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REVISED SITE INVESTIGATION REPORT

Waukau Lot
359 West Waukau Avenue
Oshkosh, Wisconsin
BRRTS No. 02-71-587405

February 21, 2023
File No. 20.0157080.00

PREPARED FOR:
Oshkosh Defense, LLC
c/o Godfrey & Kahn, S.C.

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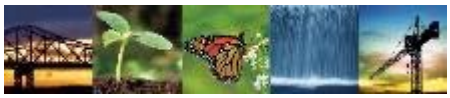

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February 21, 2023
File No. 20.0157080.00

Mr. Kevin McKnight, Hydrogeologist
Wisconsin Department of Natural Resources
625 East County Road Y, Suite 700
Oshkosh, Wisconsin 54901-9731

Subject: Revised Site Investigation Report
Waukau Lot
359 West Waukau Avenue
Oshkosh, Wisconsin
BRRTS No. 02-71-587405

Dear Mr. McKnight:

GZA GeoEnvironmental, Inc. (GZA), on behalf of Oshkosh Defense, LLC (Oshkosh/"Client") and its outside legal counsel, Godfrey & Kahn, S.C., has prepared this Revised Site Investigation Report to document a subsurface evaluation for possible per- and poly-fluoroalkyl substances (PFAS) at 359 West Waukau Avenue in Oshkosh, Wisconsin, referred to as the Waukau Lot ("Site").

The investigation focused on evaluating soil and groundwater for the presence of PFAS in the testing area within the Waukau Lot and in the drainage south of the testing area and also upgradient of the testing area. The information contained within this revised report is consistent with the previous Site Investigation Report submitted in March 2021,[1] and the Supplemental Site Investigation Work Plan submitted in June 2022.[2] This revised report includes results of the additional investigation activities performed to evaluate groundwater conditions in the testing area and upgradient of the testing area. At this time, Oshkosh is requesting the Wisconsin Department of Natural Resources' (WDNR) review of the documentation and findings provided in this report and provide its concurrence on our conclusions and path forward.

Should you have any questions or comments, please feel free to contact the undersigned at (262) 754-2578.

Very truly yours,

GZA GeoEnvironmental, Inc.

Kevin M. Hedinger
Senior Hydrogeologist

John C. Osborne, P.G.
Principal Hydrogeologist

J:\157000to157099\157080 Oshkosh\Report\Revised Site Investigation Report- Waukau Lot\
FINAL 20.0157080.00 Revised SI Rpt_Waukau Lot 2-21-23.docx

Attachments

cc: Mr. Edward B. Witte, Godfrey & Kahn, S.C.
Mr. Kevin Tubbs, Oshkosh Defense, LLC

[1] *Site Investigation Report, Waukau Lot Site, 359 West Waukau Avenue, Oshkosh, Wisconsin*, dated March 29, 2021, GZA File No. 20.0157080.00.
[2] *Supplemental Site Investigation Work Plan, Oshkosh Defense Waukau Lot, 359 West Waukau Avenue, Oshkosh, Wisconsin, BRRTS No. 02-71-587405*, dated June 7, 2022, GZA File No. 20.0157080.00.

FIGURES (CONT.)

APPENDICES

1.0 GENERAL INFORMATION

GZA GeoEnvironmental, Inc. (GZA), on behalf of Godfrey & Kahn, S.C., outside legal counsel for Oshkosh Defense, LLC (Oshkosh/"Client"), has prepared this Revised Site Investigation Report for the property located at 359 West Waukau Avenue in Oshkosh, Wisconsin, referred to as the Waukau Lot ("Site"). This report presents the results of a subsurface investigation designed to evaluate the presence of per- and polyfluoroalkyl substances (PFAS) from testing firefighting vehicles at the Site. On March 29,2021, a Site Investigation Report, along with a Release Notification Form 4400-225, were submitted to the Wisconsin Department of Natural Resources (WDNR). The WDNR subsequently assigned Bureau of Remediation and Redevelopment Tracking System (BRRTS) No. 02-71-587405 to the Site.

In a letter dated October 6, 2021, groundwater sample results from a sample collected from one monitoring well at the Site on September 13, 2021, were submitted to the WDNR. Based on the results, it was determined that one additional groundwater sample would be collected from the monitoring well. The results of the additional sample collected on October 16, 2021, were submitted to the WDNR on November 30, 2021.

The WDNR PFAS Review Committee provided comments to the soil and groundwater data collected at the Site on February 14, 2022, and requested additional monitoring wells be installed to delineate the results identified at the Site. On June 7, 2022, a Supplemental Site Investigation Work Plan was submitted to the WDNR that included installation of three additional monitoring wells and collecting a total of two soil samples, one along the creek east of the Site and one in the drainage ditch from the paved area at the Site.

The Responsible Party for the Site is as follows:

Oshkosh Defense, LLC
Mr. Kevin Tubbs
1917 Four Wheel Drive
Oshkosh, Wisconsin 54902
ktubbs@oshkoshcorp.com
920-502-3043

The environmental consultant for this project is:

GZA GeoEnvironmental, Inc.
Mr. Kevin Hedinger
17975 West Sarah Lane, Suite 100
Brookfield, Wisconsin 53045
kevin.hedinger@gza.com
262-754-2578

The Site name and address is:

Oshkosh Defense, LLC Waukau Lot
359 West Waukau Avenue
Oshkosh, Wisconsin 54902

The Site is part of an L-shaped, approximately 32-acre parcel (Parcel ID No. 1413610000) with the investigation area located on the west side of an intermittent creek, referred to as Gallups/Merritts Creek, that crosses through the parcel. The Site includes the far southern portion of the paved area, drainage ditch, and storm water retention ponds. The Site

is located in a mixed commercial and industrial use area within the northeast ¼ of the northeast ¼ of Section 2, Township 17 North, Range 16 East, Winnebago County, Wisconsin, as shown on Figure 1. The WTM91 coordinates for the approximate center of the Site are as follows X: 636656.52473, Y: 390517.95297.

The Site parcel is currently an asphalt-covered lot that is divided by a fence between an area of 5.4 acres for employee parking along the northern portion of the lot and a lot that is approximately 13.6 acres for the storage of decommissioned military vehicles returned to Oshkosh for refurbishing. The northern employee parking lot is accessible by driveways on the north side of the Site along West Waukau Avenue. The southern portion of this lot is accessible through a guarded gate in the center of the northern fence. Currently, the Site is not developed with buildings, except for the small guard building located adjacent to the gate. The far southern portion of the lot area is considered the "Site" for this report and is relatively flat with only slight topographic relief from the north/northwest toward the south/southeast.

Surface water from the Site flows to the southeast corner of the lot and discharges through a drainage ditch. Two ponds are located to the south, which treat and discharge storm water. The runoff in the drainage ditch flows into a natural pond that is further connected to an engineered pond used to contain spills or discharges that emanate from the Site. The engineered pond is constructed to retain light non-aqueous phase liquid (LNAPL) and allow discharge of the water to Gallups/Merritts Creek, located east of the Site. An approximately 4- to 6-foot-high berm separates the drainage ditch from the creek. Gallups/Merritts Creek begins approximately 1 mile southwest of the Site and drains surface water from Wittman Regional Airport, commercial and industrial properties, and agricultural fields before reaching the Site. Downstream of the Site, the creek, when flowing, drains surface water from industrial, commercial, and residential properties before discharging into Lake Winnebago, located approximately 0.8-mile northeast of the Site.

Based on previous use of the Site for testing firefighting vehicles, on behalf of Oshkosh, GZA conducted an investigation to determine if a release to the environment occurred, as summarized in this report. The report is being submitted in consideration of relevant sections of Wisconsin Administrative Code (Wis. Adm. Code) NR 716 to satisfy general site investigation requirements. This report is also subject to the Limitations provided in Appendix A.

1.1 POTENTIAL RECEPTORS

There are no known receptors that are impacted by the testing of firefighting equipment activities at this Site. The testing area is situated in the southwest corner of the approximate 32-acre Oshkosh property. The land use surrounding the Site includes industrial properties to the west, north, and southwest and residential properties to the southeast and east. The closest residential properties are located approximately 600 to 800 feet east-southeast of the Site. The Site is part of a large area that is zoned as heavy industrial that has two smaller areas zoned as single-family residential. The zoning map for the City of Oshkosh is shown below and can be viewed online at https://www.ci.oshkosh.wi.us/GISOnlineMaps/.

The WDNR Water Well database was reviewed for the areas closest to the Site zoned as single-family residential. This review identified well records to the east of the Site along Oregon Street. The well records indicate that the wells were installed from 1942 through 1986 and range in depth from 150 feet to 375 feet.

City of Oshkosh Zoning Map

The Site and area east of the Site is within the City of Oshkosh which supplies municipal drinking water to these properties. City of Oshkosh water is obtained from Lake Winnebago, located east of the Site, which is part of a 5,700 square-mile watershed. A surface water feature crosses the Oshkosh property east of the testing area; however, it is an intermittent stream indicating that it does not receive groundwater discharge continuously throughout the year.

Based on this review there are no receptors affected by the testing activities previously performed at the Site.

1.2 APPLICABLE STANDARDS

As of the date of this report, there are no Wisconsin regulatory standards promulgated for PFAS in soil or groundwater other than an interim drinking water standard of 70 parts per trillion for the sum of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). In consideration of adopting groundwater standards for several PFAS within Chapter NR 140 (Wis. Adm. Code), the Wisconsin Department of Health Services (DHS) provided recommended groundwater standards to the WDNR in November 2020. However, the recommended standards have not received the legislative support required for the standards to be adopted by the WDNR. For the purposes of providing guidance and perspective on our Site investigation results, GZA used the DHS-recommended groundwater standards for the 11 PFAS awaiting approval.

There are no recommended or proposed standards for soil other than direction from the WDNR to calculate residual contaminant levels (RCLs) in soils using the United States Environmental Protection Agency (USEPA) Regional Screening Level (RSL) Calculator. Based on a discussion with the WDNR and on several factors, including: 1) the lack of certain PFAS physical/chemical parameters being available; 2) the toxicology data for individual and cumulative effects are frequently being revised; and 3) the lack of groundwater standards, the WDNR has not published calculated RCLs for the soil-to-groundwater pathway. In GZA's review of the RSLs on January 9, 2023, there are only five PFAS in the USEPA calculator database, perfluorobutanesulfonic acid (PFBS), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA),

PFOS, and PFOA. The resulting soil-to-groundwater RCLs calculated from the information on January 9, 2023, are different than the RCLs calculated by the WDNR in April 2021, during its review of soil-to-groundwater RCLs for the Site. Due to the lack of consistent physical and toxicological information to calculate soil-to-groundwater RCLs, these standards were not calculated for this report.

2.0 BACKGROUND AND SITE HISTORY

At the Waukau Lot, mobile aircraft rescue and firefighting (ARFF) vehicles, manufactured by Oshkosh and equipped with aqueous film forming foam (AFFF) and other fire suppressants, were periodically tested under a controlled testing procedure, overseen by Oshkosh personnel, on the southeastern portion of the Site from October 2013 through October 2019. During this time period, the testing was performed seven times, generally once per year. The AFFF and fire suppressants used during the testing at times contained PFAS. The primary documented AFFF products utilized during this period included:

- ANSULITE LOW VISCOSITY 3x3 (Ansulite 3%) from 2013 through at least 2016;
- SOLBERG® RE-HEALING™ RF3 (Fluorine-Free), 3% Foam Concentrate in 2017 and 2019;
- Buckeye Platinum 3% and Buckeye 3% Mil Spec in 2018; and
- Buckeye 3% Mil Spec in 2019.

The Safety Data Sheets (SDSs) for each of these products are provided in Appendix B.

The testing was performed on, and contained within, the asphalt lot in an area that sloped to a central point that facilitated containment and collection of the AFFF and fire suppressant materials following discharge. An approximately 10- to 15-foot-long dam of absorbent materials was constructed across the lowest discharge point from the asphalt lot to prevent direct drainage into the downgradient ditch and to allow for efficient collection of liquids. The collected materials were removed using a vacuum truck that stored and subsequently transported the liquids off-Site for disposal. Figure 2 shows the general location of the testing within the Waukau Lot, the surface slope of the asphalt lot, and the location of the absorbent dam that was constructed for collection of the discharged material.

Between 2000 and 2006, manufacturing companies committed to reducing the manufacturing of long-chain PFAS, those having a carbon chain length of eight fluorinated carbons, such as PFOS and PFOA. The USEPA indicates that by 2010, 95% of long-chain PFAS was eliminated and by 2015, the elimination of long-chain PFAS manufacturing was reportedly complete.[3]

The testing that was performed at the Waukau Lot is documented and began in October 2013, during this transition period in which long-chain PFAS compounds were replaced with shorter chain PFAS compounds. Therefore, Oshkosh believes that the AFFF used during the testing activities at this Site likely did not contain the long-chain PFAS because by that time, the manufacturers had already converted the AFFF products to next-generation short-chain PFAS.

[3] Interstate Technology & Regulatory Council, History and Use of Per-and Polyfluoroalkyl Substances (PFAS), April 2020.

3.0 GEOLOGIC AND HYDROGEOLOGIC SETTING

The Site is located within a region of Winnebago County characterized by glacially derived, unconsolidated deposits of the Kewaunee Formation ranging from lake sediments associated with glacial Lake Oshkosh to various glacial till units primarily associated with the Kirby Lake Member of the Kewaunee Formation.[4] The till deposits are described as red, clayey silt that contains some coarser-grained deposits and is generally at least 3 meters thick and tend to have low relief, flay-lying topography. In the area of the Site, the Kirby Lake member is reported to include thin (less than 6 feet) patches of lake sediment. Other characteristics of these units include:

- A higher percentage of fine-grained sediment with sand, silt, and clay grain-size distributions averaging 24%, 42%, and 34%, respectively; and
- Measured hydraulic conductivity values in field tests averaging 7.19×10^{-5} centimeters per second (cm/sec) while laboratory testing indicated averages of 9.46×10^{-8} cm/sec.

The upper bedrock unit in eastern Winnebago County underlying the Site is dolomite of the Ordivician Sinnipee Group. The bedrock is generally encountered less than 40 feet below ground surface (bgs) in this portion of the County.[5]

While groundwater occurs in both the unconsolidated glacial units and bedrock formations, the glacial deposits are generally not considered part of the regional aquifer system. These fine-grained glacial deposits that cover most of the broad lowlands in the eastern portion of the County are believed to hydraulically confine the underlying bedrock aquifers and tend to restrict groundwater recharge and discharge to shallow and deeper regional groundwater systems. Based on general topography and the location of recharge areas and shallow groundwater discharge zones, the groundwater flow direction in the area of the Site is expected to be predominantly eastward toward Lake Winnebago.

Surface water at the Site is controlled by the slope of the asphalt lot and a drainage ditch that collects water from the asphalt area. The drainage ditch is hydraulically connected to a naturalized pond within the berm area. The pond discharges surface water into and through an engineered, lined pond that is designed to remove LNAPL that may be in the surface water. The water from the lined pond discharges into Gallups/Merritts Creek once the water level reaches the elevation of the discharge pipe.

4.0 INVESTIGATION ACTIVITIES AND METHODS

The investigation activities at the Site consisted of advancing 15 soil borings and installing four monitoring wells for sample collection and analytical testing to determine the presence and potential distribution of PFAS in unsaturated soils and shallow groundwater in the area most likely to be affected. The soil borings and monitoring wells advanced and installed at the Site are shown on Figure 2. The Site area was considered to be south end of the paved area and the drainage ditch extending from this area.

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[4] Hooyer, T.S., Mode, W.N., 2008, Quaternary Geology of Winnebago County, Wisconsin, Wisconsin Geological and Natural History Survey, Bulletin 105, James M. Robertson, Director, 33 pp.

[5] Olcott, P.G., 1966, Geology and Water Resources of Winnebago County, Wisconsin, Geological Water Supply Paper 1814, prepared in cooperation with the University of Wisconsin Geological and Natural History Survey, 61 pp.

4.1 SOIL BORINGS AND SOIL SAMPLING

On November 6, 2020, GZA provided oversight of its subcontractor, On-Site Environmental, Inc. (OSE), during the advancement of eight Geoprobe® borings (WL-B1 through WL-B6, WL-B8, and WL-B10) and two hand auger borings (WL-B7 and WL-B9) on the Site at the locations identified on Figure 2. Prior to initiating field sampling activities, GZA requested confirmation that OSE's Geoprobe® sampling systems, tooling, and ancillary equipment were fully evaluated for the presence of PFAS that could result in inducing impacts to the samples collected. OSE provided GZA with quality assurance/quality control (QA/QC) protocols for deployment of its sampling equipment to ensure that the equipment was PFAS-free and sample integrity was retained.

Borings WL-B1 through WL-B4 and WL-B8, were advanced to a depth of 10 feet bgs, WL-B6 and WL-B10 were advanced to depths of 15 and 14 feet bgs, respectively, and WL-B5 was advanced to 5 feet bgs using the Geoprobe®. Hand auger borings (WL-B7 and WL-B9) were completed to depths of 3 feet bgs in areas where armored vehicles were parked and there was no access for the Geoprobe® rig. Geoprobe® soil samples were collected continuously from the ground surface to the terminus of the borings using 2-inch diameter by 5-foot long, stainless-steel sampling tubes lined with disposable acetate liners. The soil samples were visually observed and classified in accordance with the Unified Soil Classification System (USCS) and then divided into 1-foot intervals for placement into sealable plastic bags. During soil classification and soil handling, activities were completed by personnel wearing disposable latex gloves. Based on the soil classification and observations, discrete intervals were selected, and the samples were placed into laboratory-supplied containers for submittal of laboratory analysis for the Wisconsin list of the PFAS. The physical observations and classification of soils are presented on the soil boring logs, which are provided in Appendix C.

The rationale for each boring was as follows:

- Borings WL-B1, WL-B2, and WL-B3 were located south and immediately downgradient of the edge of the asphalt pavement where the collection dam had been established during testing. The collection dam was established immediately upgradient of the asphalt edge to allow for foam and liquid collection using a vacuum truck on the asphalt. These borings were downslope of the collection dam in an area that would likely receive surface runoff that may have migrated beyond the collection dam during testing or from residual PFAS migrating as surface runoff from the asphalt lot area.
- Borings WL-B4, WL-B6, WL-B8, and WL-B10 were located within the asphalt area where the AFFF was discharged and collected. WL-B-6 was north of the collection dam where AFFF could have accumulated and seeped through cracks in the asphalt pavement. WL-B8 and WL-B10 were located along the centerline of the shallow paved drainageway, which receives runoff from the Waukau lot immediately upgradient from WL-B6. WL-B4 flanked the drainageway to the west and was in an area that appeared to have contained ponded water based on the presence of fine-grained sediment on the asphalt.
- Borings WL-B5, WL-B7, and WL-B9 were located along the east edge of the asphalt. This area is upslope from the drainageway that flows from north to south. It is unlikely that surface flow would have drained into this area and was anticipated to be an unaffected area.

Because of the nature of the AFFF discharges being applied to the surface, the focus of analytical testing for evidence of PFAS impacts was the upper portion of the soil column. Soil samples for laboratory analysis were collected in the upper 3 feet above the water table and from a second sample interval that was above the observed water table at the time of drilling. Therefore, two soil samples from each boring were selected for laboratory analysis, except for borings WL-B1, WL-B2, WL-B5, WL-B7, and WL-B9, in which one soil sample was selected for laboratory analysis and the deeper sample was held by the laboratory pending the results of the shallower interval.

On August 14, 2021, GZA advanced one Geoprobe® boring (WL-B11) to a depth of 15 feet bgs near WL-B1 to collect a soil sample at or near the groundwater interface, and advanced three shallow borings to 0.5 feet bgs using hand tools (WL-SED1, WL-SED2, and WL-SED3) to evaluate soils in the drainage ditch. The drainage ditch did not contain flowing water at the time of sampling. The borings were advanced within the drainage ditch in a depositional area to quantify the potential PFAS in the soils at this location. The locations of WL-B11, WL-SED1, WL-SED2, and WL-SED3 are shown on Figure 2.

On June 17, 2022, GZA advanced one shallow borings to 0.5 feet bgs using hand tools to evaluate the soils conditions along Gallups/Merritts Creek (WL-B12) and in the drainage ditch near the natural pond and (WL-B13). Boring WL-B12 was advanced adjacent to Gallups/Merritts Creek in a depositional area to quantify the potential PFAS in the soil that is being transported by or influenced by the water flow through the creek from off-Site. Boring WL-B13 was advanced in the drainage ditch prior to the pond. The locations of WL-B12 and WL-B13 are shown on Figure 2.

4.2 MONITORING WELL INSTALLATION AND SAMPLING

On August 14, 2021, GZA provided oversight of its subcontractor, OSE, during the installation of one monitoring well (WL-MW-1) in accordance with Wis. Adm. Code NR 141. The monitoring well was installed near soil boring WL-B3 because this is the location at which the AFFF was recovered during testing and the soil samples indicated the presence of PFAS in soil. The soil boring was advanced to a depth of approximately 18.5 feet bgs where auger refusal was encountered. Based on the materials recovered during drilling, this is likely bedrock, as dolomite gravel was recovered. Soil samples were continuously recovered throughout the boring and observations were recorded on a boring log. Soil samples were not collected from this boring for laboratory analysis. Following soil boring activities, the monitoring well was installed in the boring to a depth of approximately 16 feet bgs. The well was constructed with 2-inch-diameter, Schedule 40 polyvinyl chloride (PVC) riser and a 10-foot-long, 0.010-inch, factory slotted well screen. The annular space around the well screen was filled with a sand filter pack to approximately 2 feet above the top of the well screen and the annular space above the sand filter pack was filled with bentonite chips to approximately the surface. The surface of the well was completed with a flush-mount, 8-inch steel manway. The location of the monitoring well is shown on Figure 2.

On June 17, 2022, GZA provided oversight of its subcontractor, OSE, during the installation of two monitoring wells (WL-MW-2 and WL-MW-4) in accordance with Wis. Adm. Code NR 141. The monitoring wells were installed near the northwest and southwest corner of the retention ponds to evaluate PFAS detected in groundwater and to determine the groundwater flow direction at the Site. Monitoring well WL-MW-2 and WL-MW-4 were advanced to a depth of 15 feet bgs.

Monitoring well WL-MW-3 required additional vegetation clearing so it was not installed on June 17, 2022. On July 22, 2022, GZA provided oversight of its subcontractor, OSE, during the installation of one monitoring well (WL-MW-3) in accordance with Wis. Admin. Code NR 141. Monitoring well WL-MW-3 was advanced to a depth of 15 feet bgs. At the base of WL-MW-1 gravel was encountered, which is likely near or at the top of the bedrock surface. Each well was constructed using 2-inch-diameter, Schedule 40 PVC riser and a 10-foot-long, 0.010-inch, factory slotted well screen. The annular space around the well screen was filled with a sand filter pack to approximately 2 feet above the top of the well screen and the annular space above the sand filter pack was filled with bentonite chips to approximately the surface. The surface for WL-MW-1 was completed with a flush-mount, 8-inch steel manway and the surface for WL-MW-2, WL-MW-3, and WL-MW-4 were completed with a 4-inch steel above-grade protective cover. The monitoring well locations are shown on Figure 2.

On July 27, 2022, the monitoring wells were developed by surging the wells and removing a volume of water using a disposable polyethylene bailer. The purpose of the well development is to remove sediment from the sand filter pack and well casing so that a representative sample can be collected. Approximately 20 gallons of groundwater were removed

from each well, or the well was purged dry, during the development process and containerized on-Site until proper disposal is arranged.

On August 3, 2022, GZA performed groundwater sampling activities on the four monitoring wells on-Site using low-flow groundwater sampling techniques. The wells were purged with a peristaltic pump at a rate of 250 to 300 milliliter per minute (ml/min) and the groundwater elevation was monitored to limit the drawdown in the well due to pumping. During purging, a flow-through cell was used to measure the field parameters for temperature, dissolved oxygen (DO), specific conductivity, pH, oxidation-reduction potential (ORP), and turbidity. Purging continued until the field parameters stabilized with acceptable ranges. The flow-through cell was disconnected from the peristaltic pump and the groundwater sample was collected directly from the sample tube into laboratory-supplied sample containers.

The physical observations and classification of soils are presented on the soil boring logs, the monitoring well completion details are presented on the well completion records, and the well development information for each well is included on the well development forms included in Appendix C. If a boring was abandoned following advancement, the abandonment was documented on the boring abandonment forms included in Appendix C.

