AECOM
558 North Main Street
Oshkosh, WI 54901
aecom.com

December 20, 2019

AECOM Project No.
60616492

WDNR BRRTs No.
02-38-584102

Mr. David Neste
Wisconsin Department of Natural Resources
Oshkosh Service Center
625 East Cty Y, Suite 700
Oshkosh, WI 54901

Work Plan for Site Investigation for Per- and Polyfluoroalkyl Substances (PFAS) at Waupaca Foundry, Inc. – Plant No. 4, Marinette, Wisconsin

Dear Mr. Neste,

On behalf of Waupaca Foundry, Inc. (WFI), AECOM Technical Services, Inc. (AECOM) is providing the Wisconsin Department of Natural Resources (WDNR) a Per- and Polyfluoroalkyl Substances (PFAS) site investigation work plan. The work plan is designed to evaluate PFAS impacts discovered during pre-construction activities planned for WFI Plant No. 4, located at 806 Ogden Street, Marinette, Marinette County, Wisconsin (Subject Property).

The work plan is provided in response to the WDNR's "Responsible Party" letter dated October 21, 2019, and in general accordance with Wisconsin Administrative Code (WAC) Chapter NR 716.09 *Site Investigation Work Plan* requirements.

Involved Parties Information

Responsible Party
Waupaca Foundry, Inc.
Mr. Bryant Esch - Environmental Coordinator
Waupaca Foundry, Inc.
1955 Brunner Drive
Waupaca, WI 54981

Consultant
AECOM
Andrew Mott, Senior Project Manager
558 N. Main Street
Oshkosh, WI 54901
(920) 236-6713

Drilling Subcontractor
On-site Environmental Services, Inc.
P.O Box 280
Sun Prairie, Wisconsin, 53590
(608) 837-8992

Laboratory
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, California 95762
(916) 673-1520

Site Description

The Subject Property is located in the SE 1/4 of the SE 1/4 of Section 05 in Township 30 North, Range 24 East. The Wisconsin Transverse Mercator (WTM) general central location point is 516316°, -708643°. The parcel number the Subject Property is # 251-04145.000, see the attached Figure 1-Site Location Map. This parcel consists of approximately 37.8 acres of land that is owned and operated by WFI. WFI – Plant No. 4 is developed as a ductile iron metal casting facility for manufacturing various types of parts for the light vehicle, material handling, power transmission, agriculture, hydraulics, and the commercial vehicle market sectors. The Subject Property is located on an island in the Menominee River, west of the outlet of the river into Green Bay - Lake Michigan. The general layout of the Subject Property is illustrated on the attached Figure 2-Site Detail Map.

Utilizing the data provided by the Wisconsin Geological and Natural History Survey-Well Construction Report database and the WDNR Drinking Water Database, it was determined that there are no potable water supply wells located within a 1,200-foot radius of the Subject Property.

Site History

AECOM's historical research indicates that the Subject Property development began in the 1880's. Several sections of the riverfront areas in Marinette were used as dump sites for local sawmill waste. After the Subject Property was used for disposal of wood waste from the local saw mill operations, the site was used as a temporary storage area for coal. Prior to the WFI's plant construction, the site was owned by the city of Marinette (City) and used as a landfill for municipal refuse (paper, plastic, general municipal rubbish), wood, and construction debris. Solid waste disposal was not regulated in Wisconsin until the late 1960's, as a result there are inadequate records of the type and quantity of materials that were disposed of at the former landfill. The northwest portion of the island is understood to have been a historical municipal landfill used by the City until sometime before 1970. During construction of the foundry, refuse and fill materials had to be removed and backfilled with poorly graded sand material.

AECOM searched the WDNR Bureau for Remediation and Redevelopment Tracking System (BRRTS) for documentation regarding the site. Based on results of the search, six closed spill cases reported at the site. Case numbers listed on the BRRTS include Activity Numbers 04-38-038305, 04-38-043079, 04-38-414414, 04-38-557048, 04-38-561669, and 04-38-577998 dated 1981, 1988, 2002 through 2003, 2011, 2014, and 2016, respectively. No other open or closed cases regarding investigations and cleanups, spills, superfund site status, or WDNR funding assistance were identified on the BRRTS site. The Subject Property is identified on the WDNR Solid Waste – Landfills and Historic Waste Site Extents as an inactive landfill. The principal location of the inactive landfill is presented on Figure 2.

Since at least 2017, PFAS compounds, including Perfluorooctanoic acid (PFOA) and Perfluorooctane sulfonic acid (PFOS), have been detected at varying concentrations throughout the Marinette area. Subsurface investigations and on-going remediation are currently occurring at several sites in the area. PFAS compound point sources of contamination are not fully understood in the Marinette area, but can potentially originate from active and historical landfills, biosolids, waste water, commercial, and industrial sources.

