with your schedule.

Sampling: Water samples will be collected by experienced Arcadis technicians and the process should take about 30 minutes. One or more samples will be collected from a faucet within your home. An adult resident (18 years of age or older) must be present during the sampling. If you have questions about this letter or how the sampling will be done, please call us at (800) 314-1381.

Testing Results: We anticipate the testing results will be available approximately 5 weeks after your sampling date. Within 10 days of receipt of the testing results, Arcadis will provide you, the WDNR, and the

[Owner Name]
February 24, 2020

WDHS a written summary of the results and copy of the data obtained from an accredited independent laboratory. Again, please know that you can call (800) 314-1381 at that time if you have questions.

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 water sample that will be used in laboratory documents. For official reporting to government agencies we will only provide such information that is required by that agency.

Background: PFAS are fairly common 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, firefighting foams and other materials (e.g., cookware) that are resistant to water, grease, or stains.

Thank you. We appreciate your cooperation and participation in this important effort. To schedule testing of your water and if you have any questions or concerns, please call (800) 314-1381.

Sincerely,

Arcadis U.S., Inc.

Michael Bedard
Associate Vice President

Enclosure:
Private Drinking Water Well Survey

PRIVATE DRINKING WATER WELL SURVEY

Owner Name: _____ Owner Phone: _____

Owner Address: _____

Property Address: _____

Resident (if different): _____ Resident Phone: _____

Wells on property (choose all that apply):

- No wells on property.
- Private drinking water well for an occupiable structure I would like to have tested. Please call me at the phone number provided above to schedule sampling.
- Private drinking water well for an occupiable structure I would NOT like to have tested.
- Other well(s) listed below:

Type: _____ Depth: _____

Type: _____ Depth: _____

Type: _____ Depth: _____

Additional Property

Address: _____

Resident (if different): _____ Resident Phone: _____

Wells on property (choose all that apply):

- No wells on property.
- Private drinking water well for an occupiable structure I would like to have tested. Please call me at the phone number provided above to schedule sampling.
- Private drinking water well for an occupiable structure I would NOT like to have tested.
- Other well(s) listed below:

Type: _____ Depth: _____

Type: _____ Depth: _____

Type: _____ Depth: _____

Additional Property

Address: _____

Resident (if different): _____ Resident Phone: _____

Wells on property (choose all that apply):

- No wells on property.
- Private drinking water well for an occupiable structure I would like to have tested. Please call me at the phone number provided above to schedule sampling.
- Private drinking water well for an occupiable structure I would NOT like to have tested.
- Other well(s) listed below:

Type: _____ Depth: _____

Type: _____ Depth: _____

Type: _____ Depth: _____

Arcadis U.S., Inc.

126 North Jefferson Street

Suite 400

Milwaukee, Wisconsin 53202

Tel 414 276 7742

Fax 414 276 7603

www.arcadis.com