To conduct the analyses, GZA selected Pace Analytical Services, Inc. (Pace) of West Columbia, South Carolina (formerly Shealy Environmental Services, Inc.), a WDNR-certified laboratory, to provide these laboratory services in Wisconsin. Following collection and recording, the soil samples were placed into laboratory-supplied containers, on ice within an insulated cooler, and submitted to Pace under chain-of-custody protocol. Soil samples were submitted for the analysis of 36 PFAS, which are presently recommended for quantification by the WDNR, by Method 537.1 using the liquid chromatography-tandem mass spectrometry (LC-MS/MS) procedure. The laboratory analytical reports for the soil samples submitted from the Site are provided in Appendix D.

5.0 PRESENTATION AND DISCUSSION OF RESULTS

5.1 SUBSURFACE CONDITIONS

The surface conditions and underlying soil lithology encountered at the Site during the soil boring activities within the asphalt lot consisted of approximately 3 to 4 inches of asphalt underlain by up to 6 inches of base course gravel. The soils beneath the asphalt and base course generally consisted of red/brown clay to a depth of 7 to 10 feet bgs; brown, fine to medium sand and brown silt to a depth of 9 to 13 feet bgs; clay to the maximum depth of 20 feet bgs.

Groundwater was visually observed to be present in the sand and silt layers; however, the clay layers, while appearing moist, did not show evidence of complete saturation. Based on field observations, the groundwater in the sand was noted to be under a slight pressure head, causing the groundwater to rise 2 to 3 feet above the clay/sand interface, depending on the boring, once the boring encountered the sand layer. Therefore, the lower portion of the upper clay unit is also likely saturated. The estimated water table depth, 4 to 8 feet bgs (~766 feet), is approximately 2 to 3 feet below the approximate elevation of the base of the intermittent creek east of the Site. The water levels were measured in August 2022 which is expected to be a seasonal low period for groundwater elevation therefore, discharge of groundwater to the creek is likely seasonal depending on groundwater elevations. The sand layer appeared to be laterally continuous across the area in which borings were advanced. Bedrock was encountered in WL-MW-1 as indicated by the presence of weathered bedrock. Based on the clayey soils encountered at the Site, the hydraulic connection of groundwater to the adjacent creek may be impeded by the low hydraulic conductivity of the clay. Figure 3 shows a cross-section showing the Site geology and topography relative to the adjacent creek.

Groundwater was visually observed to be present in the silt and sand layers encountered. The overlying clay deposit appeared to be moist, but groundwater was not readily apparent. The depths to groundwater in the monitoring wells were measured during groundwater sampling activities at depths of approximately 4 to 10 feet bgs. Based on the groundwater elevations, the groundwater flow is east-northeast at a hydraulic gradient of 0.010 feet per foot (ft/ft). Figure 4 presents the potentiometric surface map showing the resulting groundwater flow direction.

Using assumptions for aquifer properties of hydraulic conductivity and porosity, and the hydraulic gradient measured on August 3, 2022, the average linear velocity of the groundwater is calculated using the following equation:

$$v = \frac{k * i}{n}$$

Where,

v = average linear velocity, ft
k = hydraulic conductivity, ft/day = 1.417 ft/day or 5 x 10^{-4} cm/sec
i = hydraulic gradient, ft/ft = 0.010 ft/ft
n = effective porosity, unitless = 0.30

The hydraulic conductivity indicated above is likely a conservatively high value based on the range presented in Freeze and Cherry[6] and may best represent the most permeable deposits encountered during the investigation. Therefore, this hydraulic conductivity will provide a proportionately conservative average linear velocity. The effective porosity used is considered to be an average porosity for the different geologic materials encountered at the Site. Based on these parameters, the calculated groundwater average linear velocity is 0.047 feet per day (ft/day) or 17.24 feet per year (ft/yr).

5.2 SOIL ANALYTICAL RESULTS

A total of 21 soil samples (WL-B1 through WL-B13) were analyzed for the Wisconsin list of PFAS compounds and four samples (WL-SED1 through WL-SED3 and WL-B11) were analyzed for the list of PFAS detected in the soil in the testing area.

Samples WL-B1 through WL-B13 detected 6 PFAS above the method detection limit (MDL), including 1H,1H,2H,2H-perfluorooctane sulfonic acid (6:2 FTS), PFHxS, perfluorohexanoic acid (PFHxA), PFOA, PFOS, and perfluoropentanoic acid (PFPeA).

The PFAS detected in soil samples from borings in the paved area (WL-B1 through WL-B11) were primarily 6:2 FTS and PFPeA. PFHxA was detected in two of these borings, WL-B5 and WL-B11, which are near the southern edge of the paved area. The reported concentrations of these PFAS are near the respective MDLs indicating there are limited soil impacts in this area.

Soil samples collected from the drainage ditch, WL-SED1 through WL-SED3 and WL-B13, had detections of 6:2 FTS, PFHxS, PFHxA, PFOS, and PFPeA. Of these, PFHxS was only detected in soil samples from WL-B13, and the concentrations was reported as estimated values because the concentration is between the MDL and the limit of quantitation. 6:2 FTS, PFHxA, PFOS, and PFPeA were detected at low-level concentrations in the samples collected from within the drainage ditch.

Soil sample WL-B12 was collected from along Gallups/Merritts Creek and had detections of PFOA and PFOS. The concentration of PFOA is an estimated value because it is between the MDL and the limit of quantitation and the concentration of PFOS is at the MDL.

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[6] Freeze, R.A. and Cherry, J.A., Groundwater, p. 29, Prentice-Hall, Inc., Englewood Cliffs. 1979.

The analytical results indicate limited PFAS detection in soil samples collected near and downgradient of the testing area. The drainage ditch is a conduit to transmit storm water runoff from the paved area to the natural retention pond to the south. This drainage ditch contains vegetation that slows storm water runoff causing particulates to be deposited in the drainage ditch, which is at an elevation that is above the groundwater interface. It is important to note that Oshkosh, during its testing procedure, installed a collection dam on the paved areas that allowed containment and collection of discharged AFFF. The low-level concentrations detected in the soils are an indication that there was not a significant release of PFAS associated with the testing that was performed on the paved area from 2013 to 2019. In addition, the PFAS detected in the samples are short-chain PFAS as expected based on the timing of the testing. The paved area and the drainage ditch are separated from the area to the east by a berm that contains and controls surface water therefore, we believe the area of potential soil impact is limited to the area investigated.

The highest PFAS concentration detected at the Site was of 6:2 FTS, a short chain fluorotelomer with eight carbon atoms, which, unlike PFOS and PFOA, contains only six completely fluorinated carbon atoms. The structure of this fluorotelomer allows for it to be partially degraded under aerobic groundwater conditions. The biodegradation of 6:2 FTS results in the generation of PFHxA and PFPeA due to the loss of carbon from the chemical structure during the degradation process. 6:2 FTS and its breakdown products are generally believed to be of lower toxicity than PFOS and PFOA due to the shorter carbon chain length, lack of bioaccumulation, and shorter half-lives.[7]

A summary of the soil analytical results is presented on Table 1 and the laboratory analytical report is provided in Appendix D. Figure 5 shows the distribution of PFAS compounds detected above the laboratory MDL in soil samples.

5.3 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples were collected from monitoring well WP-MW-1 during three sampling events and from WP-MW-2 through WP-MW-4 during one sampling event. Monitoring well WL-MW-1 is located near the edge of pavement in the area of testing, WL-MW-2 and WL-MW-4 are located on the western upgradient property boundary and WL-MW-3 is located near the creek at the upstream property boundary. The groundwater analytical sample results from samples collected on August 3, 2022, detected 12 PFAS above the MDLs, including 6:2 FTS, 1H, 1H, 2H, 2H,-perfluorhexane sulfonic acid (4:2 FTS), PFBS, perfluoropentanesulfonic acid (PFPeS), PFHxS, perfluorobutanoic acid (PFBA), perfluoroheptanoic acid (PFHpA), PFHxA, PFNA, PFOA, PFPeA, and PFOS. The laboratory analytical reports are provided in Appendix D and are summarized on Table 2.

A comparison of the groundwater results to the recommended standards indicates that the PFOA groundwater concentrations in monitoring well WL-MW-1 is the only PFAS that exceeds the recommended enforcement standard (ES), as shown in the table below.

Well	PFAS	Recommended ES (ng/L)*	Concentration (ng/L)
WL-MW-1	PFOA	20	38

*ng/L = nanograms per liter.

The other PFAS concentrations in the samples from this monitoring well did not exceed the recommended ESs.

Based on regional groundwater flow conditions, monitoring wells WL-MW-2, WL-MW-3, and WL-MW-4 are located upgradient of the testing area. The results for the sample from monitoring well WL-MW-2 were reported as less than the

[7] National Association for Surface Finishing, 6:2 Fluorotelomer Sulfonate (6:2 FTS), Toxicology at a Glance, March 2019.

MDL for the PFAS analyzed. The results for monitoring well WL-MW-3 had detections of six of the PFAS detected in groundwater and the results from WL-MW-4 had detections of two of the PFAS detected in groundwater.

The highest concentrations of PFAS detected in groundwater at the Site were detected in monitoring well WL-MW-1 which is near the testing area. The sample from this well detected seven PFAS that were not detected in the other monitoring wells, including 6:2 FTS, 4:2 FTS, PFPeS, PFHxS, PFHpA, PFNA, and PFOS.

A summary of the soil analytical results is presented on Table 1 and the laboratory analytical report is provided in Appendix D. Figure 6 shows the distribution of PFAS detected above the laboratory MDL in groundwater samples.

6.0 SUMMARY AND CONCLUSIONS

The following summary and conclusions are based on the results of Site investigation activities, analytical results, and historical operations performed at the Site.

- The Waukau Lot was used for testing activities that involved the use of AFFF and fire suppressant substances from October 2013 through October 2019. The testing was performed approximately seven times during this period and was generally performed once per year.
- Best management practices employed by Oshkosh personnel included containing the AFFF to the asphalt lot, which was sloped such that it drained to a central point enabling foams and free liquid to be collected with a vacuum truck. A collection dam was established at the lowest point on the asphalt to allow for efficient collection of the AFFF and removal by the vacuum truck.
- Although the AFFF used during the earlier testing periods did contain PFAS (Ansulite 3%), the testing was performed near the end of the phase-out period for the manufacturing of long-chain PFAS. Therefore, the products used during the testing, especially most recently, are believed to contain the short-chain PFAS or be fluorine free.
- A total of 17 soil borings were advanced to depths up to 15 feet bgs within the immediate area where AFFF discharged and along the upgradient property boundary, from which 21 soil samples were submitted to Pace to identify the potential presence of the Wisconsin List of PFAS.
- Underlying a surficial layer of asphalt and base course gravel in the upper 1 foot, geologic conditions consist of low-permeability clay deposits (consistent with till of the regional Kewaunee Formation) extending to a depth of approximately 7 to 10 feet bgs. Sand and silt layers, approximately 3 to 5 feet thick, which may represent patchy lake sediment, were encountered beneath the clay. In the boring advanced to 15 feet bgs, the sand and silt layers are underlain by an additional clay deposit.
- Groundwater was observed in the sand layer and, based on estimated static water levels, is estimated to occur approximately 4 to 8 feet bgs. The underlying sand layer appears to be continuous throughout the borings advanced on the Site.
- The groundwater flow, as measured on August 3, 2022, is to the east at a hydraulic gradient of 0.01 ft/ft. The groundwater elevation appears to be below the base of Gallups/Merritts Creek. The presence of the low hydraulic conductivity clay soils and the groundwater elevations likely limit the hydraulic connection of the groundwater to the creek.

- Assuming conservatively high values for hydraulic conductivity, an average effective porosity for soil encountered on-Site, and the measured hydraulic gradient on August 3, 2022, the groundwater velocity is estimated at approximately 17 feet/year.
- There are no receptors that are known or expected to be affected by the PFAS-affected soil and groundwater in the testing area. The Site is expected to remain as an industrial property.
- The soil analytical results indicate that six PFAS were detected at concentrations exceeding the MDLs, including 6:2 FTS, PFHxS, PFHxA, PFOA, PFOS, and PFPeA. The highest concentrations were detected in the samples at the edge of the pavement and in the drainage ditch.
- The soil sample collected from near the creek, WL-B12, had detections of PFOA and PFOS, but did not have detections of other PFAS.
- Site groundwater samples detected 12 PFAS above the MDLs, including 6:2 FTS, 4:2 FTS, PFBS, PFPeS, PFHxS, PFBA, PFHpA, PFHxA, PFNA, PFOA, PFPeA, and PFOS.
- The groundwater sample from WL-MW-2 did not have detections of PFAS above the MDLs. Monitoring wells WL-MW-3 and WL-MW-4 had detection of PFAS above the MDLs; however, WL-MW-1 contained the widest range of individual PFAS constituents and at the highest concentrations in the investigation area.
- The PFAS detected in groundwater tend to be predominantly short-chain PFAS, as expected based on the timing of the testing from 2013 through 2019.
- The current investigation results indicate limited magnitude and extent of PFAS in soil and groundwater related to the Site. These observed conditions are consistent with the best management practices employed by Oshkosh during testing and the limited duration of practices that resulted in the discharge of AFFF at the Site. Therefore, in GZA's opinion, these factors indicate there is low potential risk to human health and the environment resulting from the residual impacts detected.
- The relatively low-level concentrations of long-chain PFAS (PFOS and PFOA) and the limited presence of shorter chain PFAS (6:2 FTS) support the understanding that Oshkosh employed more recent short-chain AFFF, or PFAS-free formulations that eliminated long-chain PFAS in its mobile AFFF testing activities at the Site. Note that PFHxA and PFPeA, which were also detected, are potential degradation products of 6:2 FTS.

In consideration of these findings, also note that this Site is and will continue to be used for industrial manufacturing with restricted access only through secured gates with security personnel. Additionally, no water supply wells exist at the Site and groundwater in the area of and surrounding the Site is not used for potable drinking water supply, as the City of Oshkosh supplies municipal water to this area of Oshkosh.

7.0 PROPOSED ADDITIONAL GROUNDWATER MONITORING

Based on the results of the previous groundwater monitoring, GZA proposes to perform up to two additional groundwater sampling events of the four monitoring wells on-Site to evaluate the groundwater conditions and to evaluate the seasonal variability, stability, and/or attenuation of PFAS detected in groundwater. The monitoring wells will be sampled using low-flow groundwater sampling techniques and the samples will be submitted for laboratory analysis of the Wisconsin list of PFAS. The groundwater sample results from the investigation will be evaluated to determine if additional investigation activities are necessary.

Monitoring well MW-1 is the only well that detected PFAS concentrations that exceed the DHS-recommended ES for PFHxS and PFOA. The concentrations of PFHxS in monitoring well MW-1 only exceeded the ES during one of the three sampling events and the PFOA concentrations are indicative of low-level concentrations that slightly exceed the ES.

Equipment testing activities at the Waukau Lot have not been performed by Oshkosh for approximately four years and there are no activities currently being performed at the Site that could be potential source of PFAS. This proposed sampling will evaluate the potential for attenuation of PFAS and will be used to evaluate the appropriate subsequent activities.

8.0 CERTIFICATION

"I, Kevin M. Hedinger, hereby certify that I am a hydrogeologist as that term is defined in s NR 712.03 (1), 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."

Kevin M. Hedinger
Senior Project Manager / Hydrogeologist

February 21, 2023
Date

TABLES

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
Waukau Lot
Oshkosh, Wisconsin

Sample ID		Wisconsin Non-Industrial Direct Contact RCL (µg/kg)	Wisconsin Industrial Direct Contact RCL (µg/kg)	Soil-to-Groundwater Pathway RCL (µg/kg)	WL B-1	WL-B-11	WL B-2	WL B-3		WL B-4		WL B-5	WL B-6	
					WL B-1 (1-2')	WL-B11 (5-6')	WL B-2 (1-2')	WL B-3 (1-2')	WL B-3 (6-7')	WL B-4 (1-2')	WL B-4 (4-5')	WL B-5 (1-2')	WL B-6 (1-2')	WL B-6 (4-5)
Laboratory Sample ID					VK08048-016	WH17016-001	VK08048-014	VK08048-011	VK08048-012	VK08048-009	VK08048-010	VK08048-013	VK08048-007	VK08048-008
Sample Date					11/6/2020	8/14/2021	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020
Parameter (µg/kg)	**CAS Number**													
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NS	NS	NS	7.5	4.1	< 2.4	2.5	4.2	2.8	< 2.2	< 2.2	2.0	< 2.0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-D	13252-13-6	NS	NS	NS	< 4.2	NT	< 4.7	< 4.2	< 4.8	< 4.0	< 4.4	< 4.5	< 4.0	< 4.0
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	< 2.1	NT	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2	< 2.2	< 2.0	< 2.0
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorobutanoic Acid (PFBA)	375-22-4	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluoroheptanesulfonic Acid (PFHPS)	375-92-8	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	NS	NS	NS	< 1.0	0.28 J	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	1.2	< 0.99	< 1.0
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorooctanesulfonamide (FOSA)	754-91-6	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluoro-n-octanoic acid (PFOA)	335-67-1	1,260	16,400	NS	< 1.0	<1.1	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1,260	16,400	NS	< 1.0	<1.1	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
PFOS + PFOA (Calculated)	PFOS+PFOA	1,260	16,400	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	NS	NS	NS	< 1.0	0.46 J	< 1.2	< 1.0	1.6	< 1.0	< 1.1	2.3	< 0.99	< 1.0
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	< 1.0	NT	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1	< 1.1	< 0.99	< 1.0

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
Waukau Lot
Oshkosh, Wisconsin

Sample ID		Wisconsin Non-Industrial Direct Contact RCL (µg/kg)	Wisconsin Industrial Direct Contact RCL (µg/kg)	Soil-to-Groundwater Pathway RCL (µg/kg)	WL B-7	WL B-8		WL B-9	WL B-10		WL-SED-1	WL-SED-2	WL-SED-3
					WL B-7 (1-2')	WL B-8 (1-2')	WL B-8 (4-5')	WL B-9 (1-2')	WL B-10 (1-2')	WL B-10 (4-5')	WL-SED 1 (0-0.5')	WL-SED 2 (0-0.5')	WL-SED 3 (0-0.5')
Laboratory Sample ID					VK08048-018	VK08048-005	VK08048-006	VK08048-019	VK08048-003	VK08048-004	WH17016-002	WH17016-003	WH17016-004
Sample Date					11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	11/6/2020	8/14/2021	8/14/2021	8/14/2021
Parameter (µg/kg)	**CAS Number**												
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	41	9.3	5.1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-D	13252-13-6	NS	NS	NS	< 3.9	< 4.4	< 4.5	< 4.4	< 5.1	< 3.8	NT	NT	NT
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	< 1.9	< 2.2	< 2.2	< 2.2	< 2.5	< 1.9	NT	NT	NT
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorobutanoic Acid (PFBA)	375-22-4	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluoroheptanesulfonic Acid (PFHPS)	375-92-8	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	2.7	4.6	4.3
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorooctanesulfonamide (FOSA)	754-91-6	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluoro-n-octanoic acid (PFOA)	335-67-1	1,260	16,400	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	<1.6	<1.4	<1.3
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1,260	16,400	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	3.9	5.1	2.8
PFOS + PFOA (Calculated)	PFOS+PFOA	1,260	16,400	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	NS	NS	NS	< 0.97	< 1.1	< 1.1	1.8	< 1.3	< 0.94	2.9	17	15
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	< 0.97	< 1.1	< 1.1	< 1.1	< 1.3	< 0.94	NT	NT	NT

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
Waukau Lot
Oshkosh, Wisconsin

Sample ID		Wisconsin Non-Industrial Direct Contact RCL (µg/kg)	Wisconsin Industrial Direct Contact RCL (µg/kg)	Soil-to-Groundwater Pathway RCL (µg/kg)	WL-B12	WL-B-13
					WL-B12 (0-0.5')	WL-B13 (0-0.5')
Laboratory Sample ID					XF21008-001	XF21008-002
Sample Date					6/17/2022	6/17/2022
Parameter (µg/kg)	**CAS Number**					
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NS	NS	NS	<2.5	<5.0
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NS	NS	NS	<2.5	7.6
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	NS	NS	NS	<2.5	<5.0
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	NS	NS	NS	<2.5	<5.0
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-D	13252-13-6	NS	NS	NS	<5.0	<9.9
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	NS	NS	NS	<2.5	<5.0
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NS	NS	NS	<2.5	<5.0
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS	NS	NS	<2.5	<5.0
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS	NS	NS	<2.5	<5.0
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS	NS	NS	<1.2	<2.5
Perfluorobutanoic Acid (PFBA)	375-22-4	NS	NS	NS	<1.2	<2.5
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS	NS	NS	<1.2	<2.5
Perfluorodecanoic Acid (PFDA)	335-76-2	NS	NS	NS	<1.2	<2.5
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS	NS	NS	<1.2	<2.5
Perfluoroheptanesulfonic Acid (PFHPS)	375-92-8	NS	NS	NS	<1.2	<2.5
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NS	NS	NS	<1.2	<2.5
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS	NS	NS	<1.2	0.86 J
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	NS	NS	NS	<1.2	1.2 J
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS	NS	NS	<1.2	<2.5
Perfluorononanoic Acid (PFNA)	375-95-1	NS	NS	NS	<1.2	<2.5
Perfluorooctanesulfonamide (FOSA)	754-91-6	NS	NS	NS	<1.2	<2.5
Perfluoro-n-octanoic acid (PFOA)	335-67-1	1,260	16,400	NS	0.46J	<2.5
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1,260	16,400	NS	1.2	4.7
PFOS + PFOA (Calculated)	PFOS+PFOA	1,260	16,400	NS	1.2	4.7
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NS	NS	NS	<1.2	<2.5
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	NS	NS	NS	<1.2	2.0 J
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NS	NS	NS	<1.2	<2.5
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS	NS	NS	<1.2	<2.5
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS	NS	NS	<1.2	<2.5

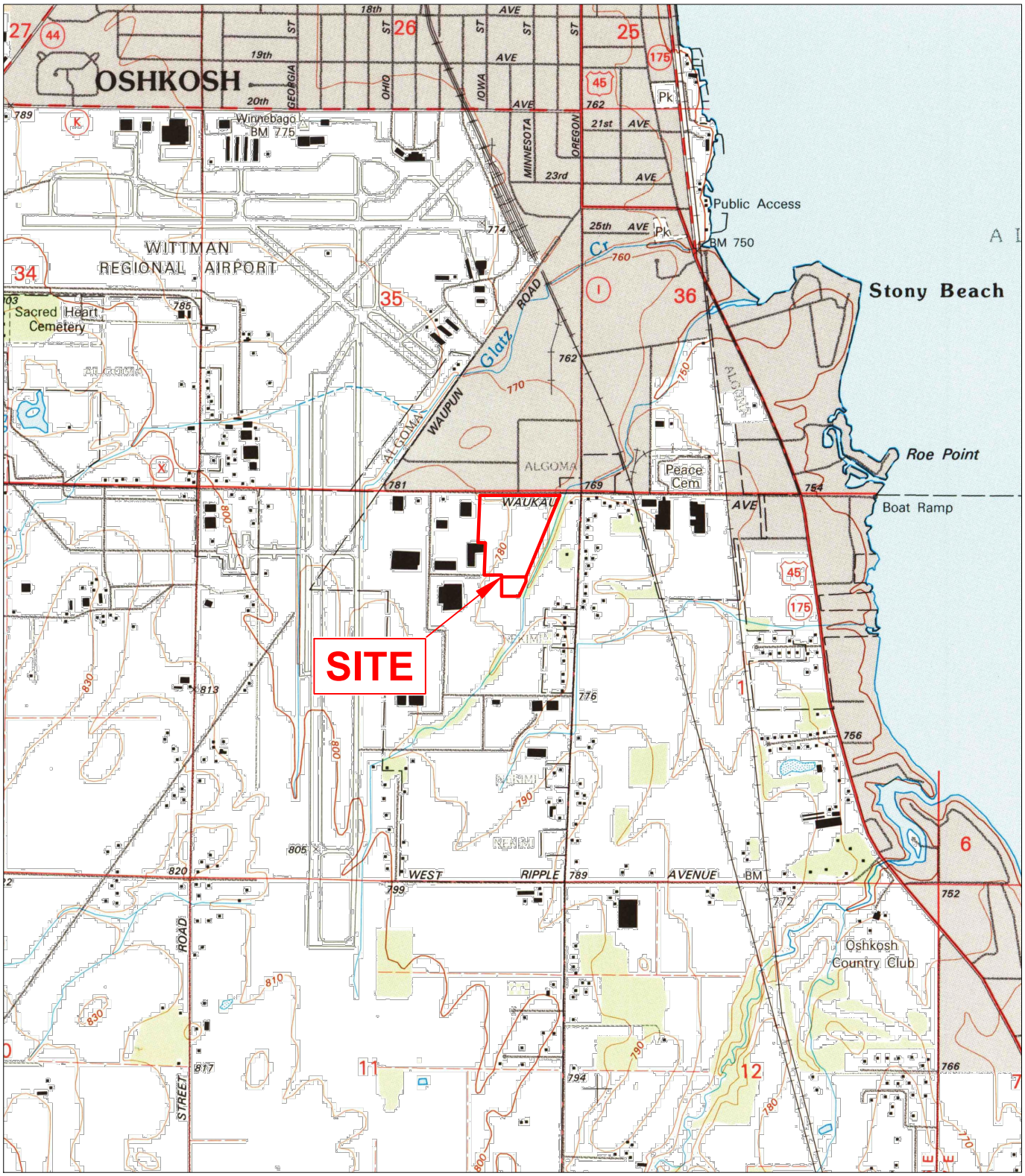
Notes:
1. Results are presented in micrograms per kilogram (µg/kg).
2. "ND" indicates the parameters used in the calculation were not detected; and "NT" indicates the sample was not tested for that parameter.
3. "J"-flagged concentrations indicate that the estimated result is less than the Limit of Quantitation (LOQ) and