Two (2) industrial facilities have been identified as known sources of PFAS contamination in the area: Tyco Fire Products LP (Tyco) located at 1 Stanton Street and ChemDesign Products, Inc (ChemDesign) located at 2 Stanton Street. Tyco and ChemDesign are located northwest of the WFI facility approximately ½ mile upstream along the Menominee River. Both industrial facilities have handled Aqueous Film Forming Foam (AFFF) at their facilities, a product known to contain PFAS compounds. Tyco has first begun distributing AFFF manufactured by the 3M Company in 1964 until sometime in the 1970s. Tyco had a fire training field located at its facility that operated until 1961 when a new Fire Training Center was constructed on Pierce Avenue in Marinette, WI. Investigation activities at the Tyco facility identified groundwater PFAS at concentrations exceeding the proposed WDNR NR 140 Enforcement Standard (ES) of 20 nanograms per liter (ng/L) individual and combined PFOA and PFOS values. The groundwater sampling event demonstrated PFOA concentration ranging from 130 ng/L to 9,100 ng/L and PFOS ranging from 25 ng/L to 650 ng/L (Arcadis, June 2018). ChemDesign was founded in 1983 and is believed to have started its involvement with PFAS in 2005 handling AFFF (ChemDesign, 2019).

Due to the regional PFAS issue and the historical landfill located on the Subject Property, the American Transmission Co. (ATC) conducted soil and groundwater testing to facilitate the completion of electrical utility work / excavation on the WFI property. The soil and groundwater results provided to WFI on July 26, 2019 indicated the presence of PFAS compounds. The ATC site investigation, 800 to 900 feet west of the WFI Plant No. 4, indicated PFOA contaminated groundwater concentrations ranging from 110 ng/L to 1,100 ng/L. PFOS contaminated groundwater concentrations ranging from 20 ng/L to 200ng/L. These detected concentrations are above the proposed WDNR NR 140 Enforcement Standard (ES) of combined 20 ng/L. Soil samples collected for the ATC project indicated PFOS concentrations ranging from 0.28 milligrams per kilogram (mg/kg) to 0.59 mg/kg and PFOA was detected between 0.87 mg/kg to 1.2 mg/kg. Currently, Wisconsin industrial direct contact residual contaminant levels (RCLs) for PFOA and PFOS are 16.4 mg/kg.

Currently, WFI is constructing a two-story West Electrical Building addition on the west side of the facility. The structure will require subsurface construction for foundations. Shallow groundwater has been observed at approximately 4.0 to 5.0 feet below the ground surface (bgs). Due to the shallow groundwater, continuous dewatering will be required during the subsurface construction phase. On September 13, 2019, AECOM installed one (1) temporary 1-inch diameter PVC groundwater monitoring well, using direct push technology, within the footprint of the proposed West Electrical Building project. Samples of soil and groundwater where collected for PFAS analysis. PFOA was detected in the groundwater at 72 ng/L, above the proposed WDNR NR 140 ES of 20 ng/L. PFOA at 0.0003 mg/kg was detected between the Method Detection Limit (MDL) of 0.00022 mg/kg and Limit of Quantitation (LOQ) of 0.00065 mg/kg in the soil. The detected PFOA was below the industrial direct contact RCLs.

WFI notified Roxanne Chronert of the WDNR, via a July 26, 2019 email of the detected PFAS compounds associated with the ATC project. Due to the notification, WFI received a WDNR Responsible Party notification (RP Letter) dated October 21, 2019. The RP Letter outlined twelve actions that WFI need to complete. WFI is moving forward with the actions which includes hiring a consultant and submitting this Work Plan by December 20, 2019. Based on a December 6, 2019 discussion between Mr. Dave Neste, WDNR Project Manager, and Mr. Bryant Esch, WFI Environmental Coordinator, the required public participation and notification action (Item No. 3) of the RP Letter have been determined as not applicable at this time. Further action taken by WFI includes the WDNR approved dewatering and PFAS treatment system (discussed below), review of potential PFAS sources on the site, and proposed site investigation as described in this Work Plan.

With the identification of PFAS impacted groundwater, an engineered industrial wastewater flow-through treatment system was designed to treat the construction dewatering water prior to discharge. The dewatering treatment system is considered an interim action. The interim action will operate only during the time period associated with the subsurface construction activities planned for the West Electrical Building project. Treated water from the system will be discharged under an approved Wisconsin Pollutant Discharge Elimination System (WPDES) General Permit No. WI-0046566-07-0 to the Menominee River via the onsite storm sewer system. Based on the dewatering contractor's experience, the rate of dewatering is anticipated to range between 250 and 400 gallons per minute (gpm).