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
Waukau Lot
Oshkosh, Wisconsin

Sample ID		DHS-Recommended ES	DHS-Recommended PAL	WL-MW-1			WL-MW-2	WL-MW-3	WL-MW-4
Laboratory Sample ID				WH24025-001	WJ23010-001	XH08006-001	XH08006-002	XH08006-003	XH08006-004
Sample Date				8/19/2021	10/16/2021	8/3/2022	8/3/2022	8/3/2022	8/3/2022
Parameter (ng/L)	CAS Number								
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	NS	NS	<9.2	<22	<7.0	<7.0	<7.7	<7.3
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	763051-92-9	NS	NS	<13	<30	<7.0	<7.0	<7.7	<7.3
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	NS	NS	<30	<73	<7.0	<7.0	<7.7	<7.3
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NS	NS	10,000	14,000	7,600 B	<7.0	<7.7	<7.3
1H, 1H, 2H, 2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	NS	NS	<17	<40	2.5 JQ	<7.0	<7.7	<7.3
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	300	30	<39	<95	<7.0	<7.0	<7.7	<7.3
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	3,000	600	<9.2	<22	<7.0	<7.0	<7.7	<7.3
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	20	2	<26	<62	<7.0	<7.0	<7.7	<7.3
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	20	2	<14	<34	<7.0	<7.0	<7.7	<7.3
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	20	2	<18	<44	<7.0	<7.0	<7.7	<7.3
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	NS	NS	<24	<58	<14	<14	<15	<15
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	NS	NS	<18	<43	<7.0	<7.0	<7.7	<7.3
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	NS	NS	<24	<59	<7.0	<7.0	<7.7	<7.3
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	450,000	90,000	<7.9	44 J	<3.5 S	<3.5	0.73 J	0.95 J
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	NS	NS	<15	<36	<3.5	<3.5	<3.9	<3.6
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	NS	NS	<9.5	<23	<3.5	<3.5	<3.9	<3.6
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	NS	NS	<14	<33	<3.5	<3.5	<3.9	<3.6
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	20	2	<12	<28	<3.5	<3.5	<3.9	<3.6
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	NS	NS	<11	<27	4.6	<3.5	<3.9	<3.6
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	NS	NS	<20	<48	<7.0	<7.0	<7.7	<7.3
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	40	4	**34 J**	**45 J**	**34**	<3.5	<3.9	<3.6
Perfluoro-n-butanoic acid (PFBA)	375-22-4	10,000	2,000	460	880	850	<3.5	5.4	3.7
Perfluoro-n-decanoic acid (PFDA)	335-76-2	300	60	<10	<24	<3.5	<3.5	<3.9	<3.6
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	500	100	<9.0	<22	<3.5	<3.5	<3.9	<3.6
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	NS	NS	320	590	590	<3.5	<3.9	<3.6
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	150,000	30,000	1,600	2,200	2,100	<3.5	1.1 J	<3.6
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	30	3	<8.8	<21	5.6	<3.5	<3.9	<3.6
Perfluoro-n-octanoic acid (PFOA)	335-67-1	20	2	**41 J**	**56 J**	**38**	<3.5	1.1 J	<3.6
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	NS	NS	3,200	5,400	6,100	<3.5	2.9 J	<3.6
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	10,000	2,000	<11	<27	<3.5	<3.5	<3.9	<3.6
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	NS	NS	<10	<27	<3.5	<3.5	<3.9	<3.6
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	3,000	600	<12	<27	<3.5	<3.5	<3.9	<3.6
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	20	2	<38	<27		<3.5	<3.9	<3.6
PFOS + PFOA (Calculated)	PFOS+PFOA	20	2	41 J	56 J	47.9	<3.5	1.1 J	<3.6

Notes:
1. Samples were collected by GZA GeoEnvironmental, Inc. on the date indicated.
2. Results are presented in nanograms per liter (ng/L).
3. "J"-flagged concentrations indicate that the estimated result is less than the Limit of Quantitation (LOQ) and greater than or equal to the Method Detection Limit (DL).
4. "B"- detected in the method blank
5. "Q"-Surrogate failure
6. MS/MSD failure

FIGURES



NO.	ISSUE/DESCRIPTION	BY	DATE

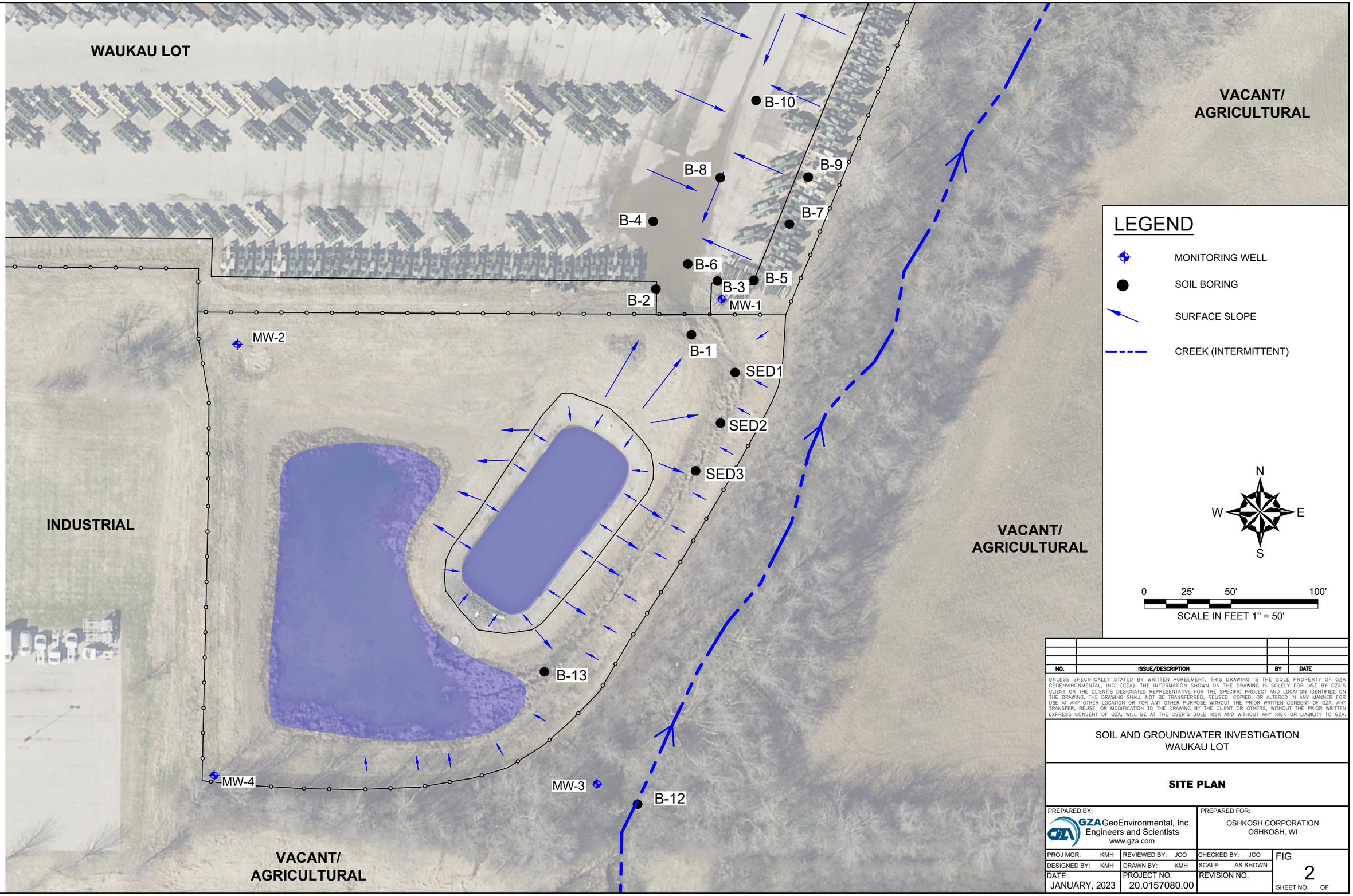
OSHKOSH CORPORATION
WAUKAU LOT
OSHKOSH, WISCONSIN

SITE LOCATION

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
OSHKOSH DEFENSE, LLC
OSHKOSH, WISCONSIN

PROJ MGR: KMH	REVIEWED BY: JCO	CHECKED BY: JCO	FIGURE 1
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: AS SHOWN	
DATE: 12/29/2020	PROJECT NO. 20.0157080.01	REVISION NO.	SHEET NO.



NO.	ISSUE/DESCRIPTION	BY	DATE

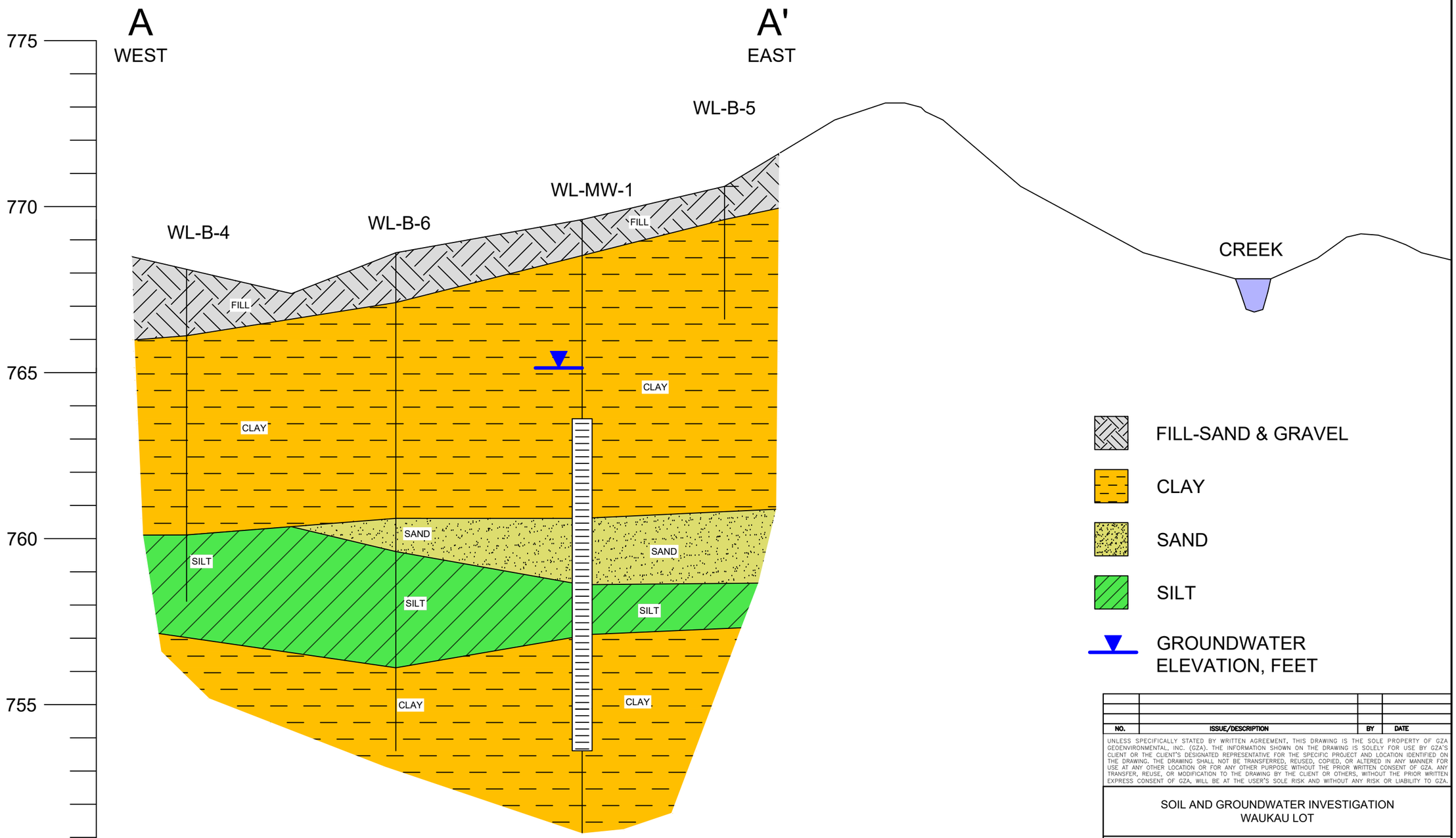
SOIL AND GROUNDWATER INVESTIGATION
WAUKAU LOT

SITE PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
OSHKOSH CORPORATION
OSHKOSH, WI

PROJ MGR: KMH	REVIEWED BY: JCO	CHECKED BY: JCO	FIG 2
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: AS SHOWN	
DATE: JANUARY, 2023	PROJECT NO. 20.0157080.00	REVISION NO.	SHEET NO. OF



0 7.5' 15' 30'

SCALE IN FEET 1" = 15'

VERTICAL EXAGGERATION = 5X

NO.	ISSUE/DESCRIPTION	BY	DATE

SOIL AND GROUNDWATER INVESTIGATION
WAUKAU LOT

CROOS-SECTION A-A'
(WEST TO EAST)

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
OSHKOSH CORPORATION
OSHKOSH, WI

PROJ MGR: KMH	REVIEWED BY: JCO	CHECKED BY: JCO	FIG 3
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: AS SHOWN	
DATE: JANUARY, 2023	PROJECT NO. 20.0157080.00	REVISION NO.	SHEET NO. OF

WAUKAU LOT

VACANT/
AGRICULTURAL

INDUSTRIAL

VACANT/
AGRICULTURAL

765.50

766.00

766.50

767.00

765.00

MW-1
(765.14)

MW-2
(765.62)

MW-3
(764.80)

MW-4
(767.15)

Drainage Ditch
Elevation ~769 feet

Pond Water
Elevation ~766 feet

Creek Water
Elevation ~768 feet

LEGEND

- MONITORING WELL
- (765.14) GROUNDWATER ELEVATION, FEET
- GROUNDWATER FLOW DIRECTION
- (765.00) GROUNDWATER CONTOUR, FEET

N
W E
S

0 25' 50' 100'
SCALE IN FEET 1" = 50'

NO.	ISSUE/DESCRIPTION	BY	DATE

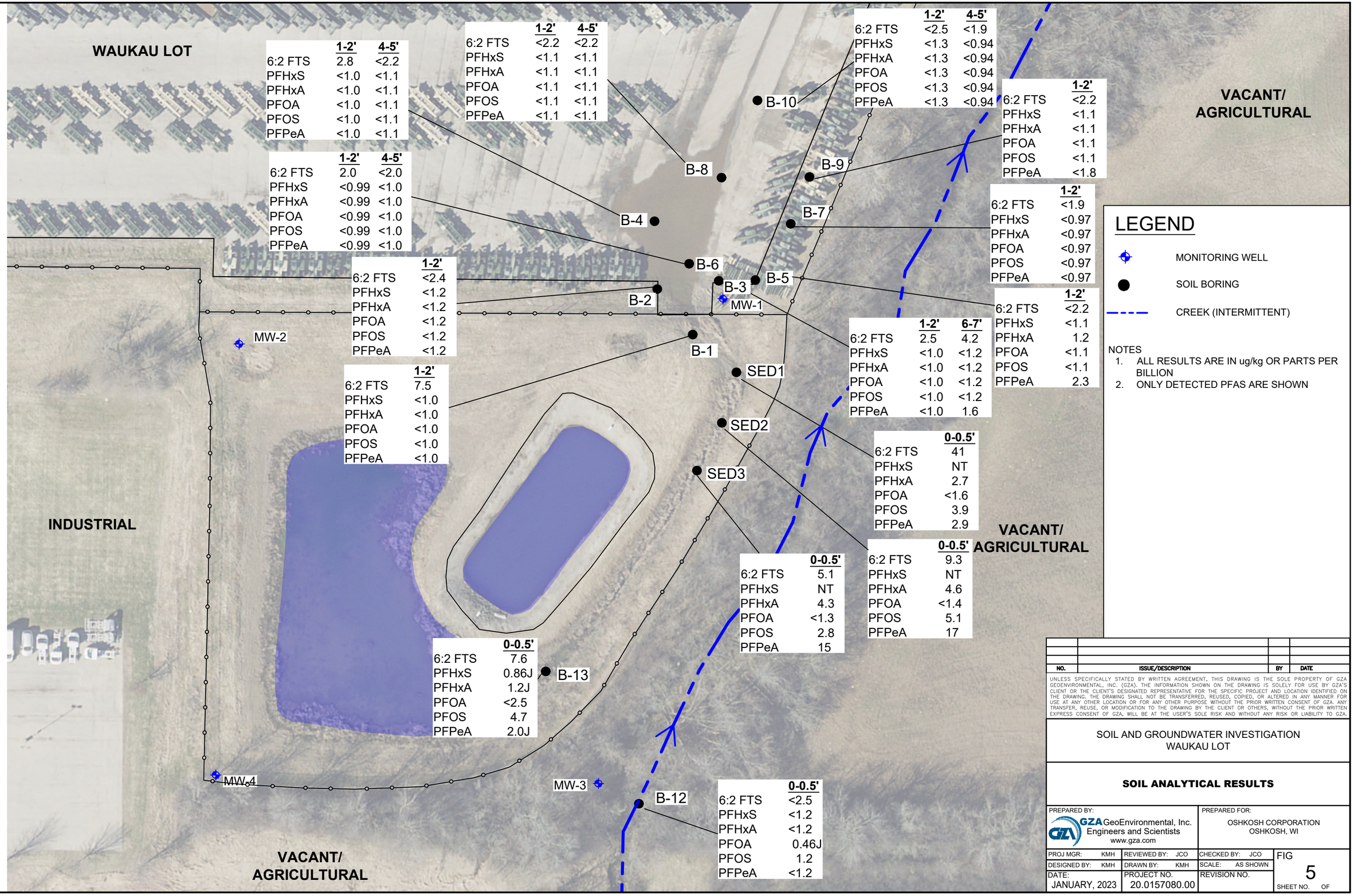
SOIL AND GROUNDWATER INVESTIGATION
WAUKAU LOT

POTENTIOMETRIC SURFACE
AUGUST 3, 2022

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
OSHKOSH CORPORATION
OSHKOSH, WI

PROJ MGR: KMH	REVIEWED BY: JCO	CHECKED BY: JCO	FIG 4
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: AS SHOWN	
DATE: JANUARY, 2023	PROJECT NO. 20.0157080.00	REVISION NO.	SHEET NO. OF



NO.	ISSUE/DESCRIPTION	BY	DATE

SOIL AND GROUNDWATER INVESTIGATION
WAUKAU LOT

SOIL ANALYTICAL RESULTS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: OSHKOSH CORPORATION OSHKOSH, WI
PROJ MGR: KMH	REVIEWED BY: JCO
DESIGNED BY: KMH	DRAWN BY: KMH
DATE: JANUARY, 2023	PROJECT NO. 20.0157080.00
CHECKED BY: JCO	SCALE: AS SHOWN
REVISION NO.	FIG 5
	SHEET NO. OF

WAUKAU LOT

VACANT/
AGRICULTURAL

INDUSTRIAL

VACANT/
AGRICULTURAL

VACANT/
AGRICULTURAL

MW-1

6:2 FTS	7,600
4:2 FTS	2.5 J
PFBS	<3.5
PFPeS	4.6
PFHxS	34
PFBA	850
PFHpA	590
PFHxA	2,100
PFNA	5.6
PFOA	38
PFPeA	6,100
PFOS	9.9

MW-2

6:2 FTS	<7.0
4:2 FTS	<7.0
PFBS	<3.5
PFPeS	<3.5
PFHxS	<3.5
PFBA	<3.5
PFHpA	<3.5
PFHxA	<3.5
PFNA	<3.5
PFOA	<3.5
PFPeA	<3.5
PFOS	<3.5

MW-3

6:2 FTS	<7.7
4:2 FTS	<7.7
PFBS	0.73 J
PFPeS	<3.9
PFHxS	<3.9
PFBA	5.4
PFHpA	<3.9
PFHxA	1.1 J
PFNA	<3.9
PFOA	1.1 J
PFPeA	2.9 J
PFOS	<3.9

MW-4

6:2 FTS	<7.3
4:2 FTS	<7.3
PFBS	0.95 J
PFPeS	<3.6
PFHxS	<3.6
PFBA	3.7
PFHpA	<3.6
PFHxA	<3.6
PFNA	<3.6
PFOA	<3.6
PFPeA	<3.6
PFOS	<3.6

LEGEND

MONITORING WELL

NOTES
1. RESULTS ARE IN ng/L OR PARTS PER TRILLION
2. ONLY DETECTED PFAS ARE SHOWN

N
W E
S

0 25' 50' 100'
SCALE IN FEET 1" = 50'

NO.	ISSUE/DESCRIPTION	BY	DATE

SOI AND GROUNDWATER INVESTIGATION
WAUKAU LOT

GROUNDWATER ANALYTICAL RESULTS
AUGUST 3, 2022

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
OSHKOSH CORPORATION
OSHKOSH, WI

PROJ MGR: KMH	REVIEWED BY: JCO	CHECKED BY: JCO	FIG 6
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: AS SHOWN	
DATE: JANUARY, 2023	PROJECT NO. 20.0157080.00	REVISION NO.	SHEET NO. OF

APPENDIX A

LIMITATIONS

LIMITATIONS

Standard of Care

1. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the proposal and/or report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
2. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state, or federal agency.
3. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the report.

Subsurface Conditions

4. The generalized soil profile(s) provided in our report are based on widely spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and were based on our assessment of subsurface conditions. The composition of strata and the transitions between strata may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location, refer to the exploration logs.
5. Water level readings have been made in test holes (as described in the report) and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater, however, occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the report.

Compliance with Codes and Regulations

6. GZA used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various and possibly contradictory interpretations. Interpretations and compliance with codes and regulations by other parties are beyond our control.

Screening and Analytical Testing

7. GZA collected environmental samples at the locations identified in the report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future site activities and uses may result in a requirement for additional testing.
8. Our interpretation of field screening and laboratory data is presented in the report. Unless otherwise noted, GZA relied on the laboratory's quality assurance (QA)/quality control (QC) program to validate these data.
9. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the report.

Interpretation of Data

10. Our opinions are based on available information, as described in the report, and on our professional judgment. Additional observations made over time and/or space may not support the opinions provided in the report.

Additional Information

11. In the event that Client or others authorized to use this report obtain information on environmental or hazardous waste issues at the site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

Additional Services

12. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction and/or property development/ redevelopment at the site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

APPENDIX B

AFFF PRODUCT SAFETY DATA SHEETS

Safety Data Sheet

This safety data sheet complies with the requirements of: 2012 OSHA Hazard Communication Standard (29CFR 1910.1200)

Product name ANSULITE LOW VISCOSITY 3X3 AR-AFFF Foam Concentrate

1. Identification

1.1. Product Identifier

Product name ANSULITE LOW VISCOSITY 3X3 AR-AFFF Foam Concentrate

1.2. Other means of identification

Product code 416493
Synonyms None
Chemical Family No information available

1.3. Recommended use of the chemical and restrictions on use

Recommended use Fire extinguishing agent.
Uses advised against Consumer use.

1.4. Details of the Supplier of the Safety Data Sheet

Company Name Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143-2542
Telephone: 715-735-7411
Contact point Product Stewardship at 1-715-735-7411
E-mail address psra@tycofp.com

1.5. Emergency Telephone Number

Emergency telephone CHEMTREC 001-800-424-9300 or 001-703-527-3887

2. Hazards Identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation - Category 1

2.2. Label Elements

Signal Word
DANGER

Hazard Statements
Causes serious eye damage

Precautionary Statements

Prevention
Wear protective gloves/protective clothing/eye protection/face protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

2.3. Hazards Not Otherwise Classified (HNOC)
Not Applicable.

2.4. Other Information
Causes mild skin irritation.

3. Composition/information on Ingredients

3.1. Mixture
The following component(s) in this product are considered hazardous under applicable OSHA(USA)

Chemical name	CAS No.	weight-%
2-(2-Butoxyethoxy)ethanol	112-34-5	7 - 13
Caprylcaprilyl glucoside	68515-73-1	1 - 5
Sodium Decyl Sulfate	142-87-0	1 - 5

4. First aid measures

4.1. Description of first aid measures
Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water. Get medical attention if irritation develops and persists.