The treatment system begins with a storage and equalization tank stage, followed by a bag filtration stage, ending the process with a Granulated Activated Carbon (GAC) Filtration system prior to discharge. The system is estimated to operate twenty-four (24) hours a day, seven (7) days a week for approximately seventy-seven (77) days or until the subsurface construction activities are completed. The dewatering activities are scheduled to begin in Mid-December 2019 and extend until March 2020.

The WDNR Bureau for Remediation and Redevelopment Tracking System (BRRTS) database lists the Subject Property with the PFAS impacts as an open Environmental Repair Program (ERP) site, BRRTS # 02-38-584102.

Surrounding Properties

North of the Subject Property, across the Menominee River, is a predominately industrial section of the city of Menominee, Michigan. South of the Subject property, across the Menominee River, is a mix of commercial and residential properties in Marinette, Wisconsin. East of the Subject Property is the eastern half of the island. On the northern half of the eastern section is Marinette Fuel and Dock Company, a privately-operated facility. The southern half of the eastern section is Menekaunee Harbor Park, a Marinette City park. Further East of the island is Green Bay

- Lake Michigan. Adjacent to the west end of the property is where the Menominee slough branches off from the Menominee River and beyond the river is the Tyco Facility, ChemDesign, and a sediment dewatering facility.

This investigation will be confined to property owned by WFI. Access agreements from adjacent property owners will not be required at this point.

Environmental and Ecological Setting

Topography

According to the United States Geological Survey (USGS) topographic map of the Subject Property and a review of the Google Earth application, the elevation of the Subject Property is approximately 690 feet above mean sea level (msl). Based on a review of these technical resources and AECOM's site visit, the Subject Property appears to be generally flat with slight downward slope toward the east of the Subject Property.

Soil / Geology

According to the USDA Web Soil Survey database, the Subject Property is predominantly underlain with Udorthents silty clay loam, a fill material typically adjacent to major drainageways. The Udorthents loam are described as fine grained, with slow infiltration rates, and are somewhat poorly drained. These soils are classified as hydric (potential to support wetlands). The Subject Property is in the northern Lakes and Forest - Wisconsin/Michigan Pine and Oak Barrens Ecoregion.

Based on past geotechnical investigations, the soil profile encountered granular fill material, considered miscellaneous fill soils, containing varying amounts of coal, possible coal cinders, foundry sand, slag, and wood to depths ranging between 5.5 and 9.5-feet bgs. Municipal refuse is generally located in the landfill area on the northwestern portion of the property as identified on Figure 2. Sand layers with organic silty soils were encountered below the fill material to depths of 9.5 to 12-feet bgs, respectively. Underlying the granular layers with organics was a loose to very loose sand that was encountered to depths between 26 and 27.5-feet bgs. Below the loose to very loose sand, loose to very dense sand and silt was encountered to an estimated depth of 32.5-feet bgs. Underlying the sand and silt a dense to very dense clayey and silty sands were encountered to a depth of 41.5-feet bgs to 44-feet bgs. Underlying the second cohesive layer, very dense sand with clay and gravel was encountered at a depth of 45-feet bgs, the depth of the investigated interval.

A review of the Bedrock Geology of Wisconsin Northeast Sheet, Wisconsin Geological and Natural History Survey (Greenberg, JK and Brown, BA; 1984) indicated that the bedrock beneath the Subject Property consists of the Ordovician aged Sinnipee Group. The Sinnipee Group consist of mostly carbonate dolostone with minor mudstone and shale components. Bedrock the Site is at least 45-feet bgs.

Groundwater / Hydrology

The very shallow (4 to 5 feet bgs) groundwater is anticipated to flow to the east toward Green Bay from the Subject Property. However, natural and man-made features and underground utilities, such as sanitary/storm sewer piping systems for the WFI Plant No. 4, and the Menominee River may influence the direction of local groundwater flow.

Archeological

Due to the historical development of the site, i.e. filled/made land, there appears to be no archeological concerns for the property.

Sensitive Species, Habitats, and Ecosystems

A review of the U.S. Fish and Wildlife Service Information for Planning and Consultation (IPaC) database was executed for the Subject Property. Three (3) species that are listed under the Endangered Species Act (1973) could potentially be affected at this location. The species that were listed are the threatened Northern Long-eared Bat

(*Myotis septentrionalis*), the threatened Canada Lynx (*Lynx canadensis*), and the endangered Grey Wolf (*Canis lupus*). Fifteen (15) species that are listed under the Migratory Bird Treaty Act (1918) and the Bald and Golden Eagle Protection Act (1940) could potentially be affected at this location. The species that were listed are the American Bittern (*Botaurus lentiginosus*), Bald Eagle (*Haliaeetus leucocephalus*), Black-billed Cuckoo (*Coccyzus erythropthalmus*), Canada Warbler (*Cardellina canadensis*), Cape May Warbler (*Setophaga tigrine*), Dunlin (*Calidris alpina arcticola*), Evening Grosbeak (*Coccothraustes vespertinus*), Golden-winged Warbler (*Vermivora chrysoptera*), Lesser Yellowlegs (*Tringa flavipes*), Olive-sided Flycatcher (*Contopus cooperi*), Red-headed Woodpecker (*Melanerpes erythrocephalus),* Ruddy Turnstone (*Arenaria interpres morinella),* Rusty Blackbird (*Euphagus carolinus*), Semipalmated Sandpiper (*Calidris pusilla*) and the Wood Thrush (*Hylocichla mustelina*).