Inhalation Remove to fresh air. If breathing is difficult, give oxygen. (Get medical attention immediately if symptoms occur.).

Ingestion Rinse mouth. Do not induce vomiting without medical advice. If swallowed, call a poison control center or physician immediately.

4.2. Most Important Symptoms and Effects, Both Acute and Delayed
Symptoms No information available.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed
Note to physicians Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. Unsuitable Extinguishing Media
None.

5.3. Specific Hazards Arising from the Chemical

None known.

Hazardous Combustion Products	Carbon oxides, Fluorinated oxides, Nitrogen oxides (NOx), Oxides of sulfur

5.4. Explosion Data

Sensitivity to Mechanical Impact	None.
Sensitivity to Static Discharge	None.

5.5. Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions	Ensure adequate ventilation, especially in confined areas.
For emergency responders	Use personal protection recommended in Section 8.

6.2. Environmental Precautions

Environmental Precautions	Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	Pick up and transfer to properly labeled containers.

7. Handling and Storage

7.1. Precautions for Safe Handling

Advice on safe handling	Avoid contact with skin and eyes. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place.
Incompatible Materials	Strong oxidizing agents. Strong acids. Strong bases.

8. Exposure Controls/Personal Protection

8.1. Control Parameters

Exposure guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL
2-(2-Butoxyethoxy)ethanol 112-34-5	TWA: 10 ppm inhalable fraction and vapor	-	-	-

ACGIH (American Conference of Governmental Industrial Hygienists) OSHA (Occupational Safety and Health Administration of the US Department of Labor) NIOSH IDLH Immediately Dangerous to Life or Health

8.2. Appropriate Engineering Controls

Engineering controls Ensure adequate ventilation, especially in confined areas.

8.3. Individual protection measures, such as personal protective equipment

Eye/Face Protection Avoid contact with eyes. Tight sealing safety goggles.

Skin and Body Protection Wear protective gloves and protective clothing.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Ventilation Use local exhaust or general dilution ventilation to control exposure with applicable limits

8.4. General hygiene considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State Liquid
Odor Characteristic
Odor Threshold No data available

Color Light yellow

Property	Values	Remarks • Method
pH	No data available	
Melting point/freezing point	No data available	
Boiling point / boiling range	100 °C / 212 °F	
Flash Point	> 100 °C / > 212 °F	
Evaporation Rate	No data available	
Flammability (solid, gas)	No data available	
Flammability limit in air		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific gravity	No data available	
Water Solubility	No data available	
Solubility in Other Solvents	No data available	
Partition coefficient	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Kinematic viscosity	No data available	

Density 1.05

10. Stability and Reactivity

10.1. Chemical Stability

Stable under recommended storage conditions.

10.2. Reactivity

No data available

10.3. Possibility of hazardous reactions

None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

10.4. Conditions to Avoid

Extremes of temperature and direct sunlight.

10.5. Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products

Carbon oxides. Nitrogen oxides (NOx). Oxides of sulfur. Fluorinated oxides.

11. Toxicological Information

11.1. Information on Likely Routes of Exposure

Product information No data available

Inhalation No data available.

Eye Contact Severely irritating to eyes.

Skin contact May cause irritation.

Ingestion No data available.

Component Information

Acute Toxicity

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2-(2-Butoxyethoxy)ethanol 112-34-5	= 5660 mg/kg (Rat)	= 2700 mg/kg (Rabbit)	-
Sodium Decyl Sulfate 142-87-0	= 1950 mg/kg (Rat)	-	-

11.2. Information on Toxicological Effects

Symptoms No information available.

11.3. Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin Corrosion/Irritation Irritating to skin.
Serious eye damage/eye irritation Severely irritating to eyes.
Carcinogenicity No information available.
Reproductive Toxicity No information available.
STOT - Single Exposure No information available.
STOT - Repeated Exposure No information available.
Aspiration Hazard No information available.

11.4. Numerical Measures of Toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 18148 mg/kg
ATEmix (dermal) 23945 mg/kg

12. Ecological Information

12.1. Ecotoxicity

Not classified.

Chemical name	Algae/aquatic plants	Fish	Crustacea
2-(2-Butoxyethoxy)ethanol 112-34-5	EC50 (96h) > 100 mg/L Desmodesmus subspicatus	LC50 (96h) static = 1300 mg/L Lepomis macrochirus	EC50 (48h) > 100 mg/L Daphnia magna EC50 (24h) = 2850 mg/L Daphnia magna
n-Butanol 71-36-3	EC50 (96h) > 500 mg/L Desmodesmus subspicatus EC50 (72h) > 500 mg/L Desmodesmus subspicatus	LC50 (96h) static = 1910000 µg/L Pimephales promelas LC50 (96h) static 1730 - 1910 mg/L Pimephales promelas LC50 (96h) static 100000 - 500000 µg/L Lepomis macrochirus LC50 (96h) flow-through = 1740 mg/L Pimephales promelas	EC50 (48h) Static 1897 - 2072 mg/L Daphnia magna EC50 (48h) = 1983 mg/L Daphnia magna
Sodium Hydrogen Carbonate 144-55-8	EC50 (120h) = 650 mg/L Nitzschia linearis	LC50 (96h) static 8250 - 9000 mg/L Lepomis macrochirus	EC50 (48h) = 2350 mg/L Daphnia magna
Hexamethylenetetramine 100-97-0	-	LC50 (96h) flow-through 44600 - 55600 mg/L Pimephales promelas	EC50 (48h) 29868 - 43390 mg/L Daphnia magna
Methylene chloride 75-09-2	EC50 (72h) > 500 mg/L Pseudokirchneriella subcapitata EC50 (96h) > 500 mg/L Pseudokirchneriella subcapitata	LC50 (96h) static = 193 mg/L Lepomis macrochirus LC50 (96h) flow-through = 193 mg/L Lepomis macrochirus LC50 (96h) static 262 - 855 mg/L Pimephales promelas LC50 (96h) flow-through 140.8 - 277.8 mg/L Pimephales promelas	EC50 (48h) Static 1532 - 1847 mg/L Daphnia magna EC50 (48h) = 190 mg/L Daphnia magna
1,3-Dichloropropene 542-75-6	EC50 (96h) 2.45 - 6.45 mg/L Pseudokirchneriella subcapitata EC50 (72h) 3.12 - 10.5 mg/L Pseudokirchneriella subcapitata	LC50 (96h) semi-static = 4.5 mg/L Oncorhynchus mykiss LC50 (96h) = 2 mg/L Oncorhynchus mykiss LC50 (96h) static 3.1 - 4.9 mg/L Oncorhynchus mykiss LC50 (96h) flow-through 0.211 - 0.271 mg/L Pimephales promelas LC50 (96h) static 1.52 - 2.68 mg/L Pimephales promelas LC50 (96h) static 5.1 - 6.8 mg/L Lepomis macrochirus	EC50 (48h) Static 0.063 - 0.129 mg/L Daphnia magna EC50 (48h) = 0.09 mg/L Daphnia magna

12.2. Persistence and Degradability
No information available.

12.3. Bioaccumulation
No information available.

12.4. Other Adverse Effects
No information available

13. Disposal Considerations

13.1. Waste Treatment Methods

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging	Do not reuse container.

14. Transport Information

DOT	NOT REGULATED
TDG	NOT REGULATED
MEX	NOT REGULATED
ICAO (air)	NOT REGULATED
IATA	NOT REGULATED
IMDG	NOT REGULATED

15. Regulatory Information

15.1. International Inventories

TSCA	Complies
DSL/NDSL	Complies
ENCS	Does not comply
IECSC	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical name	SARA 313 - Threshold Values %
2-(2-Butoxyethoxy)ethanol - 112-34-5	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic health hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

15.3. US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Methylene chloride - 75-09-2	Carcinogen
1,3-Dichloropropene - 542-75-6	Carcinogen

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
2-(2-Butoxyethoxy)ethanol 112-34-5	X	-	X
n-Butanol 71-36-3	X	X	X
1-(3-Chloroallyl)-3,5,7-triaza-1-azonia Adamantane chloride 4080-31-3	X	-	-
Hexamethylenetetramine 100-97-0	X	-	-
Methylene chloride 75-09-2	X	X	X
1,3-Dichloropropene 542-75-6	X	X	X

16. Other information, including date of preparation of the last revision

NFPA	**Health Hazards** 3	**Flammability** 1	**Instability** 0	**Physical and chemical properties** -
HMIS	**Health Hazards** 3	**Flammability** 1	**Physical Hazards** 0	**Personal Protection** X

Revision date 20-Mar-2018
Revision note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

RE-HEALING™ RF3, 3% FOAM CONCENTRATE

MATERIAL SAFETY DATA SHEET

Section 1: Chemical product and company identification

Product Name:	RE-HEALING™ RF3, 3% Foam Concentrate
Synonym:	RE-HEALING RF3 or RF3
Chemical Name:	N/A This product is a mixture
C.A.S No.:	N/A This product is a mixture
Chemical Formula:	N/A This product is a mixture
EINECS Number:	N/A This product is a mixture

Use of this product: The intended use of this product is as a fire extinguishing agent.

Company / Undertaking Identification:

Americas	Europe/Middle East/Africa	Asia-Pacific
The Solberg Company 1520 Brookfield Avenue Green Bay, WI 54313 United States	Solberg Scandinavian AS Radøyvegen 721 - Olsvollstranda N-5938 Sæbøvågen Norway	Solberg Asia Pacific Pty Ltd 3 Charles Street St. Marys NSW 2760 Australia
Tel: +1 920 593 9445	Tel: +47 56 34 97 00	Tel: +61 2 9673 5300

Telephone:	(920) 593-9445
Emergency Contacts:	Chemtrec: (800) 424-9300 or (703) 527-3887
Revised:	December, 2014

Section 2: Hazard identification and emergency overview

HMIS: Health 1, Flammability 0, Reactivity 0, PPE B
NFPA: Health 1, Flammability 0, Reactivity 0
WHMIS: D2B – may irritate eyes, skin, mucous membranes

Human Exposure:
Product:

EU Classification:	Xi	Irritant
R Phrases:	36	Irritating to eyes
S Phrases:	2	Keep out of reach of children
	24	Avoid contact with skin
	26	In case of contact with eyes, rinse immediately with copious amounts of water and seek medical advice.

Components:
Diethylene Glycol Monobutyl Ether:

EU Classification	Xi	Irritant
R Phrases	36	Irritating to eyes
S Phrases	2	Keep out of reach of children
	24	Avoid skin contact
	26	In case of contact with eyes, rinse immediately with copious amounts of water and seek medical advice

Limit Values for Exposure:
Diethylene Glycol Monobutyl Ether:
OSHA PEL (General Industry) 8 hour TWA: None established
MAK (DE) Limit Value: 100 mg/m^3
Short term exposure limit value
(8 times, 5 minutes): $200mg/m^3$

Neither this product nor any of the ingredients contained in it have been listed as carcinogenic by the National Toxicology Program IARC, or OSHA. As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to chemical substances and ensure prompt removal from skin, eyes, and clothing

Signs and Symptoms:

Acute Exposure:	
Eye Contact:	May cause mild to moderate transient irritation
Skin Contact:	May cause mild transient irritation and/or dermatitis
Inhalation:	Not a normal route of entry
Ingestion:	Irritating to mucous membranes
Chronic Overexposure:	Possible systemic and motor disorders, diethethylene glycol monobutyl ether did not interfere with reproduction; however, body weights of newborn animals were decreased.

Medical conditions generally aggravated by exposure: Diseases of the kidney and liver.

For Environment: As much as possible, keep from being washed into surface water.

Section 3. Composition/information on ingredients

Ingredient Name:	Proprietary mixture consisting of hydrocarbon surfactants, complex carbohydrates, inorganic salts, solvent and water
Chemical Formula:	N/A - This is a mixture
C.A.S. No.:	N/A - This is a mixture
EINECS Number:	N/A - This is a mixture
Concentration, Wt. %:	>85%
Hazard Classification:	See section 2

Ingredient Name:	**Diethylene Glycol Monobutyl Ether** (a)
Chemical Formula:	$C_4H_9O(CH_2CH_2O)_2H$
C.A.S. No.:	112-35-5
EINECS Number:	230-961-6

Concentration, Wt.%: 12%
Hazard Classification: See section 2

(a) This chemical is subject to reporting requirements of SARA Title III Section 313 and 40CFR Section 372

Section 4. First aid measures

Eye Exposure: Irrigate eyes at eye wash station and repeat until pain free. Seek medical attention immediately.

Skin Exposure: In case of contact, wash with plenty of soap and water. If irritation persists seek medical attention.

Inhalation: If respiratory irritation or distress occurs remove victim to fresh air. Provide oxygen if breathing is difficult. Seek medical attention if irritation develops or persists.

Ingestion: Do not induce vomiting. If victim is alert, give liquids such as milk or water. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist.

Medical conditions possibly aggravated by exposure: Inhalation of product may aggravate existing chronic respiratory conditions.

Section 5. Firefighting measures

This product is an extinguishing media. No special protective equipment is required for fire fighters. Insensitive to mechanical impact or static discharge.

HMIS (hazardous materials identification system) rankings (as liquid): health = 1, flammability = 0, reactivity = 0, personal protective equipment: eye and skin protection (see Section 8).

Section 6: Accidental release measures

For personal protection: Prevent skin and eye contact, see Heading 8
Clean up: Use an absorbent material, to include but not be limited to, diatomaceous earth, kitty litter, or saw dust, and sweep up. See Heading 12

Section 7: Handling and storage

Avoid eye, respiratory, and skin exposure. Use appropriate PPE (personal protective equipment) when handling, and wash thoroughly after handling (Section 8). Keep product in original container until packaging for use as extinguisher. Clean used equipment before storage. Use this product only in well

ventilated areas. Do not mix with other extinguishing agents.

Section 8: Exposure controls/ personal protection

Respiratory protection: None expected to be needed, mechanical ventilation is recommended

Hand Protection: Use chemical resistant gloves when handling the product

Eye protection: Chemical goggles are recommended

Skin protection: Standard fire-fighting equipment should provide all necessary protection

Section 9: Physical and chemical properties

Appearance: Brown colored gelled liquid; mild sweet odor
Solubility: Completely soluble in water
Flammability: Non -flammable
Flash point: Does not flash
Vapor density (Air = 1): Not determined, but <1
Explosive properties: Not explosive
Oxidizing properties: Not an oxidizer
Relative density: 1.06 (Water = 1)
pH: 7.0 to 8.5
Boiling point: ~ 220° F

Section 10: Stability and reactivity

Stability: stable

Incompatibles: Reactive metals, electrically energized equipment, any material reactive with water and strong oxidizers.

Conditions to avoid: There are no known conditions which may cause a dangerous reaction.

Section 11: Toxicological Information

Product: The toxicity of the product mixture has not been determined
Components:
Diethylene Glycol Monobutyl Ether
Toxicity Data: Oral (rat) LD_{50} 5,660 mg/kg
Oral (rat) LD_{50} 9,626 mg/kg (EINECS ESIS)
Dermal (rabbit) LD_{50} 4,000 mg/kg

Dermal (rabbit) LD_{50} 2,764 mg/kg (EINECS ESIS)

Irritation Data: Eye (rabbit) 20 mg/day Moderate (EINECS ESIS)
Eye (rabbit) Highly-irritating (EINECS ESIS)
Skin (rabbit) 1000 mg/kg/day Moderate with edema, fissuring, leathery appearance (EINECS ESIS)

Target organs: Kidney, blood, liver, lungs, gastrointestinal, spleen

Section 12: Ecological information

Components:

Ecotoxicity:

Diethylene Glycol Monobutyl Ether

Fish	Lepomis marcrochinus:	LC_{50} (96 hrs.)	1,300 mg/L
	Carassius auratus:	LC_{50} (24 hrs.)	2,700 mg/L
Daphnids, Daphnia magna:		EC_{50} 24 hrs.)	3,184 mg/L
Algae,	Scenedesmus subspicatus:	EC_{50} (96 hrs.)	>100 mg/L

Mobility:

Diethylene Glycol Monobutyl Ether

Should not partition from a water column to organic matter contained in sediments and suspended solids.

Persistence/ Degradability:

Diethylene Glycol Monobutyl Ether:

Indirect photodegradation is about 50% in 3.5 hours
Aerobic degradation with adapted activated sludge is 60% after 28 days
COD = 2080 mg/g of substance
BOD_5 = 250 mg O_2/g substance
Theoretical oxygen demand = 2.17 mg/mg

Bioaccumulation:

Diethylene Glycol Monobutyl Ether

Should not bioaccumulate

Section 13: Disposal considerations

As much as possible, keep from being washed into surface water, see Heading 12. Dispose of in compliance with national, regional, and local provisions that may be in force.

Section 14: Transportation information

This product is not a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, and is not regulated by the DOT, IMO, IATA, RID/ADR, or Canada's TDG.

Section 15: Regulatory information

Product:

EU Classification:	Xi	Irritant
R Phrases:	36	Irritating to eyes
S Phrases:	2	Keep out of reach of children
	24	Avoid contact with skin
	26	In case of contact with eyes, rinse immediately with copious amounts of water and seek medical advice.

Limit Values for Exposure:

Diethylene Glycol Monobutyl Ether:

OSHA PEL (General Industry) 8 hour TWA: None established

MAK (DE) Limit Value: 100 mg/m^3

Short term exposure limit value
(8 times, 5 minutes): 200mg/m^3

State regulatory information:
Chemicals in this product under specific State regulations, as denoted below:

California - Permissible Exposure Limits for Chemical Contaminants: None
Florida – Substance List: None
Massachusetts - Substance List: None
Minnesota - List of Hazardous Substances: None
New Jersey - Right to Know Hazardous Substance List: None
Pennsylvania: Hazardous Substance List: None

California Proposition 65: No component is listed on the California Proposition 65 list or the No Significant Risk Level List.

Section 16. Other information

This MSDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the 2003 ANSI Z400.1 format.

The information herein is given in good faith to be correct but does not claim to be all inclusive and shall be used only as a guide. Solberg or Amerex Corporation shall not be held liable for any damage resulting from handling or from contact with the above product

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Date Prepared: 04 December, 2014
Supersedes: Feb, 2012

SAFETY DATA SHEET
BUCKEYE PLATINUM 3% AFFF

SECTION I. Chemical Product and Company Identification

Product Name:	Buckeye Platinum 3% AFFF (BFC-3.1)
Synonym:	AFFF Concentrate, Aqueous Film Forming Foam
Manufacturer:	Buckeye Fire Equipment Company 110 Kings Road Kings Mountain, NC 28086
Telephone:	704.739.7415
Web Address:	www.buckeyefire.com
Email Address:	bfec@buckeyef.com
Recommended Use:	Fire suppression, not for human or animal drug use.
Emergency:	CHEMTREC 1.800.424.9300
Revision Date:	05/2015

SECTION II. Hazard Identification

GHS – Classification

GHS Label Elements:

Hazard Symbols: NONE
Signal Word: WARNING

Hazard Statements:

H320	Causes eye irritation

Precautionary Statements:

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P234	Keep in original container.
P264	Wash hands and face thoroughly after handling
P301+322	If swallowed, drink 2-3 glasses of water.
P302+352	If on skin, wash with soap and water
P305+351+338	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, and continue to rinse.
P337+313	If eye irritation persists, get medical advice/attention.
P401+402+403	Store in original container in a dry, well ventilated place.

SECTION III. Composition/Information on Ingredients

Chemical Name	Weight %*	CAS #
Water	> 80	7732-18-5
Hexylene Glycol	10	107-41-5
Proprietary mixture of fluorosurfactants and hydrocarbon surfactants	< 10	N/A

* % is rounded to the nearest appropriate number. Values are not to be considered product specifications

Note: Buckeye Platinum 3% AFFF does not degrade into nor does it contain PFOS.

SECTION IV. First Aid Measures

Eye Exposure- Flush eyes at eye wash station for 15 minutes and repeat until pain-free. If irritation develops or persists or vision changes occur, seek medical attention.

Skin Exposure- Wash with plenty of soap and water. If irritation develops or persists, seek medical attention.

Inhalation- Not anticipated to be a route of exposure. If irritation develops move victim to fresh air and if it persists, seek medical attention.

Ingestion- If victim is conscious and alert, give 2-3 glasses of water to drink. Do not leave victim unattended. Seek immediate medical attention. On the advice of medical personnel, induce vomiting.
If vomiting occurs and the victim is conscious, give additional water to further dilute the chemical. Prevent aspiration of swallowed product by laying victim on side with head lower than their waist.

Medical Conditions Possibly Aggravated by Exposure- Skin contact may aggravate existing chronic skin conditions.

SECTION V. Firefighting Measures

Extinguishing Media: N/A. This product is an extinguishing agent. It is nonflammable and noncombustible.
Special Firefighting Procedures: N/A
Unusual Fire and Explosion Hazards: This product may decompose in fire and release oxides of sulfur and nitrogen (Refer to Section X).
Sensitivity to Mechanical Impact or Static Discharge: None

SECTION VI. Accidental Release Measures

Large spills (1 drum or more) should be addressed by hazardous materials technicians following a site-specific emergency response plan and trained in the appropriate use of personal protection equipment. Clean up released product using absorbent socks for containment followed by absorbent material within the containment. If deemed necessary, wear appropriate APR for amines/glycol ethers (See Section VIII). Bag and drum for disposal. If product is used on a fire and/or contaminated, use personal protection equipment and containment appropriate to the nature of the mixture. Prevent material from entering waterways. Handle and dispose of as a hazardous waste unless testing indicates otherwise. Decontaminate with detergent and water.

SECTION VII. Handling and Storage

Avoid eye, respiratory, and skin exposure. Use the appropriate personal protective equipment when handling. Wash thoroughly after handling (Refer to Section VIII). Product should be stored in its original container or extinguisher. Use in well-ventilated areas. Do not mix with other extinguishing agents.

SECTION VIII. Exposure Controls and Personal Protection

Respiratory Protection: During the use of this product on fires, exhaust gases and products of incomplete combustion are the main respiratory hazards. In the manufacture of this product, employers and employees must use their collective judgment in determining the on-the-job settings where the use of a respirator is prudent. The need for respiratory protection is not likely for short-term use in well-ventilated areas. Use air-purifying respirators or powered air-purifying respirators with organic vapor and amine cartridges for acute short-term exposures. Long term exposures may require the use of positive pressure supplied air respirators or self-contained breathing apparatus.

Eye Protection: Wear chemical goggles.

Skin Protection: Use nitrile, latex, or similar gloves and coveralls. Good personal hygiene practices are essential. After handling the product, avoid food, tobacco products, or other means of transferring the product from hand to mouth until after thoroughly washing.

SECTION IX. Physical and Chemical Properties

Appearance and Odor: Pale yellow liquid solution with a mild, sweet odor.
Specific Gravity: 1.01
Boiling Point: 97º C
Flash Point: N/A
Flammability: N/A
Solubility: 100%

SECTION X. Stability and Reactivity

Stability: Stable
Incompatibles: Strong acids, bases, and oxidizers. Reactive metals. Any material reactive with water
Decomposition Products: Not known, but oxides of sulfur and nitrogen may be formed.
Hazardous Reactions: None

SECTION XI. Toxicological Information

Routes of Entry:

Eye Contact:	May cause mild transient irritation
Skin Contact:	May cause mild transient irritation and/or dermatitis
Inhalation:	Inhalation is not anticipated to be a problem
Ingestion:	Irritating to mucous membranes. Large oral doses could produce narcosis

Chronic Toxicity: This product's ingredients are not considered as probable or suspected carcinogens by OSHA, IARC, or ACGIH.

Reproductive Toxicity: This product is not known to have any reproductive effects.

SECTION XII. Ecological Information

Ecotoxicity: May cause harm to aquatic life, due to oxygen depletion from the dilution of product after use.
Degradibility: Biodegradable in water.

SECTION XIII. Disposal Considerations

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal regulations. Be aware that product used on a fire may be altered or contaminated and thereby require different disposal considerations.

SECTION XIV. Transportation Information

This product is not defined as a hazardous material under U.S. Department of Transportation 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations.