Several factors indicate that it is unlikely that any of the listed species will be encountered during site activity. Due to the historical development of the site, it is listed as a non-critical habitat for any of the listed species.

Potential Receptors

Since the Subject Property is located on an island in the Menominee River, it is adjacent on all sides to an EPA defined Sensitive Receptor (the Menominee River). No other sensitive receptors (i.e. day care centers, schools, hospitals) are located adjacent to the Subject Property. Wetlands were identified on the far west end of the island, noted to be too small of a land area to be delineate. Drinking water for the City of Marinette (City) is obtained from an intake located in Green Bay/Lake Michigan. Due to the area-wide PFAS issue the City has a comprehensive drinking water PFAS monitoring plan.

In a September 1978 survey conducted by STS Consultants (STS Consultants Ltd, April 1991) in the City of Marinette, it was identified that 12 private industries were tapping the local sandstone aquifer supply, none of which were used for human consumption. Of the wells identified, three (3) were used for lawn watering and the remaining nine (9) were used for industrial cooling processes. Of the wells identified in the survey, the nearest wells were located approximately one-half mile west of the Subject Property site at the Tyco property and were used for industrial and research purposes. The current status of the wells is unknown.

The Plant 4 facility has water, sanitary, and storm sewer utilities that service the site. Storm sewer lines connect either to public storm sewer at Ogden Street or, north of the facility, directly to the Menominee River. The sanitary and water connect to public utilities along Ogden Street on the east side of the property. The utilities are not considered migration pathways for contaminates to leave the Subject Property for the following reasons:

- the geographic nature of the property, i.e. an island in the Menominee River,
- the granular nature of the site's fill soils,
- the high groundwater table, and
- the pathway of the utility routes (i.e. sanitary and water) that leave the site to Ogden Street then travel south along Ogden Street, crossing a slough of the Menominee River, before continuing along the street right-of-way.

Field Investigation and Sampling Plan

Due to the dewatering planned for the subsurface construction activities, AECOM proposes that the field investigation does not commence until the dewatering activities are no longer active. This is anticipated to be in March 2020, assuming no delays in the subsurface construction activities leads to the system needing to extend beyond the anticipated 77-day schedule. Once the system is disconnected and the groundwater has stabilized to its natural flow, the following site investigation is to occur:

- Subsurface investigation by means of a truck-mounted drill rig will be conducted. The sub-contracted drilling company will be responsible for scheduling the public utility clearance activity. WFI personnel will be responsible for marking and clearing the area for their known utilities. The drilling company will advance six borings at predetermined locations at the site. The six borings will be advanced to a depth of 14.0-feet below ground surface (bgs) then converted to NR 141 compliant monitoring wells. Groundwater is anticipated to be between 4.0 and 8.0-feet bgs. Approximate boring locations are illustrated on Figure 2-Site Detail Map. Boring locations are approximate and subject to change due to underground utility locations and other property related

obstructions. Equipment will be decontaminated between borings using PFAS free water and Alconox by the subcontractor per the subcontractors "PFAS Sampling Procedure" protocol. The subcontractor's procedure is attached.

  - Proposed soil boring location rational:
    - GW-1, GW-2 – Perimeter wells - possible downgradient wells from former landfill.
    - GW-3, GW-4 – Central portion of the Subject Property, possible downgradient from former landfill.
    - GW-5 – Former landfill area.
    - GW-6 – Perimeter well, possible upgradient well from former landfill.