SECTION XV. Regulatory Information

International Inventory Status: Some ingredients are on the following inventories

Country	Agency
U.S.A.	TSCA
Canada	DSL
Europe	EINECS/ELINCS
Australia	AICS
Japan	MITI
South Korea	KECL

European Risk and Safety Phrases:

EU Classification-	Xi	Irritant
R Phrases-	36	Irritating to eyes, respiratory system, and skin.
S Phrases-	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
	36	Wear suitable protective clothing

U.S. Federal Regulatory Information:

None of the chemicals in this product are under SARA reporting requirements or have SARA Threshold Planning Quantities or CERCLA Reportable Quantities.

State Regulatory Information:

Chemicals in this product are covered under the specific State regulations noted:

Alaska	Designated Toxic and Hazardous Substances- None
California	Permissible Exposure Limits for Chemical Contaminants- None
Florida	Substance list- None
Illinois	Toxic Substance List- None
Kansas	Section 302/303 List- None
Massachusetts	Substance list- None
Minnesota	List of Hazardous Substances- None
Missouri	Employer Information/Toxic Substance List- None
New Jersey	Right to Know Hazardous Substance List- None
North Dakota	List of Hazardous Chemicals, Reportable Quantities- None
Pennsylvania	Hazardous Substance List- None
Rhode Island	Hazardous Substance List- None
Texas	Hazardous Substance List- No
West Virginia	Hazardous Substance List- None
Wisconsin	Toxic and Hazardous Substances- None

California Proposition 65- No component is listed on the California Proposition 65 List

SECTION XVI. Other Information

This Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

HMIS RATINGS:

Health	1
Flammability	0
Reactivity	0

Personal Protective Equipment: use eye protection, gloves, and appropriate skin protection (See Section 8)

WHMIS (Canadian Workplace Hazardous Materials Identification)

D2B- May irritate eyes, mucous membranes, or skin

The information contained herein is given in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made.

SAFETY DATA SHEET
IDENTITY- BUCKEYE 3% MIL SPEC AFFF

SECTION I. Chemical Product and Company Identification

Product Name:	Buckeye 3% Mil Spec AFFF (BFC-3MS)
Synonym:	3% Mil Spec Concentrate, Mil Spec Aqueous Film Forming Foam
Manufacturer:	Buckeye Fire Equipment Company 110 Kings Road Kings Mountain, NC 28086
Telephone:	704.739.7415
Web Address:	www.buckeyefire.com
Email Address:	bfec@buckeyef.com
Recommended Use:	Fire suppression, not for human or animal drug use.
Emergency:	CHEMTREC 1.800.424.9300
Revision Date:	05/2015

SECTION II. Hazard Identification

GHS – Classification

GHS Label Elements:

Hazard Symbols: NONE
Signal Word: WARNING

Hazard Statements:

H320	Causes eye irritation

Precautionary Statements:

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P234	Keep in original container.
P264	Wash hands and face thoroughly after handling
P301+322	If swallowed, drink 2-3 glasses of water.
P302+352	If on skin, wash with soap and water
P305+351+338	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, and continue to rinse.
P337+313	If eye irritation persists, get medical advice/attention.
P401+402+403	Store in original container in a dry, well ventilated place.

SECTION III. Composition/Information on Ingredients

Chemical Name	Weight %*	CAS #
Water	> 56	7732-18-5
Hexylene Glycol	< 19	107-41-5
Proprietary mixture of fluorosurfactants and hydrocarbon surfactants	< 25	N/A

* % is rounded to the nearest appropriate number. Values are not to be considered product specifications

Note: Buckeye 3% Mil Spec AFFF does not degrade into nor does it contain PFOS.

SECTION IV. First Aid Measures

Eye Exposure- Flush eyes at eye wash station for 15 minutes and repeat until pain-free. If irritation develops or persists or vision changes occur, seek medical attention.

Skin Exposure- Wash with plenty of soap and water. If irritation develops or persists, seek medical attention.

Inhalation- Not anticipated to be a route of exposure. If irritation develops move victim to fresh air and if it persists, seek medical attention.

Ingestion- If victim is conscious and alert, give 2-3 glasses of water to drink. Do not leave victim unattended. Seek immediate medical attention. On the advice of medical personnel, induce vomiting.
If vomiting occurs and the victim is conscious, give additional water to further dilute the chemical. Prevent aspiration of swallowed product by laying victim on side with head lower than their waist.

Medical Conditions Possibly Aggravated by Exposure- Skin contact may aggravate existing chronic skin conditions.

SECTION V. Firefighting Measures

Extinguishing Media: N/A. This product is an extinguishing agent. It is nonflammable and noncombustible.
Special Firefighting Procedures: N/A
Unusual Fire and Explosion Hazards: This product may decompose in fire and release oxides of sulfur and nitrogen (Refer to Section X).
Sensitivity to Mechanical Impact or Static Discharge: None

SECTION VI. Accidental Release Measures

Large spills (1 drum or more) should be addressed by hazardous materials technicians following a site-specific emergency response plan and trained in the appropriate use of personal protection equipment. Clean up released product using absorbent socks for containment followed by absorbent material within the containment. If deemed necessary, wear appropriate APR for amines/glycol ethers (See Section VIII). Bag and drum for disposal. If product is used on a fire and/or contaminated, use personal protection equipment and containment appropriate to the nature of the mixture. Prevent material from entering waterways. Handle and dispose of as a hazardous waste unless testing indicates otherwise. Decontaminate with detergent and water.

SECTION VII. Handling and Storage

Avoid eye, respiratory, and skin exposure. Use the appropriate personal protective equipment when handling. Wash thoroughly after handling (Refer to Section VIII). Product should be stored in its original container or extinguisher. Use in well-ventilated areas. Do not mix with other extinguishing agents.

SECTION VIII. Exposure Controls and Personal Protection

Respiratory Protection: During the use of this product on fires, exhaust gases and products of incomplete combustion are the main respiratory hazards. In the manufacture of this product, employers and employees must use their collective judgment in determining the on-the-job settings where the use of a respirator is prudent. The need for respiratory protection is not likely for short-term use in well-ventilated areas. Use air-purifying respirators or powered air-purifying respirators with organic vapor and amine cartridges for acute short-term exposures. Long term exposures may require the use of positive pressure supplied air respirators or self-contained breathing apparatus.

Eye Protection: Wear chemical goggles.

Skin Protection: Use nitrile, latex, or similar gloves and coveralls. Good personal hygiene practices are essential. After handling the product, avoid food, tobacco products, or other means of transferring the product from hand to mouth until after thoroughly washing.

SECTION IX. Physical and Chemical Properties

Appearance and Odor: Pale yellow liquid solution with a mild, sweet odor.
Specific Gravity: 1.02
Boiling Point: 97º C
Flash Point: N/A
Flammability: N/A
Solubility: 100%

SECTION X. Stability and Reactivity

Stability: Stable
Incompatibles: Strong acids, bases, and oxidizers. Reactive metals. Any material reactive with water
Decomposition Products: Not known, but oxides of sulfur and nitrogen may be formed.
Hazardous Reactions: None

SECTION XI. Toxicological Information

Routes of Entry:

Eye Contact:	May cause mild transient irritation
Skin Contact:	May cause mild transient irritation and/or dermatitis
Inhalation:	Inhalation is not anticipated to be a problem
Ingestion:	Irritating to mucous membranes. Large oral doses could produce narcosis

Chronic Toxicity: This product's ingredients are not considered as probable or suspected carcinogens by OSHA, IARC, or ACGIH.

Reproductive Toxicity: This product is not known to have any reproductive effects.

SECTION XII. Ecological Information

Ecotoxicity: May cause harm to aquatic life, due to oxygen depletion from the dilution of product after use.
Degradibility: Biodegradable in water.

SECTION XIII. Disposal Considerations

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal regulations. Be aware that product used on a fire may be altered or contaminated and thereby require different disposal considerations.

SECTION XIV. Transportation Information

This product is not defined as a hazardous material under U.S. Department of Transportation 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations.

SECTION XV. Regulatory Information

International Inventory Status: Some ingredients are on the following inventories

Country	Agency
U.S.A.	TSCA
Canada	DSL
Europe	EINECS/ELINCS
Australia	AICS
Japan	MITI
South Korea	KECL

European Risk and Safety Phrases:

EU Classification-	Xi	Irritant
R Phrases-	36	Irritating to eyes, respiratory system, and skin.
S Phrases-	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
	36	Wear suitable protective clothing

U.S. Federal Regulatory Information:

None of the chemicals in this product are under SARA reporting requirements or have SARA Threshold Planning Quantities or CERCLA Reportable Quantities.

State Regulatory Information:

Chemicals in this product are covered under the specific State regulations noted:

Alaska	Designated Toxic and Hazardous Substances- None
California	Permissible Exposure Limits for Chemical Contaminants- None
Florida	Substance list- None
Illinois	Toxic Substance List- None
Kansas	Section 302/303 List- None
Massachusetts	Substance list- None
Minnesota	List of Hazardous Substances- None
Missouri	Employer Information/Toxic Substance List- None
New Jersey	Right to Know Hazardous Substance List- None
North Dakota	List of Hazardous Chemicals, Reportable Quantities- None
Pennsylvania	Hazardous Substance List- None
Rhode Island	Hazardous Substance List- None
Texas	Hazardous Substance List- No
West Virginia	Hazardous Substance List- None
Wisconsin	Toxic and Hazardous Substances- None

California Proposition 65- No component is listed on the California Proposition 65 List

SECTION XVI. Other Information

This Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

HMIS RATINGS:

Health	1
Flammability	0
Reactivity	0

Personal Protective Equipment: use eye protection, gloves, and appropriate skin protection (See Section 8)

WHMIS (Canadian Workplace Hazardous Materials Identification)

D2B- May irritate eyes, mucous membranes, or skin

The information contained herein is given in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made.

APPENDIX C

WDNR SOIL BORING LOGS, WELL DEVELOPMENT FORMS,

AND ABANDONMENT FORMS

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B1**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**770.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724281**
Long **2351402**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plastic Limit	Soil Properties: P 200	RQD/ Comments
1	60/60	NA		(0-0.5') SILT; organics, wood debris, fine roots, petroleum odor; black; moist. (0.5'-1') Base Coarse Gravel, F-M; with Sand, F-C; light gray; wet. (1'-5') CLAY (CL); little Sand, F-C; trace Gravel, fine; brown/red; hard; dry.	ML GWS CL									
2	60/60	NA	5	(5'-8') CLAY (CL); little Sand, F-C; trace Gravel, fine; brown/red; hard; dry. (8'-10') Poorly-graded SAND (SP-SM), F-M; trace-little Silt; brown; wet.	SP-SM									Silt content increases towards bottom 2" of 5-10' run.
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B10**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**772.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724410**
Long **2351431**
Local Grid Location
☒ N _____ Feet ☐ S
☒ E _____ Feet ☐ W

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-1'2") FILL; Well-graded SAND (SW), F-C; little Silt; little frag rocks; black; dry. (1'2"-1'11") Base Coarse Gravel (GW); ittle Sand, F-M; White; dry. (1'11"-5') CLAY (CL); trace Sand, fine; hard; brown/red.	SW GW CL			NA						Change in color from black to gray and increase in Silt content at 8"
2	60/56	NA	5	(5'-7.5') CLAY (CL); trace Sand, fine; hard; brown/red. (7.5'-8.5') Poorly-graded SAND (SP-SM), F-M; little-Some Sllt; brown; wet. (8.5'-9'8") SILT (MH); with Clay/Clayey SILT; slight orange mottling; barves visible; brown; wet.	SP-SM MH			NA						
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-B11**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Gagé Kapugi** Last Name Firm **On-Site Environmental Services**	**8-14-21**	**8-14-21**	**GeoProbe**

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

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____ Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/47	NA		(0-10") Clayey Silt (ML-CL), organic, trace gravel, dark brown, wet (10"-1'1") Gravel Base, coarse, tan (1'1"-1'11") Stiff lean Clay (CL), some sand F-C, trace gravel fine, reddish brown, moist (1'11"-5') Hard lean Clay (CL), some sand fine, trace gravel, reddish brown, moist	MH GP CL									
2	60/60	NA	5	(5'-9'2") Same as Above (9'2"-10') Poorly graded Sand (SP) F-M, little Silt, brown, wet	SP									Clay more wet around 7'
3	60/60	NA	10	(10'-10'4") Same as Above (10'4"-12'9") Silt (ML), some sand fine, little clay, soft and loose, gray/brown, wet (12'9"-15') Very stiff lean Clay (CL), some silt, little sand fine, brown, moist	ML CL									
			15											
			20											

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

Signature	Firm
E. Stapleton	GZA GeoEnvironmental, Inc.

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-B12**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **A. Amundson** Last Name Firm **GZA**	**6-17-22**	**6-17-22**	**Hand Auger**

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

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12/12			(0-1') fine to coarse and silt (SM), brown/gray, loose, wet	SM									End of Boring
			5											
			10											
			15											
			20											

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

Signature	Firm

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GZA WI DNR FORMAT - GZADEPTH.GDT - 11/9/22 19:58 - J:\GEOTECH PROJECTS\GINT PROJECT DATABASES\20.0157080.00 OSHKOSH CORP - WEST PLANT.GPJ

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-B13**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **A. Amundson** Last Name Firm **GZA**	**6-17-22**	**6-17-22**	**Hand Auger**

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

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12/12			(0-1') Silt (ML) and organics, some clay dark brown, loose, moist	ML									End of Boring
			5											
			10											
			15											
			20											

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

Signature	Firm

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GZA WI DNR FORMAT - GZADEPTH.GDT - 11/9/22 19:58 - J:\GEOTECH PROJECTS\GINT PROJECT DATABASES\20.0157080.00 OSHKOSH CORP - WEST PLANT.GPJ

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B2**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**771.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724301** Long **2351375**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-0.5') TOP SEDIMENT; SILT; with Sand, fine; organics; dark brown/black; moist. (0.5'-5') CLAY (CL); little Sand, F-C; trace Gravel, fine; red/brown; hard; dry.	ML CL			NA						
2	60/60	NA	5	(5'-9') CLAY (CL); little Sand, F-C; trace Gravel, fine; red/brown; hard; dry. (9'-10') Poorly-graded SAND (SP-SM), F-M; trace-little Silt; brown; moist.	SP-SM			NA						Hit rock between 2.5-3' which caused ribboning of clay. Softer consistency in clay noted from 8.5'-9'.
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B3**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**771.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724306**
Long **2351411**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-2") TOP SEDIMENT; SILT; with Sand, fine; brown; wet. (2"-5') CLAY (CL); trace-little Sand, F-C; hard; red/brown; dry.	ML CL			NA						White rock fragments (~1" in diameter) at 2", 8", and 17".
2	60/60	NA	5	(5'-9') CLAY (CL); trace-little Sand, F-C; hard; red/brown; dry. (9'-10') Poorly-graded SAND (SP-SM), F-M; trace-little Silt; brown; moist.	SP-SM			NA						Softer consistency and black oxidation specs noted in clay from 8.5'-9'.
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B4**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**772.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724340**
Long **2351376**
Local Grid Location
☒ N _____ Feet ☐ S
☒ E _____ Feet ☐ W

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0'-1') FILL; Well-graed SAND (SW); F-C; little Silt; trace Gravel, F-M; black; moist. (1'-1'7") Base Coarse Gravel (GM) F-M; with Silt; little Sand, F; wet (perched water). (1'7"-5') CLAY (CL); trace Sand, F-C; trace Gravel, F; brown/red; hard; dry.	SW GM CL			NA						From 8" to 12" increase in Silt content and change in color to gray.
2	60/51	NA	5	(5'-7') CLAY (CL); trace Sand, F-C; trace Gravel, F; brown/red; hard; dry. (7'-7'8") Poorly-graded SAND (SM), F-M; with Silt; brown; wet. (7'8"-9'3") SILT (MH) with Clay/Clayey SILT; Some orange mottling; barves visible; brown; wet. (9'3"-10') No recovery.	SM MH			NA						Color change to gray at 8'9".
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B5**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**772.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724307**
Long **2351432**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/48	NA	0	(0-3") TOPSOIL; brown; moist. (3"-8") CLAY (CL); trace Sand, F-C; trace Gravel, F; red/brown; hard; dry. (8"-11") Base Coarse Gravel (GW); dry. (11"-4') CLAY (CL); trace Sand, F-C; trace Gravel, F; brown/red; hard; dry. (4'-5') No recovery.	CL GW CL			NA						White rock fragments (~1" diameter from 1'3"-1'10".
			5											
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B6**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**771.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724316**
Long **2351394**
Local Grid Location
☒ N _____ Feet ☐ S
☒ E _____ Feet ☐ W

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/52	NA		(0'-1') FILL; Well-graded SAND (SW); F-C; little Silt; trace Gravel, F-M; black; dry. (1'-1' 5") Base Coarse Gravel (GM); with Silt; little Sand, F; moist (perched water). (1'5"-4'4") CLAY (CL); trace Sand, F-M; trace Gravel, F-M; red/brown/dry. (4'4"-5') No recovery.	SW GM CL			NA						Increase in Sandand Silt content an change in color to gray from 6"-1'. Softer consistency in clay from 1'5"-1'7" due to perched water above.
2	60/60	NA	5	(5'-8') CLAY (CL); trace Sand, F-M; trace Gravel, F-M; red/brown/dry. (8-8'10") Poorly-graded SAND (SM), F-M; with Silt; brown; wet. (8'10"-10') SILT (MH); with Clay/ Clayey SILT; barves visible; brown; wet.	SM MH			NA						Softer consistency noted in clay at 7.5' Color change to gray at 9'4".
3	60/48	NA	10	(10-12.5') SILT (MH); with Clay/ Clayey SILT; barves visible; gray; wet. (12.5'-14') CLAY (CL); trace Sand; trace Gravel, F; brown and gray; dry. (14'-15') No recovery.	CL			NA						Increase in clay content and less water note from 11.5'-12.5'

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B7**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Hand Auger**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**772.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724340**
Long **2351452**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12/12	NA		(0'-1') Well-graded SAND (SM), F-C; with Silt; Some Gravel, F-C; trace-little organics, root debris; brown; dry.	SM			NA						At 1' depth, Tony pulled out 6 large rocks (~4" diameter each) from the hole.
2	12/12	NA		(1'-2') CLAY (CL); little Sand, F-C; trace Gravel, F-M; red/brown; dry.	CL			NA						
3	12/12	NA		(2'-3') CLAY (CL); little Sand, F-C; trace Gravel, F-M; red/brown; dry.				NA						
			5											
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B8**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**772.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724366**
Long **2351411**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0'-1') FILL; Well-graded SAND (SW), F-C; little Silt; trace Gravel, F-M; black; moist. (1'-1'3") Base Coarse Gravel; wet (perched water). (1'3"-5') CLAY (CL); trace Sand, F; trace Gravel; F; brown/red; dry.	SW GW CL			NA						
2	60/53	NA	5	(5'-6'10") CLAY (CL); trace Sand, F; trace Gravel; F; brown/red; dry. (6'10"-8') Poorly-graded SAND (SM), F-M; little-some Silt; brown; wet. (8'-9'5") SILT (MH); with Clay/ Clayey Silt; slight orange mottling; barves visible; brown; wet. (9'5"-10') No recovery.	SM MH			NA						
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Corporation		**WL-B9**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Tony Kapugi** Last Name Firm **On-Site Environmental Services**	**11-6-20**	**11-6-20**	**Hand Auger**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**772.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17**, R **16**
Lat **724367**
Long **2351462**

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	12/12	NA		(0-8") CLAY (CL); little Sand, F-C; little Gravel, F-M; trace-little root debris; brown/red; dry.	CL			NA						
2	12/12	NA		(8"-1') Base Coarse Gravel (GM); Some Silt; Little Sand, F-M; brown; dry.	GM			NA						
3	12/12	NA		(1'-1.5') Base Coarse Gravel (GM); Some Silt; Little Sand, F-M; brown; dry.	CL			NA						
				(1.5'-2') CLAY (CL); Little Sand, F-C; trace-little Gravel, F-M; red/brown; dry.										
				(2'-3') CLAY (CL); Little Sand, F-C; trace-little Gravel, F-M; red/brown; dry.										
			5											
			10											

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

Signature	Firm
S. Stephenson	GZA GeoEnvironmental, Inc.

State of Wisconsin
Department of Natural Resources

Boring Number: WL-SED1
Soil Boring Log Information
Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - Waukau Lot		**WL-SED1**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **E. Stapleton** Last Name Firm **GZA**	**8-14-21**	**8-14-21**	**Hand Auger**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		WL-SED1	_____ Feet	_____ Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P200	RQD/ Comments
1 (0-0.5)	6/6	NA	0	1: Organic sediment, silty, little fine sand, root, dark brown, wet	OH									

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

Signature	Firm

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State of Wisconsin
Department of Natural Resources

Boring Number: WL-SED2
Soil Boring Log Information
Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - Waukau Lot		**WL-SED2**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **E. Stapleton** Last Name Firm **GZA**	**8-14-21**	**8-14-21**	**Hand Auger**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		WL-SED2	_____ Feet	_____ Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Length All. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P200	RQD/ Comments
1 (0-0.5)	6/6	NA	0	1: Organic sediment, silt, some clay, little fine sand, roots, dark brown, moist to wet	OH									

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

Signature	Firm

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State of Wisconsin
Department of Natural Resources

Boring Number: WL-SED3
Soil Boring Log Information
Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - Waukau Lot		**WL-SED3**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **E. Stapleton** Last Name Firm **GZA**	**8-14-21**	**8-14-21**	**Hand Auger**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		WL-SED3	_____ Feet	_____ Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P200	RQD/ Comments
1 (0-0.5)	6/6	NA	0	1: Organic sediment, silt, some clay, little sand fine, dark brown to reddish brown, wet	OH									

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

Signature	Firm

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-MW-1**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Gage** Last Name **Kapugi** Firm **On-Site Environmental Services**	**8-14-21**	**8-14-21**	**Geoprobe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**771.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____ Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-4") FILL; Well-graded SAND (SW), F-C; some Silt; little Gravel; brown; moist (4"-2') Very stiff lean Clay (CL), some Sand F-M; little Silt; trace Gravel, reddish brown, moist. (2'-5') Same as Above.	SW CL									
2	60/60	NA	5	(5'-8.5') Same as Above, reddish brown with gray mottling. (8.5'-9'3") Stiff lean Clay (CL), little Sand fine, little silt, reddish brown, wet (9'3"-10') Poorly graded Sand (SP) F-M, little Silt, brown, wet.										
3	60/60	NA	10	(10'-10'10") Same As Above, wet. (10'10"-12.5') Silt (ML), some Sand fine, gray brown, wet. (12.5'-13'5") Silt (ML), some clay, little fine Sand, trace Gravel, brown/gray, wet. (13.5'-15') Very stiff lean Clay (CL), some Silt, little fine Sand, reddish gray with gray mottling, wet.	SP ML CL									
4	42/42	NA	15	(15'-18.5') Very stiff lean Clay (CL), little Silt, little fine Sand, reddish gray, with gray mottling, wet. Bottom 14" transitions to tan/gray color with few dolomite pieces.										Refusal at 18.5' - likely bedrock
			20											

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

Signature	Firm

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State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-MW-2**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Gage Kapugi** Last Name Firm **On-Site Environmental Services**	**6-17-22**	**6-17-22**	**GeoProbe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**773.4'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-0.5') Topsoil (0.5-5') Lean Clay (CL), some gravel fine to medium, some sand fine, red, dry, loose	TOPSOIL CL									
2	60/60	NA	5	(5-10') Lean Clay (CL), red, mosit, soft										
3	60/60	NA	10	(10-13') Same as Above (13-13.5') Well graded SAND Fine to Medium (SW), red, loose, wet (13.5-14') Lean Clay (CL), red with gray mottling, soft, wet (14-15') Well Graded SAND fine to coarse (SW), with gravel fine to medium, some lean clay, soft, saturated	SW CL SWG									
4	60/60	NA	15	(15-17') Same as Above (17-20') Lean clay (CL), with silt, dark gray/red, moist, firm	CL									
			20											End of Boring

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

Signature	Firm

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

GZA WI DNR FORMAT - GZADEPTH.GDT - 11/9/22 19:57 - J:\GEOTECH PROJECTS\GINT PROJECT DATABASES\20.0157080.00 OSHKOSH CORP - WEST PLANT.GPJ

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-MW-3**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Gagé Kapugi** Last Name Firm **On-Site Environmental Services**	**7-22-22**	**7-22-22**	**GeoProbe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**771.4'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C ☐/N ☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____ Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-0.5') Sandy loam, brown, dry (0.5-2.5') Sandy Clay Loam, dark brown, moist (2.5-2'10") Clayey Sand (SC) fine, brown, moist (2'10"-5') Lean Clay (CL), trace gravel fine to medium, hard, red/brown, moist	TILL SC CL									
2	60/48	NA	5	(5-7') Same as Above (7-7.5') Fractured rock, white, dry (7.5-10') Clay (CL), trace gravel fine to medium, hard, red/brown, moist	GP CL									
3	60/42	NA	10	(10-10.33') Silty Sand (SM) fine, brown, wet (10.33-11.33') Clay (CL) with silt interbeds, brown/red, wet (11.33-13') Silt Sand (SM), fine, wet, brown (13-15') Clay (CL), trace gravel fine, brown, wet	SM CL SM CL									End of Boring
			15											
			20											

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

Signature	Firm

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GZA WI DNR FORMAT - GZADEPTH.GDT - 11/9/22 19:57 - J:\GEOTECH PROJECTS\GINT PROJECT DATABASES\20.0157080.00 OSHKOSH CORP - WEST PLANT.GPJ

State of Wisconsin
Department of Natural Resources

Soil Boring Log Information

Form 4400-122 Rev. 7-98

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

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
OshKosh Defense - West Plant		**WL-MW-4**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name **Gage Kapugi** Last Name Firm **On-Site Environmental Services**	**7-22-22**	**7-22-22**	**GeoProbe**

WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			_____ Feet	**775.0'** Feet MSL	**NA** inches

Local Grid Origin ☐ (estimated: ☒) or Boring Location ☐
State Plane _____ N, _____ E S ☐/C☐ /N☐
NE 1/4 of **NE** 1/4 of Section **2**, T **17N**, R **16**
Lat _____
Long _____

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

Facility ID	County	County Code	Civil Town/City/or Village
	71	**71**	**Oshkosh, Wisconsin**

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1	60/60	NA		(0-5') Lean Clay (CL), with gravel fine to medium, some silt, moist, red/brown	CL									
2	60/60	NA	5	(5-6') Same as Above (6-8') Lean Clay (CL), some silt, trace fine sand, dry, loose, red with gray mottling (8-10') Lean Clay (CL), some silt, soft, moist, red with gray mottling										
3	60/60	NA	10	(10-15') Lean Clay (CL), trace gravel fine to medium, hard, dry										
4	60/60	NA	15	(15-16') Poorly graded Fine Sand (SP), trace clay, red, loose, wet (16-17') Lean Clay (CL), with sand fine, red with gray mottling, loose, wet (17-18') Poorly graded Fine Sand (SP), with clay, red with gray mottling, loose, wet (18-20') Lean Clay (CL), trace sand fine, red with gray mottling, soft, moist	SP CL SC CL									
			20											End of Boring

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

Signature	Firm

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GZA WI DNR FORMAT - GZADEPTH.GDT - 11/9/22 19:57 - J:\GEOTECH PROJECTS\GINT PROJECT DATABASES\20.0157080.00 OSHKOSH CORP - WEST PLANT.GPJ

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Oshkosh Defense- Waukau Lot	Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.	Well Name: WL-MW-1
Facility License, Permit or Monitoring No.: MW-1	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or	Wis. Unique Well No.: _____ DNR Well ID No.: _____
Facility ID: _____	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 08/14/2021 (m m / d d / y y y y)
Type of Well: Well Code ____ / ____	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 2, T. 17 N, R. 16 ☒ E ☐ W	Well Installed By: Name (first, last) and Firm: Gage Kapugi; On-Site Environmental
Distance from Waste/Source _____ ft. Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

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

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

13. Sieve analysis performed? ☐ Yes ☒ No

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

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

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ____ 0 ft.

F. Fine sand, top _____ ft. MSL or ____ 4 ft.

G. Filter pack, top _____ ft. MSL or ____ 5 ft.

H. Screen joint, top _____ ft. MSL or ____ 6 ft.

I. Well bottom _____ ft. MSL or ____ 16 ft.

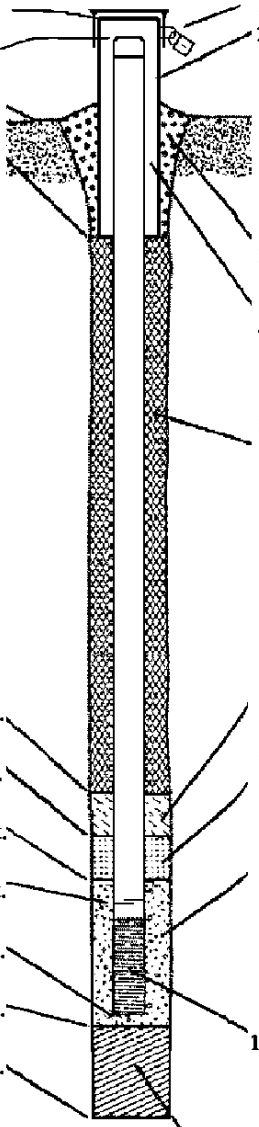
J. Filter pack, bottom _____ ft. MSL or ____ 16 ft.

K. Borehole, bottom _____ ft. MSL or ____ 18.5 ft.

L. Borehole, diameter 8.25 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 8 in.
b. Length: 1 ft.
c. Material: Steel ☒ 04 Other ☐ ____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____
3. Surface seal: Bentonite ☐ 30 Concrete ☒ 01 Other ☐ ____
4. Material between well casing and protective pipe: Bentonite ☒ 30 Other ☐ ____
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 5 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ ____
7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley
b. Volume added 0.5 ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Red Flint
b. Volume added 3.0 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 Flush threaded PVC schedule 80 ☐ 24 Other ☐ ____
10. Screen material: 2" Schedule 40 PVC
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01 Other ☐ ____
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): Soil None ☐ 14 Other ☐ ____

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

Signature: Elizabeth Stapleton Yp Firm: GZA GeoEnvironmental, Inc.

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

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Oshkosh Defense- Waukau Lot	Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.	Well Name: WL-MW-2
Facility License, Permit or Monitoring No.: MW-2	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or	Wis. Unique Well No.: _____ DNR Well ID No.: _____
Facility ID: _____	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 06/17/2022 (m m / d d / y y y y)
Type of Well: Well Code ____ / ____	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 2, T. 17 N, R. 16 ☒ E ☐ W	Well Installed By: Name (first, last) and Firm: Gage Kapugi; On-Site Environmental
Distance from Waste/Source _____ ft. Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

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

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

13. Sieve analysis performed? ☐ Yes ☒ No

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

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

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ____0 ft.

F. Fine sand, top _____ ft. MSL or ___3.5 ft.

G. Filter pack, top _____ ft. MSL or ____4 ft.

H. Screen joint, top _____ ft. MSL or ____5 ft.

I. Well bottom _____ ft. MSL or ___15 ft.

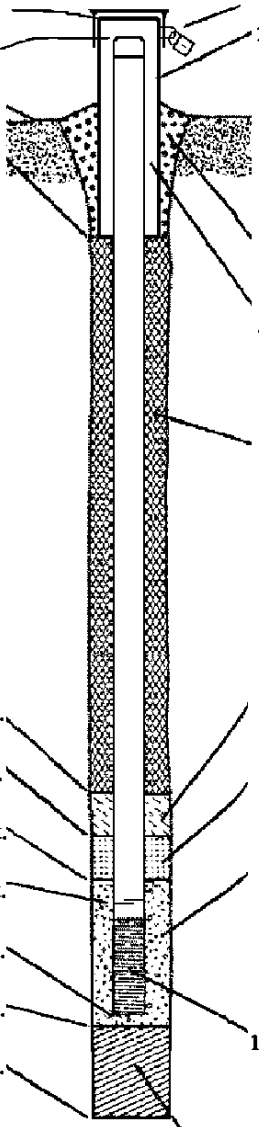
J. Filter pack, bottom _____ ft. MSL or ___15 ft.

K. Borehole, bottom _____ ft. MSL or __15.0 ft.

L. Borehole, diameter __8.00__ in.

M. O.D. well casing __2.37__ in.

N. I.D. well casing __2.05__ in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: __4 in.
b. Length: __4 ft.
c. Material: Steel ☒ 04
Other ☐ ___
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

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

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

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1.2 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

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

7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley 30 x 100
b. Volume added 0.5 ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5
b. Volume added 3.6 ft^3

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

10. Screen material: 2" Schedule 40 PVC
a. Screen type: Factory cut ☒ 11
Continuous slot ☐ 01
Other ☐ ___
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: __10 ft.

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

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

Signature	Firm
Elizabeth Stapleton Yp	GZA GeoEnvironmental, Inc.

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State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Oshkosh Defense- Waukau Lot	Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.	Well Name: WL-MW-4	
Facility License, Permit or Monitoring No.: MW-4	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or	Wis. Unique Well No.	DNR Well ID No.
Facility ID	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 06 / 17 / 2022 (m m / d d / y y y y)	
Type of Well: Well Code ____ / ____	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 2, T. 17 N, R. 16 ☒ E ☐ W	Well Installed By: Name (first, last) and Firm: Gage Kapugi; On-Site Environmental	
Distance from Waste/Source _____ ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number	

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

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

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

13. Sieve analysis performed? ☐ Yes ☒ No

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

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

16. Drilling additives used? ☐ Yes ☒ No

Describe _____

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

E. Bentonite seal, top _____ ft. MSL or ____ 0 ft.

F. Fine sand, top _____ ft. MSL or ____ 3.5 ft.

G. Filter pack, top _____ ft. MSL or ____ 4 ft.

H. Screen joint, top _____ ft. MSL or ____ 5 ft.

I. Well bottom _____ ft. MSL or ____ 15 ft.

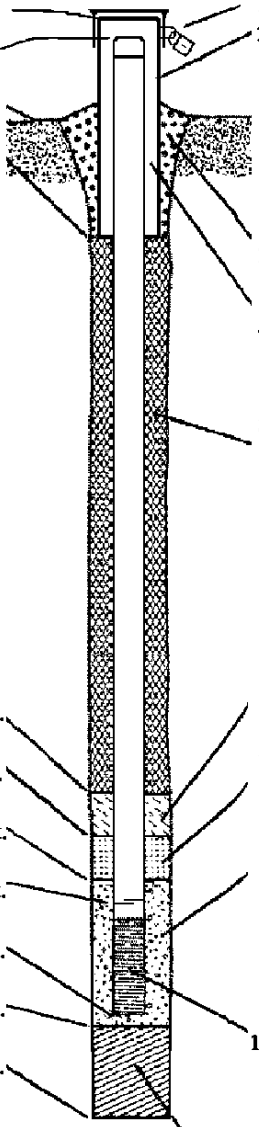
J. Filter pack, bottom _____ ft. MSL or ____ 15 ft.

K. Borehole, bottom _____ ft. MSL or ____ 15.0 ft.

L. Borehole, diameter 8.00 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4 in.
b. Length: 4 ft.
c. Material: Steel ☒ 04 / Other ☐ ____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____

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

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

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1.2 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

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

7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley 30 x 100
b. Volume added 0.5 ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5
b. Volume added 3.6 ft^3

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

10. Screen material: 2" Schedule 40 PVC
a. Screen type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ ____
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.

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

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

Signature	Firm
Elizabeth Stapleton Yp	GZA GeoEnvironmental, Inc.

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

State of Wisconsin
Department of Natural Resources

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

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Oshkosh Defense- Waukau Lot	Local Grid Location of Well: _____ ft. ☐ N. ☐ S. _____ ft. ☐ E. ☐ W.	Well Name: WL-MW-3
Facility License, Permit or Monitoring No.: MW-3	Local Grid Origin ☐ (estimated: ☐) or Well Location ☐ Lat. ___ ° ___ ' ___ " Long. ___ ° ___ ' ___ " or	Wis. Unique Well No.: _____ DNR Well ID No.: _____
Facility ID: _____	St. Plane _____ ft. N, _____ ft. E. S/C/N	Date Well Installed: 07/22/2022 (m m / d d / y y y y)
Type of Well: Well Code ____ / ____	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 2, T. 17 N, R. 16 ☒ E ☐ W	Well Installed By: Name (first, last) and Firm: Tony Kapugi — On-Site Environmental
Distance from Waste/Source _____ ft. Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number: _____

A. Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

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

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

13. Sieve analysis performed? ☐ Yes ☒ No

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

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

16. Drilling additives used? ☐ Yes ☒ No
Describe _____

17. Source of water (attach analysis, if required):
_____

E. Bentonite seal, top _____ ft. MSL or ____0 ft.

F. Fine sand, top _____ ft. MSL or ____3.5 ft.

G. Filter pack, top _____ ft. MSL or ____4 ft.

H. Screen joint, top _____ ft. MSL or ____5 ft.

I. Well bottom _____ ft. MSL or ____15 ft.

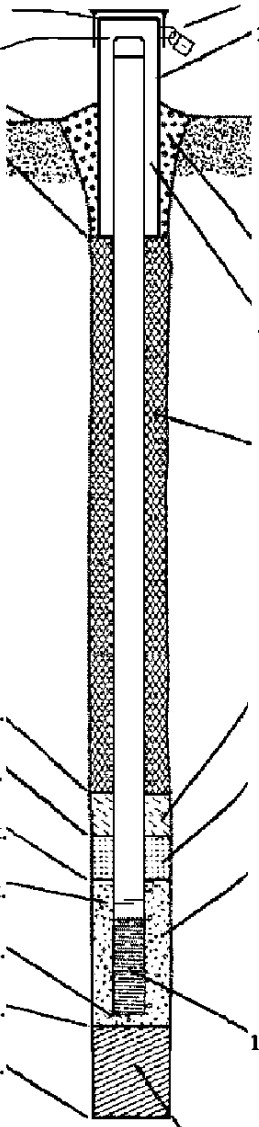
J. Filter pack, bottom _____ ft. MSL or ____15 ft.

K. Borehole, bottom _____ ft. MSL or ____15.0 ft.

L. Borehole, diameter 8.00 in.

M. O.D. well casing 2.35 in.

N. I.D. well casing 2.05 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4 in.
b. Length: 4 ft.
c. Material: Steel ☒ 04 Other ☐ ___
d. Additional protection? ☐ Yes ☐ No
If yes, describe: _____
3. Surface seal: Bentonite ☒ 30 Concrete ☐ 01 Other ☐ ___
_____
4. Material between well casing and protective pipe: Bentonite ☒ 30 Other ☐ ___
_____
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. _____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. _____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. 1.2 Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 Tremie pumped ☐ 02 Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. _____ Other ☐ ___
7. Fine sand material: Manufacturer, product name & mesh size
a. RW Sidley 30 x 100 ___
b. Volume added 0.5 ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. RW Sidley #5 ___
b. Volume added 3.5 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
Other ☐ ___
_____
10. Screen material: 2" Schedule 40 PVC ___
a. Screen type: Factory cut ☒ 11 Continuous slot ☐ 01
_____ Other ☐ ___
b. Manufacturer Monoflex
c. Slot size: 0.010 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14
_____ Other ☐ ___

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

Signature	Firm
Elizabeth Stapleton Yu	GZA GeoEnvironmental, Inc.

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

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
10'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B1
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
10'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B2
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
10'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B3
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
10'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B4
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

For Monitoring Wells and Monitoring Well Boreholes Only:
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5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
4'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B5
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	4'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
15'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B6
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	15'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and 299, Wis. Stats., and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
3'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B7
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	3'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
10'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B8
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
3'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B9
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	3'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

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

Well / Drillhole / Borehole Filling & Sealing Report

Form 3300-005 (R 4/2015)

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☐ **Verification Only of Fill and Seal**

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

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Winnebago	___ ___ ___ ___ ___	

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

¼ / ¼ NE	¼ NE	Section	Township	Range
or Gov't Lot #		2	17 N	16 ☒ E ☐ W

Well Street Address: 3231 Oregon Street

Well City, Village or Town	Well ZIP Code
Oshkosh	54902

Subdivision Name	Lot #

Reason for Removal from Service	WI Unique Well # of Replacement Well
Soil Boring	___ ___ ___ ___ ___

3. Filled & Sealed Well / Drillhole / Borehole Information

☐ Monitoring Well
☐ Water Well
☒ Borehole / Drillhole

Original Construction Date (mm/dd/yyyy): 11/6/2020

If a Well Construction Report is available, please attach.

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

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
10'	NA

Lower Drillhole Diameter (in.)	Casing Depth (ft.)
	NA

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

If yes, to what depth (feet)?	Depth to Water (feet)

2. Facility / Owner Information

Facility Name: Waukau Lot
Facility ID (FID or PWS):
License/Permit/Monitoring #: WL-B10
Original Well Owner:
Present Well Owner: Oshkosh Corporation
Mailing Address of Present Owner:

City of Present Owner	State	ZIP Code
Oshkosh	WI	54209

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

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

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

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

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

5. Material Used to Fill Well / Drillhole

	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)
Tony Kapugi- On-Site Environmental		11/6/2020

Street or Route	Telephone Number
P.O. Box 280	(608) 837-8992

City	State	ZIP Code	Signature of Person Doing Work	Date Signed
Sun Prairie	WI	53290		

DNR Use Only

Date Received	Noted By

Comments:

APPENDIX D

SOIL AND GROUNDWATER LABORATORY ANALYTICAL REPORTS
AND CHAIN-OF-CUSTODY DOCUMENTATION

Report of Analysis

GZA GeoEnvironmental, Inc.
17975 West Sarah Lane, Suite 100
Brookfield, WI 53045
Attention: Kevin Hedinger

Project Name: Oshkosh Corporation

Project Number: 20.0157080

Lot Number:**VK08048**

Date Completed:11/25/2020

Project Manager:**Nisreen Saikaly**

11/25/2020 5:00 PM
Approved and released by:
Project Manager II: **Karen L. Coonan**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
GZA GeoEnvironmental, Inc.
Lot Number: VK08048

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" qualifier

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary
GZA GeoEnvironmental, Inc.
Lot Number: VK08048
Project Name: Oshkosh Corporation
Project Number: 20.0157080

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL Equipment Blank DS 1	Aqueous	11/06/2020 0810	11/07/2020
002	WL Equipment Blank HA 2	Aqueous	11/06/2020 0815	11/07/2020
003	WL B-10 (1-2')	Solid	11/06/2020 0830	11/07/2020
004	WL B-10 (4-5')	Solid	11/06/2020 0840	11/07/2020
005	WL B-8 (1-2')	Solid	11/06/2020 0910	11/07/2020
006	WL B-8 (4-5')	Solid	11/06/2020 0920	11/07/2020
007	WL B-6 (1-2')	Solid	11/06/2020 0930	11/07/2020
008	WL B-6 (4-5)	Solid	11/06/2020 0935	11/07/2020
009	WL B-4 (1-2')	Solid	11/06/2020 0955	11/07/2020
010	WL B-4 (4-5')	Solid	11/06/2020 1000	11/07/2020
011	WL B-3 (1-2')	Solid	11/06/2020 1025	11/07/2020
012	WL B-3 (6-7')	Solid	11/06/2020 1030	11/07/2020
013	WL B-5 (1-2')	Solid	11/06/2020 1040	11/07/2020
014	WL B-2 (1-2')	Solid	11/06/2020 1050	11/07/2020
015	WL B-2 (6-7')	Solid	11/06/2020 1055	11/07/2020
016	WL B-1 (1-2')	Solid	11/06/2020 1110	11/07/2020
017	WL B-1 (5-6')	Solid	11/06/2020 1115	11/07/2020
018	WL B-7 (1-2')	Solid	11/06/2020 1135	11/07/2020
019	WL B-9 (1-2')	Solid	11/06/2020 1150	11/07/2020

(19 samples)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: VK08048

Project Name: Oshkosh Corporation

Project Number: 20.0157080

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
007	WL B-6 (1-2')	Solid	6:2 FTS	PFAS by ID	2.0		ug/kg	17
009	WL B-4 (1-2')	Solid	6:2 FTS	PFAS by ID	2.8		ug/kg	21
011	WL B-3 (1-2')	Solid	6:2 FTS	PFAS by ID	2.5		ug/kg	25
012	WL B-3 (6-7')	Solid	6:2 FTS	PFAS by ID	4.2		ug/kg	27
012	WL B-3 (6-7')	Solid	PFPeA	PFAS by ID	1.6		ug/kg	27
013	WL B-5 (1-2')	Solid	PFHxA	PFAS by ID	1.2		ug/kg	29
013	WL B-5 (1-2')	Solid	PFPeA	PFAS by ID	2.3		ug/kg	29
016	WL B-1 (1-2')	Solid	6:2 FTS	PFAS by ID	7.5		ug/kg	33
019	WL B-9 (1-2')	Solid	PFPeA	PFAS by ID	1.8		ug/kg	37

(9 detections)

PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-001**

Description: **WL Equipment Blank DS 1** Matrix: **Aqueous**

Date Sampled: **11/06/2020 0810** Project Name: **Oshkosh Corporation**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 1728	MMM	11/17/2020 1034	73728

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		9.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		9.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		9.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		9.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		9.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		9.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		9.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		9.8	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		9.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.9	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		106	25-150
13C2_6:2FTS		104	25-150
13C2_8:2FTS		96	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		86	25-150
13C3_PFBS		88	25-150
13C3_PFHxS		98	25-150
13C3-HFPO-DA		96	25-150
13C4_PFBA		101	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		97	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		93	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-001**

Description: **WL Equipment Blank DS 1** Matrix: **Aqueous**

Date Sampled: **11/06/2020 0810** Project Name: **Oshkosh Corporation**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		99	25-150
13C8_PFOS		84	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		98	25-150
d5-EtFOSAA		97	25-150
d3-MeFOSAA		97	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-002**

Description: **WL Equipment Blank HA 2** Matrix: **Aqueous**

Date Sampled: **11/06/2020 0815** Project Name: **Oshkosh Corporation**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 1811	MMM	11/17/2020 1704	73795

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.4	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.4	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		100	25-150
13C2_6:2FTS		97	25-150
13C2_8:2FTS		89	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		77	25-150
13C5_PFHxA		84	25-150
13C5_PFPeA		90	25-150
13C6_PFDA		79	25-150
13C7_PFUdA		80	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-002**

Description: **WL Equipment Blank HA 2** Matrix: **Aqueous**

Date Sampled: **11/06/2020 0815** Project Name: **Oshkosh Corporation**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		88	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		93	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-003**

Description: **WL B-10 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0830** Project Name: **Oshkosh Corporation** % Solids: **82.8** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/12/2020 1920	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.5	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.5	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.5	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.5	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.5	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		5.1	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.5	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.5	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.5	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.3	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.3	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		76	25-150
13C2_6:2FTS		76	25-150
13C2_8:2FTS		69	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		75	25-150
13C4_PFBA		74	25-150
13C4_PFHpA		80	25-150
13C5_PFHxA		79	25-150
13C5_PFPeA		75	25-150
13C6_PFDA		76	25-150
13C7_PFUdA		76	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-003**

Description: **WL B-10 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0830** Project Name: **Oshkosh Corporation** % Solids: **82.8** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	25-150
13C8_PFOS		72	25-150
13C8_PFOSA		81	10-150
13C9_PFNA		75	25-150
d5-EtFOSAA		72	25-150
d3-MeFOSAA		62	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-004**

Description: **WL B-10 (4-5')** Matrix: **Solid**

Date Sampled: **11/06/2020 0840** Project Name: **Oshkosh Corporation** % Solids: **81.4** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/12/2020 1930	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.8	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.94	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		0.94	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		80	25-150
13C2_6:2FTS		76	25-150
13C2_8:2FTS		75	25-150
13C2_PFDoA		76	25-150
13C2_PFTeDA		79	25-150
13C3_PFBS		75	25-150
13C3_PFHxS		75	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		73	25-150
13C4_PFHpA		76	25-150
13C5_PFHxA		74	25-150
13C5_PFPeA		76	25-150
13C6_PFDA		84	25-150
13C7_PFUdA		80	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-004**

Description: **WL B-10 (4-5')** Matrix: **Solid**

Date Sampled: **11/06/2020 0840** Project Name: **Oshkosh Corporation** % Solids: **81.4** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		81	10-150
13C9_PFNA		72	25-150
d5-EtFOSAA		69	25-150
d3-MeFOSAA		63	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-005**

Description: **WL B-8 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0910** Project Name: **Oshkosh Corporation** % Solids: **81.0** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/13/2020 1719	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.4	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		74	25-150
13C2_6:2FTS		78	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		83	25-150
13C2_PFTeDA		86	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		87	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		76	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		83	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		79	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-005**

Description: **WL B-8 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0910** Project Name: **Oshkosh Corporation** % Solids: **81.0** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		83	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		79	25-150
d5-EtFOSAA		80	25-150
d3-MeFOSAA		82	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-006**

Description: **WL B-8 (4-5')** Matrix: **Solid**

Date Sampled: **11/06/2020 0920** Project Name: **Oshkosh Corporation** % Solids: **81.6** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/13/2020 1730	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.5	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		78	25-150
13C2_6:2FTS		80	25-150
13C2_8:2FTS		82	25-150
13C2_PFDoA		81	25-150
13C2_PFTeDA		81	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		77	25-150
13C4_PFBA		79	25-150
13C4_PFHpA		72	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA		80	25-150
13C6_PFDA		74	25-150
13C7_PFUdA		82	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-006**