- Documentation (bore-hole log, photographs, and field notes) of observations including soil/fill type, refuse present, and visual and olfactory observations of the subsurface materials.
- AECOM will collect one soil sample from above the water table, which is approximately 5-6 feet bgs, at each soil boring, plus field and equipment blanks.
- Six NR 141 compliant 2-inch groundwater monitoring wells will be installed at the predetermined locations, as illustrated in Figure 2-Site Detail Map. The wells will be constructed in general conformance of NR 141.11 and NR 141.13 with filter sand 1.0-foot above the screen and the remaining 3.0-feet of annular space as a bentonite seal to the ground surface. The wells will be developed in general conformance of NR 141.21 by 30-minutes of alternately surging and purging the well to remove turbid material from the well-screen area. Once the surge and purge process has been completed, the well will be pumped until the removal of ten well volumes or dry three times, whichever comes first, has been completed. The well will be allowed to stabilize prior to sampling.
- The wells will be sampled using PFAS free protocols. The wells will be purged for three well volumes and sampled via a peristaltic pump with non-Teflon lined HDPE tubing using low-flow sampling techniques. Groundwater samples will be collected from each well for laboratory analysis into laboratory-supplied 250mL HDPE plastic sample bottles for the PFAS Wisconsin 36-compound list. Sampling will be conducted by AECOM-certified PFAS sampling teams. AECOM certification requires attending an AECOM internal PFAS sampling training course and reviewing the PFAS Sampling Guidance document designed to make AECOM samplers aware of the products that are known to have tested positive for PFAS compounds, as well as identifying products that are appropriate to use in the sampling environment. Care will be taken by the AECOM sample teams to use PFAS-free sampling protocols.
- Soil cuttings and groundwater will be placed in separate drums. The drums will be stored on site until a disposal pick-up is scheduled. If the laboratory analysis indicates non-impacted media, the soils may be thin spread across the site. Groundwater will be disposed of properly depending on the results of the analysis.
- Two river staff gauges are proposed for river elevation readings for groundwater flow mapping, and the collection of two PFAS surface water samples (one sample north and south side of the island). An additional surface water sample will be collected on the southwest shoreline of the island. The surface water sampling is to further assess PFAS contaminate concentrations in the river adjacent, and up-stream of the WFI property. This data will used to determine if the WFI property is impacted by area-wide PFAS impacts.
- The monitoring wells and staff gauges will be surveyed by AECOM personnel, to a local datum.

Laboratory Analytical Methods and Quality Assurance

Samples collected as part of this investigation will be labeled, placed on ice, and transported under standard chain of custody practices to Vista Analytical Laboratory (El Dorado Hills, CA), a specialty lab for PFAS compounds, for the analysis of PFAS by EPA Method 537 Modified - Isotope Dilution – State of Wisconsin 36 Compound List. The samples will be analyzed on a standard (21 day) turn-around-time.

Standard sampling protocols for PFAS compounds include the use of field and equipment blanks due to the possible ubiquitous nature of these compounds including the potential presence of these compounds in sampling equipment and supplies, and to assess the possibility of cross-contamination during sampling, transport and storage of samples. To evaluate the sampling technique, a field blank sample is prepared by pouring laboratory-certified PFAS-free water

into a laboratory-provided sampling container in the field and shipping the sample to the laboratory with the field samples. One field blank will be collected for each day of field work during this sampling event.

Equipment blanks will also be collected to evaluate the sampling equipment by using laboratory-certified PFAS-free water, or process water, and passing the water over and through disposable or decontaminated field sampling equipment to assess the adequacy of the decontamination process and/or to evaluate potential contamination from the equipment used during sampling. The equipment blanks will be shipped to the laboratory with the field samples. One equipment blank will be collected for each day of field work during this sampling event.

A matrix spike/matrix spike duplicate sample is not required due to the isotope method used for determining PFAS concentrations. Level IV quality control reporting will be provided by the lab.

Sample Notification and Site Investigation (SI) Report

AECOM will notify the WDNR within ten business days after receiving the sampling results via the WDNR Form 4400-249. The SI report will generally follow WAC NR 716.15 requirements, which includes, site general and background information, investigation methods, sampling and analysis requirements, field and analysis results, and conclusion and recommendations. Tables summarizing laboratory results and figures that include well locations, groundwater flow, extent of contamination will be included. The required groundwater monitoring wells forms, boring forms, and well/borehole abandonment forms will be completed and attached to the report. A Remedial Action Options Report (RAOR) is not proposed at this time.

Project Schedule

Field tasks are anticipated to commence in March 2020. A Subsurface Investigation report in general conformance to NR 716 will be submitted to the WDNR within approximately three to four weeks of receipt of the analytical data.

Project Phase	Date (week starting)
Responsible Party Notification Letter Received	October 21, 2019
Work Plan Submitted to WNDR for Review	December 20, 2019
Soil Borings and Well Installation and Sampling	March 2020
Analytical Receipt	April 2020
Draft Letter Report	May to June 2020

The above schedule is based on anticipated construction dewatering beginning mid-December 2019. A schedule adjustment may be necessary if changes to these assumptions occur. AECOM or WFI will notify the WDNR of significant changes to the site investigation schedule.

Conclusion

WFI understands PFAS contamination is an area-wide issue in the City of Marinette, but WFI is moving forward with the items outlined in the Responsible Part letter dated October 21, 2019. To better understand the extent of contamination on the WFI property in relation to the area-wide issue, WFI is requesting the WDNR provide additional information on adjacent PFAS sites that are not available on the WDNR BRRTs website. To help facilitate this discussion, WFI is submitting a Technical Assistance Request (Form 4400-237) for a review of this Site Investigation Work Plan. The $700 fee associated with the Technical Assistance request will be submitted separately.

We look forward to working with you on this project. If you have any questions regarding the information contained in this work plan, please contact us at your convenience.

Yours sincerely,

Andrew Mott
Senior Project Manager
AECOM
T: 920-236-6713
M: 920-379-6024
E: andrew.mott@aecom.com

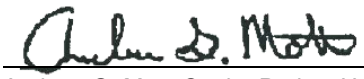
Dave Henderson
Senior Project Manager
AECOM
T: 414-944-6190
M: 414-429-8304
E: dave.henderson@aecom.com

enclosures: Figure 1-Site Location Map
Figure 2-Site Detail Map
On-Site PFAS Sampling Procedures

cc: Bryant Esch, Environmental Coordinator - Waupaca Foundry, Inc.
Randy Peterson, Environmental Engineer - Waupaca Foundry, Inc.

Hydrogeologist Certification

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



Andrew G. Mott; Senior Project Hydrogeologist

12/20/2019
Date

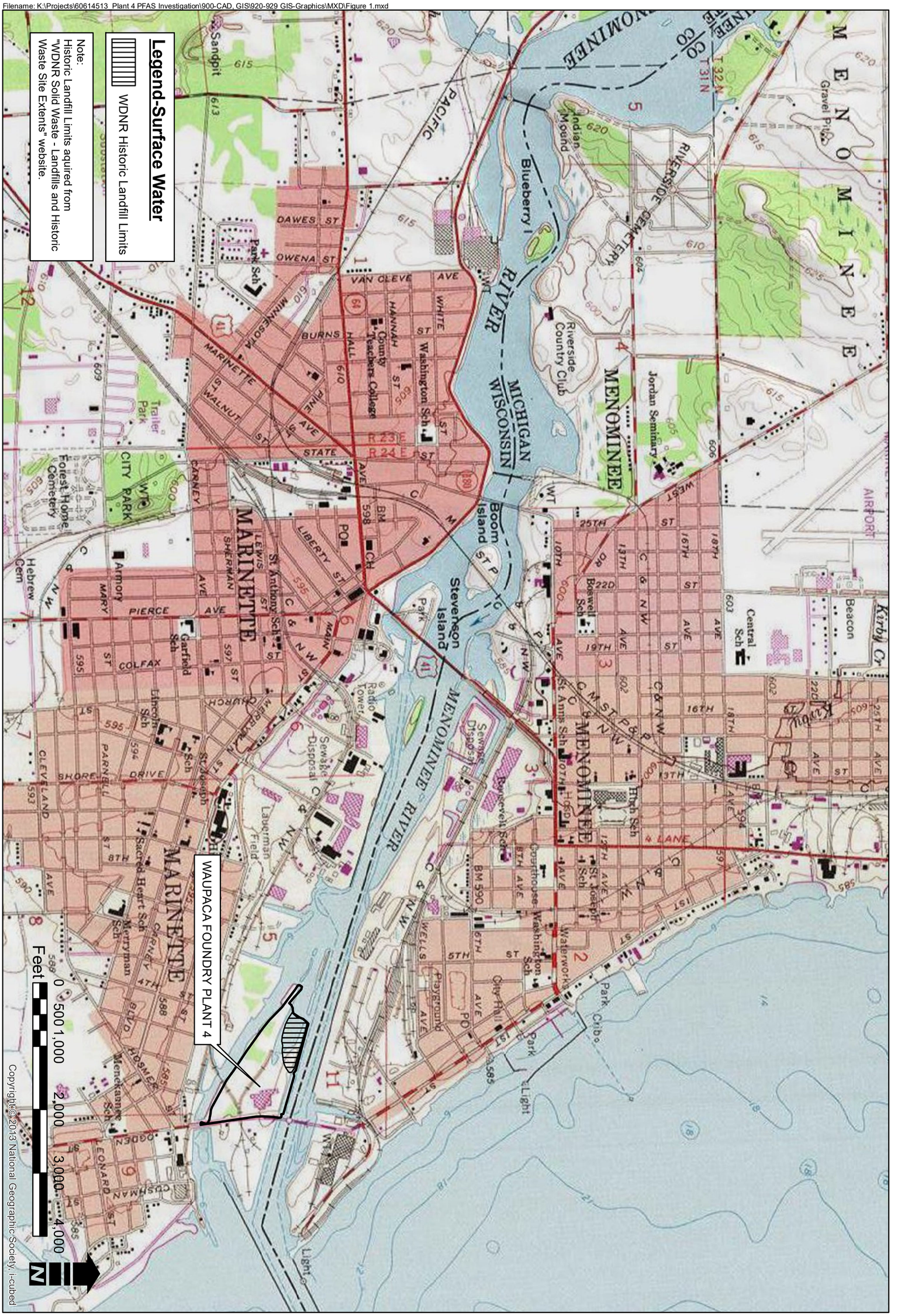
References

Arcadis U.S., Inc. 2019. “Summary of Groundwater Sampling Ansul Inc. Stanton Street Facility, Marinette, Wisconsin EPA ID: WID006125215.”