Description: **WL B-8 (4-5')** Matrix: **Solid**

Date Sampled: **11/06/2020 0920** Project Name: **Oshkosh Corporation** % Solids: **81.6** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	25-150
13C8_PFOS		74	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		79	25-150
d5-EtFOSAA		74	25-150
d3-MeFOSAA		74	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-007**

Description: **WL B-6 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0930** Project Name: **Oshkosh Corporation** % Solids: **82.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/13/2020 1741	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**2.0**		**2.0**	**ug/kg**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.0	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.0	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.99	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		0.99	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		77	25-150
13C2_6:2FTS		76	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		77	25-150
13C2_PFTeDA		79	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		73	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		78	25-150
13C6_PFDA		76	25-150
13C7_PFUdA		79	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-007**

Description: **WL B-6 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0930** Project Name: **Oshkosh Corporation** % Solids: **82.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	25-150
13C8_PFOS		72	25-150
13C8_PFOSA		84	10-150
13C9_PFNA		76	25-150
d5-EtFOSAA		69	25-150
d3-MeFOSAA		69	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-008**

Description: **WL B-6 (4-5)** Matrix: **Solid**

Date Sampled: **11/06/2020 0935** Project Name: **Oshkosh Corporation** % Solids: **80.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/13/2020 1752	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.0	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.0	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.0	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		78	25-150
13C2_6:2FTS		78	25-150
13C2_8:2FTS		80	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		81	25-150
13C3_PFBS		78	25-150
13C3_PFHxS		79	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		76	25-150
13C4_PFHpA		74	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		77	25-150
13C6_PFDA		75	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-008**

Description: **WL B-6 (4-5)** Matrix: **Solid**

Date Sampled: **11/06/2020 0935** Project Name: **Oshkosh Corporation** % Solids: **80.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	25-150
13C8_PFOS		71	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		70	25-150
d3-MeFOSAA		70	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-009**

Description: **WL B-4 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0955** Project Name: **Oshkosh Corporation** % Solids: **84.1** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/13/2020 1813	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.0	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**2.8**		**2.0**	**ug/kg**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.0	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.0	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.0	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.0	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.0	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		69	25-150
13C2_6:2FTS		71	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		78	25-150
13C2_PFTeDA		80	25-150
13C3_PFBS		70	25-150
13C3_PFHxS		74	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		71	25-150
13C4_PFHpA		72	25-150
13C5_PFHxA		67	25-150
13C5_PFPeA		72	25-150
13C6_PFDA		71	25-150
13C7_PFUdA		73	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-009**

Description: **WL B-4 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 0955** Project Name: **Oshkosh Corporation** % Solids: **84.1** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		73	25-150
13C8_PFOS		70	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		69	25-150
d5-EtFOSAA		68	25-150
d3-MeFOSAA		69	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-010**

Description: **WL B-4 (4-5')** Matrix: **Solid**

Date Sampled: **11/06/2020 1000** Project Name: **Oshkosh Corporation** % Solids: **79.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/13/2020 1824	MMM	11/11/2020 0952	72992

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.4	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		73	25-150
13C2_6:2FTS		79	25-150
13C2_8:2FTS		83	25-150
13C2_PFDoA		74	25-150
13C2_PFTeDA		83	25-150
13C3_PFBS		72	25-150
13C3_PFHxS		77	25-150
13C3-HFPO-DA		73	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		83	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA		79	25-150
13C6_PFDA		78	25-150
13C7_PFUdA		81	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-010**

Description: **WL B-4 (4-5')** Matrix: **Solid**

Date Sampled: **11/06/2020 1000** Project Name: **Oshkosh Corporation** % Solids: **79.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		82	25-150
13C8_PFOS		72	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		75	25-150
d5-EtFOSAA		71	25-150
d3-MeFOSAA		70	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-011**

Description: **WL B-3 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1025** Project Name: **Oshkosh Corporation** % Solids: **79.6** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0119	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.1	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.1	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.1	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**2.5**		**2.1**	**ug/kg**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.1	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.1	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.1	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.1	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		72	25-150
13C2_6:2FTS		84	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		71	25-150
13C3_PFBS		72	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		79	25-150
13C4_PFBA		77	25-150
13C4_PFHpA		76	25-150
13C5_PFHxA		74	25-150
13C5_PFPeA		75	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		79	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-011**

Description: **WL B-3 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1025** Project Name: **Oshkosh Corporation** % Solids: **79.6** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		80	25-150
13C8_PFOS		75	25-150
13C8_PFOSA		86	10-150
13C9_PFNA		75	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		80	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-012**

Description: **WL B-3 (6-7')** Matrix: **Solid**

Date Sampled: **11/06/2020 1030** Project Name: **Oshkosh Corporation** % Solids: **80.5** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0130	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.4	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.4	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.4	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**4.2**		**2.4**	**ug/kg**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.4	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.8	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.4	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.4	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.4	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.6**		**1.2**	**ug/kg**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		72	25-150
13C2_6:2FTS		76	25-150
13C2_8:2FTS		73	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		73	25-150
13C3_PFBS		69	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		74	25-150
13C4_PFBA		72	25-150
13C4_PFHpA		75	25-150
13C5_PFHxA		66	25-150
13C5_PFPeA		70	25-150
13C6_PFDA		74	25-150
13C7_PFUdA		75	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-012**

Description: **WL B-3 (6-7')** Matrix: **Solid**

Date Sampled: **11/06/2020 1030** Project Name: **Oshkosh Corporation** % Solids: **80.5** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		74	25-150
13C8_PFOS		73	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		69	25-150
d5-EtFOSAA		73	25-150
d3-MeFOSAA		62	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-013**

Description: **WL B-5 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1040** Project Name: **Oshkosh Corporation** % Solids: **81.4** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0141	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.5	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	**307-24-4**	**PFAS by ID SOP**	**1.2**		**1.1**	**ug/kg**	**1**
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**2.3**		**1.1**	**ug/kg**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		73	25-150
13C2_6:2FTS		77	25-150
13C2_8:2FTS		73	25-150
13C2_PFDoA		84	25-150
13C2_PFTeDA		75	25-150
13C3_PFBS		74	25-150
13C3_PFHxS		81	25-150
13C3-HFPO-DA		82	25-150
13C4_PFBA		80	25-150
13C4_PFHpA		81	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		78	25-150
13C6_PFDA		85	25-150
13C7_PFUdA		81	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-013**

Description: **WL B-5 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1040** Project Name: **Oshkosh Corporation** % Solids: **81.4** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		83	25-150
13C8_PFOS		78	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		80	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		75	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-014**

Description: **WL B-2 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1050** Project Name: **Oshkosh Corporation** % Solids: **81.3** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0151	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.4	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.4	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.4	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.4	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.4	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.7	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.4	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.4	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.4	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.2	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.2	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		69	25-150
13C2_6:2FTS		74	25-150
13C2_8:2FTS		70	25-150
13C2_PFDoA		69	25-150
13C2_PFTeDA		66	25-150
13C3_PFBS		66	25-150
13C3_PFHxS		73	25-150
13C3-HFPO-DA		68	25-150
13C4_PFBA		66	25-150
13C4_PFHpA		67	25-150
13C5_PFHxA		66	25-150
13C5_PFPeA		64	25-150
13C6_PFDA		70	25-150
13C7_PFUdA		75	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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Client: **GZA GeoEnvironmental, Inc.**		Laboratory ID: **VK08048-014**	
Description: **WL B-2 (1-2')**		Matrix: **Solid**	
Date Sampled: **11/06/2020 1050**	Project Name: **Oshkosh Corporation**	% Solids: **81.3**	**11/10/2020 0016**
Date Received: **11/07/2020**	Project Number: **20.0157080**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		68	25-150
13C8_PFOS		64	25-150
13C8_PFOSA		76	10-150
13C9_PFNA		69	25-150
d5-EtFOSAA		67	25-150
d3-MeFOSAA		61	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-016**

Description: **WL B-1 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1110** Project Name: **Oshkosh Corporation** % Solids: **82.7** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0202	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.1	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.1	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.1	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	**27619-97-2**	**PFAS by ID SOP**	**7.5**		**2.1**	**ug/kg**	**1**
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.1	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.2	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.1	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.1	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.1	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.0	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.0	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		75	25-150
13C2_6:2FTS		77	25-150
13C2_8:2FTS		72	25-150
13C2_PFDoA		75	25-150
13C2_PFTeDA		71	25-150
13C3_PFBS		74	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		73	25-150
13C4_PFBA		75	25-150
13C4_PFHpA		77	25-150
13C5_PFHxA		71	25-150
13C5_PFPeA		75	25-150
13C6_PFDA		74	25-150
13C7_PFUdA		77	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-016**

Description: **WL B-1 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1110** Project Name: **Oshkosh Corporation** % Solids: **82.7** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		75	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		81	10-150
13C9_PFNA		74	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		71	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-018**

Description: **WL B-7 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1135** Project Name: **Oshkosh Corporation** % Solids: **81.1** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0213	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		1.9	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		1.9	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		1.9	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		3.9	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		1.9	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		1.9	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		1.9	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		0.97	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		0.97	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		77	25-150
13C2_6:2FTS		80	25-150
13C2_8:2FTS		76	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		71	25-150
13C3_PFBS		73	25-150
13C3_PFHxS		79	25-150
13C3-HFPO-DA		79	25-150
13C4_PFBA		75	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		74	25-150
13C5_PFPeA		75	25-150
13C6_PFDA		80	25-150
13C7_PFUdA		79	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.**		Laboratory ID: **VK08048-018**	
Description: **WL B-7 (1-2')**		Matrix: **Solid**	
Date Sampled: **11/06/2020 1135**	Project Name: **Oshkosh Corporation**	% Solids: **81.1**	**11/10/2020 0016**
Date Received: **11/07/2020**	Project Number: **20.0157080**		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		77	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		77	25-150
d5-EtFOSAA		85	25-150
d3-MeFOSAA		80	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-019**

Description: **WL B-9 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1150** Project Name: **Oshkosh Corporation** % Solids: **84.8** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/18/2020 0223	SES	11/16/2020 1200	73594

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.2	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.2	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.2	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		4.4	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.2	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.2	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.2	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	**2706-90-3**	**PFAS by ID SOP**	**1.8**		**1.1**	**ug/kg**	**1**
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.1	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.1	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		78	25-150
13C2_6:2FTS		79	25-150
13C2_8:2FTS		84	25-150
13C2_PFDoA		77	25-150
13C2_PFTeDA		72	25-150
13C3_PFBS		70	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		80	25-150
13C4_PFBA		75	25-150
13C4_PFHpA		79	25-150
13C5_PFHxA		76	25-150
13C5_PFPeA		77	25-150
13C6_PFDA		79	25-150
13C7_PFUdA		78	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **GZA GeoEnvironmental, Inc.** Laboratory ID: **VK08048-019**

Description: **WL B-9 (1-2')** Matrix: **Solid**

Date Sampled: **11/06/2020 1150** Project Name: **Oshkosh Corporation** % Solids: **84.8** **11/10/2020 0016**

Date Received: **11/07/2020** Project Number: **20.0157080**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C8_PFOA		79	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		83	10-150
13C9_PFNA		80	25-150
d5-EtFOSAA		79	25-150
d3-MeFOSAA		70	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
W = Reported on wet weight basis

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: VQ72992-001
Batch: 72992
Analytical Method: PFAS by ID SOP
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/11/2020 0952

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/12/2020 1700
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/12/2020 1700
8:2 FTS	ND		1	2.0	ug/kg	11/12/2020 1700
6:2 FTS	ND		1	2.0	ug/kg	11/12/2020 1700
4:2 FTS	ND		1	2.0	ug/kg	11/12/2020 1700
GenX	ND		1	4.0	ug/kg	11/12/2020 1700
ADONA	ND		1	2.0	ug/kg	11/12/2020 1700
EtFOSAA	ND		1	2.0	ug/kg	11/12/2020 1700
MeFOSAA	ND		1	2.0	ug/kg	11/12/2020 1700
PFBS	ND		1	1.0	ug/kg	11/12/2020 1700
PFDS	ND		1	1.0	ug/kg	11/12/2020 1700
PFHpS	ND		1	1.0	ug/kg	11/12/2020 1700
PFNS	ND		1	1.0	ug/kg	11/12/2020 1700
PFOSA	ND		1	1.0	ug/kg	11/12/2020 1700
PFPeS	ND		1	1.0	ug/kg	11/12/2020 1700
PFHxS	ND		1	1.0	ug/kg	11/12/2020 1700
PFBA	ND		1	1.0	ug/kg	11/12/2020 1700
PFDA	ND		1	1.0	ug/kg	11/12/2020 1700
PFDoA	ND		1	1.0	ug/kg	11/12/2020 1700
PFHpA	ND		1	1.0	ug/kg	11/12/2020 1700
PFHxA	ND		1	1.0	ug/kg	11/12/2020 1700
PFNA	ND		1	1.0	ug/kg	11/12/2020 1700
PFOA	ND		1	1.0	ug/kg	11/12/2020 1700
PFPeA	ND		1	1.0	ug/kg	11/12/2020 1700
PFTeDA	ND		1	1.0	ug/kg	11/12/2020 1700
PFTrDA	ND		1	1.0	ug/kg	11/12/2020 1700
PFUdA	ND		1	1.0	ug/kg	11/12/2020 1700
PFOS	ND		1	1.0	ug/kg	11/12/2020 1700

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		87	25-150
13C2_6:2FTS		86	25-150
13C2_8:2FTS		83	25-150
13C2_PFDoA		86	25-150
13C2_PFTeDA		86	25-150
13C3_PFBS		76	25-150
13C3_PFHxS		79	25-150
13C3-HFPO-DA		83	25-150
13C4_PFBA		81	25-150
13C4_PFHpA		84	25-150
13C5_PFHxA		83	25-150
13C5_PFPeA		82	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ72992-001
Batch: 72992
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/11/2020 0952

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		88	25-150
13C7_PFUdA		90	25-150
13C8_PFOA		87	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		91	10-150
13C9_PFNA		78	25-150
d5-EtFOSAA		84	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ72992-002
Batch: 72992
Analytical Method: PFAS by ID SOP
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/11/2020 0952

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	1.9	1.9		1	101	50-150	11/12/2020 1711
11Cl-PF3OUdS	1.9	1.9		1	99	50-150	11/12/2020 1711
8:2 FTS	1.9	1.8		1	93	50-150	11/12/2020 1711
6:2 FTS	1.9	1.8		1	98	50-150	11/12/2020 1711
4:2 FTS	1.9	2.0		1	105	50-150	11/12/2020 1711
GenX	4.0	3.6		1	90	50-150	11/12/2020 1711
ADONA	1.9	1.9		1	103	50-150	11/12/2020 1711
EtFOSAA	2.0	2.0		1	98	50-150	11/12/2020 1711
MeFOSAA	2.0	1.7		1	87	50-150	11/12/2020 1711
PFBS	1.8	1.7		1	98	50-150	11/12/2020 1711
PFDS	1.9	1.9		1	100	50-150	11/12/2020 1711
PFHpS	1.9	1.8		1	96	50-150	11/12/2020 1711
PFNS	1.9	1.9		1	97	50-150	11/12/2020 1711
PFOSA	2.0	1.9		1	96	50-150	11/12/2020 1711
PFPeS	1.9	2.0		1	108	50-150	11/12/2020 1711
PFHxS	1.8	1.6		1	86	50-150	11/12/2020 1711
PFBA	2.0	2.0		1	100	50-150	11/12/2020 1711
PFDA	2.0	2.0		1	98	50-150	11/12/2020 1711
PFDoA	2.0	2.0		1	98	50-150	11/12/2020 1711
PFHpA	2.0	2.1		1	106	50-150	11/12/2020 1711
PFHxA	2.0	2.1		1	103	50-150	11/12/2020 1711
PFNA	2.0	1.8		1	91	50-150	11/12/2020 1711
PFOA	2.0	2.0		1	102	50-150	11/12/2020 1711
PFPeA	2.0	2.0		1	100	50-150	11/12/2020 1711
PFTeDA	2.0	2.1		1	103	50-150	11/12/2020 1711
PFTrDA	2.0	1.9		1	96	50-150	11/12/2020 1711
PFUdA	2.0	1.9		1	93	50-150	11/12/2020 1711
PFOS	1.9	1.7		1	90	50-150	11/12/2020 1711

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		84	25-150
13C2_6:2FTS		91	25-150
13C2_8:2FTS		81	25-150
13C2_PFDoA		84	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		77	25-150
13C3_PFHxS		78	25-150
13C3-HFPO-DA		83	25-150
13C4_PFBA		86	25-150
13C4_PFHpA		85	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		84	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ72992-002
Batch: 72992
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/11/2020 0952

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		90	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		83	25-150
13C8_PFOS		82	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		89	25-150
d3-MeFOSAA		90	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ73594-001
Batch: 73594
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/16/2020 1200

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	ug/kg	11/17/2020 1546
11Cl-PF3OUdS	ND		1	2.0	ug/kg	11/17/2020 1546
8:2 FTS	ND		1	2.0	ug/kg	11/17/2020 1546
6:2 FTS	ND		1	2.0	ug/kg	11/17/2020 1546
4:2 FTS	ND		1	2.0	ug/kg	11/17/2020 1546
GenX	ND		1	4.0	ug/kg	11/17/2020 1546
ADONA	ND		1	2.0	ug/kg	11/17/2020 1546
EtFOSAA	ND		1	2.0	ug/kg	11/17/2020 1546
MeFOSAA	ND		1	2.0	ug/kg	11/17/2020 1546
PFBS	ND		1	1.0	ug/kg	11/17/2020 1546
PFDS	ND		1	1.0	ug/kg	11/17/2020 1546
PFHpS	ND		1	1.0	ug/kg	11/17/2020 1546
PFNS	ND		1	1.0	ug/kg	11/17/2020 1546
PFOSA	ND		1	1.0	ug/kg	11/17/2020 1546
PFPeS	ND		1	1.0	ug/kg	11/17/2020 1546
PFHxS	ND		1	1.0	ug/kg	11/17/2020 1546
PFBA	ND		1	1.0	ug/kg	11/17/2020 1546
PFDA	ND		1	1.0	ug/kg	11/17/2020 1546
PFDoA	ND		1	1.0	ug/kg	11/17/2020 1546
PFHpA	ND		1	1.0	ug/kg	11/17/2020 1546
PFHxA	ND		1	1.0	ug/kg	11/17/2020 1546
PFNA	ND		1	1.0	ug/kg	11/17/2020 1546
PFOA	ND		1	1.0	ug/kg	11/17/2020 1546
PFPeA	ND		1	1.0	ug/kg	11/17/2020 1546
PFTeDA	ND		1	1.0	ug/kg	11/17/2020 1546
PFTrDA	ND		1	1.0	ug/kg	11/17/2020 1546
PFUdA	ND		1	1.0	ug/kg	11/17/2020 1546
PFOS	ND		1	1.0	ug/kg	11/17/2020 1546

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		76	25-150
13C2_6:2FTS		85	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		80	25-150
13C2_PFTeDA		74	25-150
13C3_PFBS		65	25-150
13C3_PFHxS		71	25-150
13C3-HFPO-DA		83	25-150
13C4_PFBA		80	25-150
13C4_PFHpA		85	25-150
13C5_PFHxA		77	25-150
13C5_PFPeA		78	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ73594-001
Batch: 73594
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/16/2020 1200

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		83	25-150
13C7_PFUdA		80	25-150
13C8_PFOA		82	25-150
13C8_PFOS		78	25-150
13C8_PFOSA		87	10-150
13C9_PFNA		81	25-150
d5-EtFOSAA		86	25-150
d3-MeFOSAA		85	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ73594-002
Batch: 73594
Analytical Method: PFAS by ID SOP
Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/16/2020 1200

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	1.9	2.2		1	118	50-150	11/17/2020 1556
11Cl-PF3OUdS	1.9	2.1		1	111	50-150	11/17/2020 1556
8:2 FTS	1.9	1.7		1	90	50-150	11/17/2020 1556
6:2 FTS	1.9	1.8		1	95	50-150	11/17/2020 1556
4:2 FTS	1.9	2.3		1	123	50-150	11/17/2020 1556
GenX	4.0	4.5		1	113	50-150	11/17/2020 1556
ADONA	1.9	2.1		1	112	50-150	11/17/2020 1556
EtFOSAA	2.0	1.8		1	92	50-150	11/17/2020 1556
MeFOSAA	2.0	2.7		1	134	50-150	11/17/2020 1556
PFBS	1.8	2.0		1	111	50-150	11/17/2020 1556
PFDS	1.9	2.3		1	118	50-150	11/17/2020 1556
PFHpS	1.9	2.1		1	108	50-150	11/17/2020 1556
PFNS	1.9	2.5		1	132	50-150	11/17/2020 1556
PFOSA	2.0	2.3		1	114	50-150	11/17/2020 1556
PFPeS	1.9	2.2		1	120	50-150	11/17/2020 1556
PFHxS	1.8	1.7		1	93	50-150	11/17/2020 1556
PFBA	2.0	2.2		1	111	50-150	11/17/2020 1556
PFDA	2.0	2.4		1	119	50-150	11/17/2020 1556
PFDoA	2.0	2.2		1	108	50-150	11/17/2020 1556
PFHpA	2.0	2.1		1	107	50-150	11/17/2020 1556
PFHxA	2.0	2.2		1	110	50-150	11/17/2020 1556
PFNA	2.0	2.1		1	106	50-150	11/17/2020 1556
PFOA	2.0	2.2		1	110	50-150	11/17/2020 1556
PFPeA	2.0	2.2		1	109	50-150	11/17/2020 1556
PFTeDA	2.0	2.3		1	117	50-150	11/17/2020 1556
PFTrDA	2.0	2.4		1	119	50-150	11/17/2020 1556
PFUdA	2.0	2.1		1	105	50-150	11/17/2020 1556
PFOS	1.9	2.2		1	119	50-150	11/17/2020 1556

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		78	25-150
13C2_6:2FTS		90	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		82	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		67	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		85	25-150
13C4_PFBA		82	25-150
13C4_PFHpA		87	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		79	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ73594-002
Batch: 73594
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 11/16/2020 1200

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		85	25-150
13C7_PFUdA		85	25-150
13C8_PFOA		82	25-150
13C8_PFOS		77	25-150
13C8_PFOSA		88	10-150
13C9_PFNA		83	25-150
d5-EtFOSAA		88	25-150
d3-MeFOSAA		83	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ73728-001
Batch: 73728
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1034

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	ng/L	11/18/2020 1323
11Cl-PF3OUdS	ND		1	8.0	ng/L	11/18/2020 1323
8:2 FTS	ND		1	8.0	ng/L	11/18/2020 1323
6:2 FTS	ND		1	8.0	ng/L	11/18/2020 1323
4:2 FTS	ND		1	8.0	ng/L	11/18/2020 1323
GenX	ND		1	8.0	ng/L	11/18/2020 1323
ADONA	ND		1	8.0	ng/L	11/18/2020 1323
EtFOSAA	ND		1	8.0	ng/L	11/18/2020 1323
MeFOSAA	ND		1	8.0	ng/L	11/18/2020 1323
PFBS	ND		1	4.0	ng/L	11/18/2020 1323
PFDS	ND		1	4.0	ng/L	11/18/2020 1323
PFHpS	ND		1	4.0	ng/L	11/18/2020 1323
PFNS	ND		1	4.0	ng/L	11/18/2020 1323
PFOSA	ND		1	4.0	ng/L	11/18/2020 1323
PFPeS	ND		1	4.0	ng/L	11/18/2020 1323
PFHxS	ND		1	4.0	ng/L	11/18/2020 1323
PFBA	ND		1	4.0	ng/L	11/18/2020 1323
PFDA	ND		1	4.0	ng/L	11/18/2020 1323
PFDoA	ND		1	4.0	ng/L	11/18/2020 1323
PFHpA	ND		1	4.0	ng/L	11/18/2020 1323
PFHxA	ND		1	4.0	ng/L	11/18/2020 1323
PFNA	ND		1	4.0	ng/L	11/18/2020 1323
PFOA	ND		1	4.0	ng/L	11/18/2020 1323
PFPeA	ND		1	4.0	ng/L	11/18/2020 1323
PFTeDA	ND		1	4.0	ng/L	11/18/2020 1323
PFTrDA	ND		1	4.0	ng/L	11/18/2020 1323
PFUdA	ND		1	4.0	ng/L	11/18/2020 1323
PFOS	ND		1	4.0	ng/L	11/18/2020 1323

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		109	25-150
13C2_6:2FTS		108	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		88	25-150
13C3_PFBS		90	25-150
13C3_PFHxS		92	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		98	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		95	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ73728-001
Batch: 73728
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1034