ChemDesign. 2019. “Request for Extension for Response to Information Request and to Submit Site Investigation Work Plan ChemDesign Products, Inc, 2 Stanton Street, Marinette, WI, DNR BRRTS Activity# 02-38-583852, DNT FID # 438008340.”

STS Consultants, Ltd. “Revised Request for an NR 204.07 Exemption for the Proposed Waupaca Foundry. Inc Plant No. 4 Expansion Located in Marinette, Wisconsin, STS Project No 18246XF, April 29, 1991.

Filename: K:\Projects\60614513_Plant 4 PFAS Investigation\900-CAD, GIS\920-929 GIS-Graphics\MXD\Figure 1.mxd



Site Investigation
Work Plan
Waupaca Foundry
Project# 60614513
December 11, 2019

SITE LOCATION MAP
WAUPACA FOUNDRY PLANT 4
MARINETTE, WISCONSIN

AECOM

Figure 1

AECOM

Figure 2

SITE DETAIL MAP
WAUPACA FOUNDRY PLANT 4
MARINETTE, WISCONSIN

GW-5
B-145387
N-MW
Staff Guage
SW-3
GW-6
SW-1
B-145388
S-MW
GW-2
EB-4.2
GW-3
GW-4
Staff Guage
SW-2
GW-1

Legend

Proposed (Approximate Locations)

- PERMANENT WELL
- STAFF GUAGE
- SURFACE WATER SAMPLE

Historical Boring/Monitoring Well

- AECOM, Abandoned
- GEI, Abandoned
- North Shore Env., Abandoned
- WF_Parcel
- WDNR Historic Landfill Limits

Note:
Historic Landfill Limits aquired from "WDNR Solid Waste - Landfills and Historic Waste Site Extents" website.

0 50 100 200 300 400
Feet

N

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Site Investigation
Work Plan
Waupaca Foundry
Project# 60614513
December 18, 2019

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On-site Environmental Services, Inc.

P.O. Box 280 Sun Prairie, WI 53590 (608) 837-8992

Procedures for PFAS Concerned Sites

What are PFAS?

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS and many other chemicals. PFAS have been manufactured and used in a variety of industries around the globe, including in the United States since the 1940s. PFOA and PFOS have been the most extensively produced and studied of these chemicals. Both chemicals are very persistent in the environment and in the human body – meaning they don't break down and they can accumulate over time. There is evidence that exposure to PFAS can lead to adverse health effects.

Where are PFAS?

- **Food** packaged in PFAS-containing materials, processed with equipment that used PFAS, or grown in PFAS-contaminated soil or water.
- **Commercial household products**, including stain- and water-repellent fabrics, nonstick products (e.g., Teflon®), polishes, waxes, paints, cleaning products, and fire-fighting foams (a major source of groundwater contamination at airports and military bases where firefighting training occurs).
- **Workplace**, including production facilities or industries (e.g., chrome plating, electronics manufacturing or oil recovery) that use PFAS.
- **Drinking water**, typically localized and associated with a specific facility (e.g., manufacturer, landfill, wastewater treatment plant, firefighter training facility).
- **Living organisms**, including fish, animals and humans, where PFAS have the ability to build up and persist over time.

Because of the low detection limits usually called for in a PFAS site investigation (ng/L or ng/kg) and the presence of PFASs in many products used in environmental work, the potential exists for the presence of certain commonly used materials on site or in equipment employed during the investigation to introduce sample contamination. Preserving sample integrity thus may require a careful evaluation of ordinary supplies and practices, followed by determination of materials and activities to avoid or prohibit on site.

We realize that it is extremely important that our office and field take extra precautions to ensure our supplies, materials and actions on site do not inadvertently introduce PFAS contamination to any field investigation. We have outlined the following procedures to be followed for every project where a potential for PFAS impact has been identified.

Some Potential Sources of PFAS Cross-contamination:

- Field clothing
- Food packaging
- Materials used within the sampling environment
- Other items/materials brought to the site
- Personal hygiene/ care products
- PPE
- Sampling equipment
- Sun screen/ Bug spray
- The environment itself
- Water used for drilling/decontamination

Elimination of PFAS from Materials/Supplies

On-site Environmental Services, Inc. (OES) has taken action to identify equipment, materials, supplies, clothing and PPE that may contain PFAS. We have consulted with our regular vendors regarding potential PFAS in materials or equipment provided to us by those vendors, including:

- Geoprobe, Inc.
- Hole Products
- IES Drilling Supplies

Based on the available information provided by these vendors, the supplies we use regularly, including the packaging and shipping of those supplies, were all reported to be PFAS-free.

Drill Rig Equipment:

The majority of our drilling equipment has internal components that cannot be removed which may contain PFAS. However, these are typically located in areas that would not come into contact with samples collected during the drilling process.

Known Materials Containing PFAS

OES is committed to not knowingly using any equipment/materials containing PFAS. Restricted items include, but are not limited to, the following:

- PTFE (Polytetrafluorethylene)
  - Teflon®, Hostaflon®
- PVDF (Polyvinylidene fluoride)
  - Kynar®
- PCTFE (Polychlorotrifluorethylene)
  - Neoflon®
- ETFE (Ethylene-tetrafluoroethylene)
  - Tefzel®
- FEP (Fluorinated ethylene propylene)
  - Teflon® FEP, Hostaflon® FEP, Neoflon®

The following are generally allowable, but should be verified to be PFAS-free:

- Acetate
- Glass
- HDPE (High-density polyethylene)
- Latex
- LDPE (Low-density polyethylene)
- Natural rubber
- Neoprene
- Nylon
- Polypropylene
- Polyurethane
- Polyvinyl Chloride (PVC)
- Powderless Nitrile gloves
- Silicone
- Stainless-steel
- Uncoated Tyvek®

Field Protocols

Field staff will not use cosmetics, shampoo, lotions, dental floss the day of sampling activities.

ALLOWABLE CLOTHING/ SHOES/ PERSONAL ITEMS/ PPE:

- Banana Boat Sport Performance Broad Spectrum – SPF 30
- Boots made of PVC and/or Polyurethane (if not possible, wear PFAS-free overboots)
    - Put on overboots and wash hands in staging area before beginning sampling activities
    - Remove overboots only in staging area after sampling activities are complete
- Coppertone Sport – High Performance Accuspray SPF 30
- Deep Woods OFF
- Neoprene
- Powderless Nitrile Gloves
- Pre-washed Cotton clothing (no Fabric Softener)
- PVC or Wax-coated fabrics
- PVC or similar Rain gear

CLOTHING/ SHOES/ PERSONAL ITEMS/ PPE TO AVOID:

- Dirt and/or Stain Resistant (Scotchgard®, Stainmaster®)
- Fabric Softener
- Gore-Tex™/ Polartec™
- Smart phone touch screens
- UV Protection
- Waterproof
- Water-repellent
- Wristband for the Apple Sport Watch

NOTE: Personal safety is paramount. The safety of personnel should not be compromised by fear of PFAS containing materials without any scientific basis.

FIELD DOCUMENTATION

- Aluminum Clipboard
- Ballpoint Pens
- Non-recycled paper
- Sharpie® Fine Point

- NO POST-IT® NOTES
- NO TREATED PAPER OR PAPER PRODUCTS

A staging area will be set up at the site, away from the sampling area. This area will be used for putting on and removing PPE if staff needs to leave the sampling area during sampling activities.

FOOD/BEVERAGES

**Any food/beverages will be consumed outside the sampling area

- Do not handle, consume or otherwise interact with pre-wrapped food or snacks, carry-out food, fast food or other food items while on site in the sampling area.
- Move to a staging area and remove PPE prior to leaving the sampling area if consuming food
- Wash hands thoroughly before returning to sampling area
- No chemical ice packs

DECONTAMINATION

Decontamation/cleaning of the Geoprobe and sampling equipment will be done to the best of our ability prior to arrival at the site

Sampling equipment should be decontaminated prior to sampling and after sampling at each location or at the end of the day, whichever is preferred by consultant.

NOTE: OES had our water analyzed by the Wisconsin State Lab of Hygiene on 8/9/2019 for the presence of Perfluorinated Compounds. All results came back below detection limits, with the exception of PFOA which came back at .65 ng/L (ppt). See attached report.

DECONTAMINATION PROCEDURE:

- Allowable Soaps are Alconox®, Liquinox® and Citranox® (NO Decon 90®)
- No equipment will be put away without decontaminating first
- Lab supplied PFAS-free deionized water or verified PFAS-free water only

1) In PFAS-free bucket, wash equipment with PFAS-free water and PFAS-free soap (allowable soaps listed above)
2) Scrub with approved brush (PVC or Polyethylene)
3) In a 2nd PFAS-free bucket, rinse with PFAS-free water
4) Rinse a 2nd time in a 3rd PFAS-free bucket (or if washed and rinsed, the second bucket can be used)
5) Change decon water between each boring location