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		87	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		99	25-150
13C8_PFOS		87	25-150
13C8_PFOSA		95	10-150
13C9_PFNA		97	25-150
d5-EtFOSAA		96	25-150
d3-MeFOSAA		93	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ73728-002
Batch: 73728
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1034

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	15	14		1	91	50-150	11/18/2020 1334
11Cl-PF3OUdS	15	13		1	87	50-150	11/18/2020 1334
8:2 FTS	15	13		1	84	50-150	11/18/2020 1334
6:2 FTS	15	12		1	81	50-150	11/18/2020 1334
4:2 FTS	15	14		1	91	50-150	11/18/2020 1334
GenX	32	29		1	89	50-150	11/18/2020 1334
ADONA	15	15		1	101	50-150	11/18/2020 1334
EtFOSAA	16	14		1	86	50-150	11/18/2020 1334
MeFOSAA	16	15		1	93	50-150	11/18/2020 1334
PFBS	14	14		1	96	50-150	11/18/2020 1334
PFDS	15	14		1	90	50-150	11/18/2020 1334
PFHpS	15	15		1	97	50-150	11/18/2020 1334
PFNS	15	15		1	97	50-150	11/18/2020 1334
PFOSA	16	15		1	92	50-150	11/18/2020 1334
PFPeS	15	15		1	103	50-150	11/18/2020 1334
PFHxS	15	14		1	94	50-150	11/18/2020 1334
PFBA	16	15		1	96	50-150	11/18/2020 1334
PFDA	16	15		1	91	50-150	11/18/2020 1334
PFDoA	16	16		1	98	50-150	11/18/2020 1334
PFHpA	16	15		1	93	50-150	11/18/2020 1334
PFHxA	16	16		1	97	50-150	11/18/2020 1334
PFNA	16	15		1	94	50-150	11/18/2020 1334
PFOA	16	15		1	92	50-150	11/18/2020 1334
PFPeA	16	15		1	93	50-150	11/18/2020 1334
PFTeDA	16	16		1	99	50-150	11/18/2020 1334
PFTrDA	16	15		1	93	50-150	11/18/2020 1334
PFUdA	16	15		1	96	50-150	11/18/2020 1334
PFOS	15	13		1	90	50-150	11/18/2020 1334

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		96	25-150
13C2_6:2FTS		106	25-150
13C2_8:2FTS		91	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		84	25-150
13C3_PFBS		83	25-150
13C3_PFHxS		83	25-150
13C3-HFPO-DA		94	25-150
13C4_PFBA		93	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		99	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ73728-002
Batch: 73728
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1034

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		92	25-150
13C7_PFUdA		89	25-150
13C8_PFOA		98	25-150
13C8_PFOS		80	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		91	25-150
d5-EtFOSAA		92	25-150
d3-MeFOSAA		86	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ73795-001
Batch: 73795
Analytical Method: PFAS by ID SOP
Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1704

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	ng/L	11/18/2020 1750
11Cl-PF3OUdS	ND		1	8.0	ng/L	11/18/2020 1750
8:2 FTS	ND		1	8.0	ng/L	11/18/2020 1750
6:2 FTS	ND		1	8.0	ng/L	11/18/2020 1750
4:2 FTS	ND		1	8.0	ng/L	11/18/2020 1750
GenX	ND		1	8.0	ng/L	11/18/2020 1750
ADONA	ND		1	8.0	ng/L	11/18/2020 1750
EtFOSAA	ND		1	8.0	ng/L	11/18/2020 1750
MeFOSAA	ND		1	8.0	ng/L	11/18/2020 1750
PFBS	ND		1	4.0	ng/L	11/18/2020 1750
PFDS	ND		1	4.0	ng/L	11/18/2020 1750
PFHpS	ND		1	4.0	ng/L	11/18/2020 1750
PFNS	ND		1	4.0	ng/L	11/18/2020 1750
PFOSA	ND		1	4.0	ng/L	11/18/2020 1750
PFPeS	ND		1	4.0	ng/L	11/18/2020 1750
PFHxS	ND		1	4.0	ng/L	11/18/2020 1750
PFBA	ND		1	4.0	ng/L	11/18/2020 1750
PFDA	ND		1	4.0	ng/L	11/18/2020 1750
PFDoA	ND		1	4.0	ng/L	11/18/2020 1750
PFHpA	ND		1	4.0	ng/L	11/18/2020 1750
PFHxA	ND		1	4.0	ng/L	11/18/2020 1750
PFNA	ND		1	4.0	ng/L	11/18/2020 1750
PFOA	ND		1	4.0	ng/L	11/18/2020 1750
PFPeA	ND		1	4.0	ng/L	11/18/2020 1750
PFTeDA	ND		1	4.0	ng/L	11/18/2020 1750
PFTrDA	ND		1	4.0	ng/L	11/18/2020 1750
PFUdA	ND		1	4.0	ng/L	11/18/2020 1750
PFOS	ND		1	4.0	ng/L	11/18/2020 1750

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		88	25-150
13C2_PFDoA		79	25-150
13C2_PFTeDA		77	25-150
13C3_PFBS		81	25-150
13C3_PFHxS		84	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		93	25-150
13C4_PFHpA		89	25-150
13C5_PFHxA		88	25-150
13C5_PFPeA		95	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: VQ73795-001
Batch: 73795
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1704

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		84	25-150
13C7_PFUdA		86	25-150
13C8_PFOA		87	25-150
13C8_PFOS		76	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		84	25-150
d5-EtFOSAA		94	25-150
d3-MeFOSAA		94	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ73795-002
Batch: 73795
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1704

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9Cl-PF3ONS	15	16		1	109	50-150	11/18/2020 1800
11Cl-PF3OUdS	15	15		1	103	50-150	11/18/2020 1800
8:2 FTS	15	15		1	100	50-150	11/18/2020 1800
6:2 FTS	15	17		1	109	50-150	11/18/2020 1800
4:2 FTS	15	16		1	104	50-150	11/18/2020 1800
GenX	32	35		1	108	50-150	11/18/2020 1800
ADONA	15	17		1	114	50-150	11/18/2020 1800
EtFOSAA	16	15		1	95	50-150	11/18/2020 1800
MeFOSAA	16	17		1	107	50-150	11/18/2020 1800
PFBS	14	17		1	118	50-150	11/18/2020 1800
PFDS	15	16		1	104	50-150	11/18/2020 1800
PFHpS	15	17		1	113	50-150	11/18/2020 1800
PFNS	15	17		1	108	50-150	11/18/2020 1800
PFOSA	16	16		1	102	50-150	11/18/2020 1800
PFPeS	15	17		1	115	50-150	11/18/2020 1800
PFHxS	15	16		1	112	50-150	11/18/2020 1800
PFBA	16	20		1	123	50-150	11/18/2020 1800
PFDA	16	18		1	113	50-150	11/18/2020 1800
PFDoA	16	19		1	121	50-150	11/18/2020 1800
PFHpA	16	18		1	113	50-150	11/18/2020 1800
PFHxA	16	19		1	118	50-150	11/18/2020 1800
PFNA	16	18		1	112	50-150	11/18/2020 1800
PFOA	16	18		1	114	50-150	11/18/2020 1800
PFPeA	16	18		1	113	50-150	11/18/2020 1800
PFTeDA	16	19		1	116	50-150	11/18/2020 1800
PFTrDA	16	18		1	112	50-150	11/18/2020 1800
PFUdA	16	20		1	126	50-150	11/18/2020 1800
PFOS	15	16		1	109	50-150	11/18/2020 1800

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		93	25-150
13C2_6:2FTS		106	25-150
13C2_8:2FTS		85	25-150
13C2_PFDoA		81	25-150
13C2_PFTeDA		78	25-150
13C3_PFBS		82	25-150
13C3_PFHxS		82	25-150
13C3-HFPO-DA		89	25-150
13C4_PFBA		90	25-150
13C4_PFHpA		82	25-150
13C5_PFHxA		89	25-150
13C5_PFPeA		95	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the LOQ
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
* = RSD is out of criteria
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: VQ73795-002
Batch: 73795
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/17/2020 1704

Surrogate	Q	% Rec	Acceptance Limit
13C6_PFDA		80	25-150
13C7_PFUdA		76	25-150
13C8_PFOA		89	25-150
13C8_PFOS		79	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		86	25-150
d5-EtFOSAA		92	25-150
d3-MeFOSAA		92	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

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Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 113141

Client: GZA Geoenvironmental Inc	Report to Contact: Kevin Hedinger	Telephone No. / E-mail: 262-754-2560 / kevin.hedinger@gza.com	Quote No.
Address: 17975 W Sarah Lane Suite 100	Sampler's Signature: Elizabeth Stapleton Yn	Analysis (Attach list if more space is needed): PFAs (WI 36 list)	Page 1 of 2
City: Brookfield / State: WI / Zip Code: 53045	Printed Name: Elizabeth Stapleton Yn		
Project Name: Oshkosh Corporation			
Project No.: 20.0157080	P.O. No.		

VK08048

NMS

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (Military)	Customer C=Composite G=Grab	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Remarks / Cooler I.D.
WL Equipment Blank DS 1	11/6/2020	810	G	X			1							X
WL Equipment Blank HA-2		815	G	X			1							X
WL B-10 (1-2')		830	G	X			1							X
WL B-10 (4-5')		840	G	X			1							X
WL B-8 (1-2')		910	G	X			1							X
WL B-8 (4-5')		920	G	X			1							X
WL B-6 (1-2')		930	G	X			1							X
WL B-6 (4-5')		935	G	X			1							X
WL B-4 (1-2')		955	G	X			1							X
WL B-4 (4-5')		1000	G	X			1							X

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time
1. Relinquished by: Elizabeth Stapleton Yn	11/6/2020	1415
2. Relinquished by:	Date	Time
3. Relinquished by:	Date	Time
4. Relinquished by: FedEx	11/7/2020	0852

	Date	Time
1. Received by: FedEx	11/6/2020	1415
2. Received by:	Date	Time
3. Received by:	Date	Time
4. Laboratory received by:	Date 11/7/2020	Time 0852

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle) Yes No Ice Pack
Receipt Temp 3.3 °C
Temp Blank ☒ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

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Number 113143

Client: GZA Geoenvironmental Inc	Report to Contact: Kevin Hedinger	Telephone No. / E-mail: 262-754-2560 kevin.hedinger@gza...	Quote No:
Address: 17975 W Sarah Lane Suite 100	Sampler's Signature: X Elizabeth Stapleton Yu	Analysis (Attach list if more space is needed)	Page 2 of 2
City: Brookfield / State: WI / Zip Code: 53045	Printed Name: Elizabeth Stapleton Yu	PFAs (WI 36 list)	VK08048
Project Name: Oshkosh Corporation			NMS
Project No: 20.0165-7080	P.O. No.		Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Collect G=Grab C=Composite	Matrix: Aqueous	Solid	Wipe	Air	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Final Filtered	PFAs (WI 36 list)	Remarks / Cooler I.D.
WL B-3 (1-2')	11/6/20	1025	G		X			1							X	
WL B-3 (6-7')		1030	G		X			1							X	
WL B-5 (1-2')		1040	G		X			1							X	
WL B-2 (1-2')		1050	G		X			1							X	
WL B-2 (6-7')		1055	G		X			1							X	*on hold
WL B-1 (1-2')		1110	G		X			1							X	
WL B-1 (5-6')		1115	G		X			1							X	*on hold
WL B-7 (1-2')		1135	G		X			1							X	
WL B-9 (1-2')		1150	G		X			1							X	

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished by: Elizabeth Stapleton Yu	11/6/20	1415	1. Received by: Fed Ex	11/6/20	1415
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	Date 11/7/2020	Time 0852	4. Laboratory received by	Date 11/7/2020	Time 0852

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle): (Yes) No Ice Pack — Receipt Temp: 3.3 °C — Temp Blank: ☑ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: MC003N2-01

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA Cooler Inspected by/date: KSC / 11/08/2020 Lot #: VK08048

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: _____

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 20-1458

3.3 / 3.3 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote # 24122

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.

Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA _____ were received with bubbles >6 mm in diameter.

Samples(s) NA _____ were received with TRC > 0.5 mg/L (If #19 is ***no***) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KBS Date: 11/08/2020

Comments:

Report of Analysis

GZA GeoEnvironmental, Inc.
17975 West Sarah Lane, Suite 100
Brookfield, WI 53045
Attention: Kevin Hedinger

Project Name: 20.0157080 Oshkosh PFAS Sampling

Project Number: 20.0157080

Lot Number:**WH17016**

Date Completed:09/16/2021

09/16/2021 11:08 AM
Approved and released by:
Project Manager II: **Karen L. Coonan**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
GZA GeoEnvironmental, Inc.
Lot Number: WH17016

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH17016

Project Name: 20.0157080 Oshkosh PFAS Sampling

Project Number: 20.0157080

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL-B11 (5-6')	Solid	08/14/2021 0910	08/17/2021
002	WL-SED 1 (0-0.5')	Solid	08/14/2021 1000	08/17/2021
003	WL-SED 2 (0-0.5')	Solid	08/14/2021 1010	08/17/2021
004	WL-SED 3 (0-0.5')	Solid	08/14/2021 1020	08/17/2021
005	WL-EQUIPMENT BLANK 1- TROWEL	Aqueous	08/14/2021 1030	08/17/2021
006	WL-EQUIPMENT BLANK 2- DRIVE SHOE	Aqueous	08/14/2021 1100	08/17/2021

(6 samples)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH17016

Project Name: 20.0157080 Oshkosh PFAS Sampling

Project Number: 20.0157080

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WL-B11 (5-6')	Solid	6:2 FTS	PFAS by ID	4.1		ug/kg	5
001	WL-B11 (5-6')	Solid	PFHxA	PFAS by ID	0.28	J	ug/kg	5
001	WL-B11 (5-6')	Solid	PFPeA	PFAS by ID	0.46	J	ug/kg	5
002	WL-SED 1 (0-0.5')	Solid	6:2 FTS	PFAS by ID	41		ug/kg	6
002	WL-SED 1 (0-0.5')	Solid	PFHxA	PFAS by ID	2.7		ug/kg	6
002	WL-SED 1 (0-0.5')	Solid	PFPeA	PFAS by ID	2.9		ug/kg	6
002	WL-SED 1 (0-0.5')	Solid	PFOS	PFAS by ID	3.9		ug/kg	6
003	WL-SED 2 (0-0.5')	Solid	6:2 FTS	PFAS by ID	9.3		ug/kg	7
003	WL-SED 2 (0-0.5')	Solid	PFHxA	PFAS by ID	4.6		ug/kg	7
003	WL-SED 2 (0-0.5')	Solid	PFPeA	PFAS by ID	17		ug/kg	7
003	WL-SED 2 (0-0.5')	Solid	PFOS	PFAS by ID	5.1		ug/kg	7
004	WL-SED 3 (0-0.5')	Solid	6:2 FTS	PFAS by ID	5.1		ug/kg	8
004	WL-SED 3 (0-0.5')	Solid	PFHxA	PFAS by ID	4.3		ug/kg	8
004	WL-SED 3 (0-0.5')	Solid	PFPeA	PFAS by ID	15		ug/kg	8
004	WL-SED 3 (0-0.5')	Solid	PFOS	PFAS by ID	2.8		ug/kg	8

(15 detections)

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WH17016-001
Description: WL-B11 (5-6') | Matrix: Solid
Date Sampled: 08/14/2021 0910 | Project Name: 20.0157080 Oshkosh PFAS | % Solids: 80.5 08/17/2021 2133
Date Received: 08/17/2021 | Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/28/2021 0010	NK1	08/26/2021 1150	13393

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	4.1		2.3	0.35	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	0.28	J	1.1	0.21	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.1	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.46	J	1.1	0.18	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		1.1	0.41	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS		83	25-150
13C5_PFHxA		86	25-150
13C5_PFPeA		87	25-150
13C8_PFOA		84	25-150
13C8_PFOS		84	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WH17016-002
Description: WL-SED 1 (0-0.5') | Matrix: Solid
Date Sampled: 08/14/2021 1000 | Project Name: 20.0157080 Oshkosh PFAS | % Solids: 61.4 08/17/2021 2133
Date Received: 08/17/2021 | Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/28/2021 0020	NK1	08/26/2021 1150	13393

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	41		3.2	0.48	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.7		1.6	0.29	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.6	0.34	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.9		1.6	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.9		1.6	0.56	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS		121	25-150
13C5_PFHxA		76	25-150
13C5_PFPeA		73	25-150
13C8_PFOA		75	25-150
13C8_PFOS		63	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WH17016-003
Description: WL-SED 2 (0-0.5') | Matrix: Solid
Date Sampled: 08/14/2021 1010 | Project Name: 20.0157080 Oshkosh PFAS | % Solids: 67.6 08/17/2021 2133
Date Received: 08/17/2021 | Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/28/2021 0031	NK1	08/26/2021 1150	13393

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	9.3		2.8	0.42	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6		1.4	0.26	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.4	0.29	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	17		1.4	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.1		1.4	0.49	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS		99	25-150
13C5_PFHxA		78	25-150
13C5_PFPeA		74	25-150
13C8_PFOA		82	25-150
13C8_PFOS		71	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.
Laboratory ID: WH17016-004
Description: WL-SED 3 (0-0.5')
Matrix: Solid
Date Sampled: 08/14/2021 1020
Project Name: 20.0157080 Oshkosh PFAS
% Solids: 65.7 08/17/2021 2133
Date Received: 08/17/2021
Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/28/2021 0041	NK1	08/26/2021 1150	13393

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.1		2.6	0.40	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.3		1.3	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		1.3	0.28	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	15		1.3	0.21	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.8		1.3	0.47	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS		84	25-150
13C5_PFHxA		73	25-150
13C5_PFPeA		68	25-150
13C8_PFOA		72	25-150
13C8_PFOS		64	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WH17016-005
Description: WL-EQUIPMENT BLANK 1- TROWEL | Matrix: Aqueous
Date Sampled: 08/14/2021 1030 | Project Name: 20.0157080 Oshkosh PFAS
Date Received: 08/17/2021 | Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/09/2021 1804	SES	09/08/2021 1730	14782

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.3	2.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.2	0.72	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.2	0.86	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.2	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.2	2.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS		118	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		98	25-150
13C8_PFOA		90	25-150
13C8_PFOS		89	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WH17016-006

Description: WL-EQUIPMENT BLANK 2- DRIVE SHOE | Matrix: Aqueous

Date Sampled: 08/14/2021 1100 | Project Name: 20.0157080 Oshkosh PFAS

Date Received: 08/17/2021 | Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	09/09/2021 1815	SES	09/08/2021 1730	14782

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		9.2	2.3	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.6	0.79	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.6	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.6	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.6	2.3	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS		142	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		96	25-150
13C8_PFOA		87	25-150
13C8_PFOS		93	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ13393-001
Batch: 13393
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 08/26/2021 1150

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
6:2 FTS	ND		1	2.0	0.31	ug/kg	08/27/2021 1438
PFHxA	ND		1	1.0	0.18	ug/kg	08/27/2021 1438
PFOA	ND		1	1.0	0.21	ug/kg	08/27/2021 1438
PFPeA	ND		1	1.0	0.16	ug/kg	08/27/2021 1438
PFOS	ND		1	1.0	0.36	ug/kg	08/27/2021 1438

Surrogate	Q	% Rec	Acceptance Limit
13C2_6:2FTS		93	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		92	25-150
13C8_PFOA		102	25-150
13C8_PFOS		91	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ13393-002
Batch: 13393
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 08/26/2021 1150

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	1.9	2.0		1	105	50-150	08/27/2021 1448
PFHxA	2.0	1.9		1	93	50-150	08/27/2021 1448
PFOA	2.0	1.9		1	96	50-150	08/27/2021 1448
PFPeA	2.0	1.9		1	93	50-150	08/27/2021 1448
PFOS	1.9	1.7		1	91	50-150	08/27/2021 1448

Surrogate	Q	% Rec	Acceptance Limit
13C2_6:2FTS		95	25-150
13C5_PFHxA		101	25-150
13C5_PFPeA		95	25-150
13C8_PFOA		98	25-150
13C8_PFOS		92	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ14782-001
Batch: 14782
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/08/2021 1730

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
6:2 FTS	ND		1	8.0	2.0	ng/L	09/09/2021 1411
PFHxA	ND		1	4.0	0.69	ng/L	09/09/2021 1411
PFOA	ND		1	4.0	0.83	ng/L	09/09/2021 1411
PFPeA	ND		1	4.0	0.54	ng/L	09/09/2021 1411
PFOS	ND		1	4.0	2.0	ng/L	09/09/2021 1411

Surrogate	Q	% Rec	Acceptance Limit
13C2_6:2FTS		90	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		95	25-150
13C8_PFOA		79	25-150
13C8_PFOS		95	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ14782-002
Batch: 14782
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/08/2021 1730

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16		1	106	50-150	09/09/2021 1422
PFHxA	16	16		1	102	50-150	09/09/2021 1422
PFOA	16	18		1	110	50-150	09/09/2021 1422
PFPeA	16	18		1	111	50-150	09/09/2021 1422
PFOS	15	16		1	107	50-150	09/09/2021 1422

Surrogate	Q	% Rec	Acceptance Limit
13C2_6:2FTS		89	25-150
13C5_PFHxA		87	25-150
13C5_PFPeA		87	25-150
13C8_PFOA		80	25-150
13C8_PFOS		78	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Pace Analytical®

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Number 124342

Client: GZA GeoEnvironmental Inc
Address: 17975 W Sarah Lane Suite 100
City: Brookfield State: WI Zip Code: 53045
Project Name: Oshkosh Corporation
Project No.: 20.0157080
P.O. No.:

Report to Contact: Kevin Hedinger
Sampler's Signature: x [signature]
Printed Name: Elizabeth Stapleton Yu

Telephone No. / E-mail: kevin.hedinger@gza.com
Analysis (Attach list if more space is needed): 6:2 FTS, PFBA, PFHxA, PFO, + PFOA

Quote No.:
Page 1 of ___
Lot # Bar Code (lab use only)
WH17016

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non Aqueous	No. of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	6:2 FTS, PFBA, PFHxA, PFO, + PFOA
WL-B11 (5-6')	8/14/21	910	G		X		X							X
WL-SED 1 (0-0.5')	|	1000	G		X		X							X
WL-SED 2 (0-0.5')	|	1010	G		X		X							X
WL-SED 3 (0-0.5')	|	1020	G		X		X							X
WL-Equipment Blank 1 - Trowel	|	1030	G	X			X							X
WL-Equipment Blank 2 - Drive Shoe	|	1100	G	X			X							X

Turn Around Time Required (Prior lab approval required for expedited TAT.) ☐ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

Relinquished by	Date	Time	Received by	Date	Time
1. Relinquished by			1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by fedex	8-17-21	915	4. Laboratory received by [signature]	8-17-21	915

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) (Yes) No Ice Pack
Receipt Temp. 4.7 °C
Temp Blank ☐ Y ☑ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA Cooler Inspected by/date: KDRW / 8/17/2021 Lot #: WET7915

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-1425

4.7 / 4.7 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☑ Yes	☐ No		21. Was the quote number listed on the container label? If yes, Quote # 25161

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: JSM Date: 8/17/2021

Comments:

Report of Analysis

GZA GeoEnvironmental, Inc.
17975 West Sarah Lane, Suite 100
Brookfield, WI 53045
Attention: Kevin Hedinger

Project Name: Oshkosh

Lot Number:**XF21008**

Date Completed:07/15/2022

07/15/2022 11:20 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
GZA GeoEnvironmental, Inc.
Lot Number: XF21008

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. The extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

For solid samples:

CF = DF * FV / Ws/S/1000

FV is volume of extract (mL)
Ws is initial sample weight (gram)
S is %Solids
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Concentration (ug/kg) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Surrogate recovery for the following sample was outside the upper control limit: XF21008-002. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: XF21008

Project Name: Oshkosh

Project Number:

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	B-12	Solid	06/17/2022 1450	06/21/2022
002	B-13	Solid	06/17/2022 1250	06/21/2022

(2 samples)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: XF21008

Project Name: Oshkosh

Project Number:

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	B-12	Solid	PFOA	PFAS by ID	0.46	J	ug/kg	5
001	B-12	Solid	PFOS	PFAS by ID	1.2		ug/kg	5
002	B-13	Solid	6:2 FTS	PFAS by ID	7.6		ug/kg	7
002	B-13	Solid	PFHxS	PFAS by ID	0.86	J	ug/kg	7
002	B-13	Solid	PFHxA	PFAS by ID	1.2	J	ug/kg	7
002	B-13	Solid	PFPeA	PFAS by ID	2.0	J	ug/kg	7
002	B-13	Solid	PFOS	PFAS by ID	4.7		ug/kg	7

(7 detections)

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XF21008-001
Description: B-12 | Matrix: Solid
Date Sampled: 06/17/2022 1450 | Project Name: Oshkosh | % Solids: 67.3 06/22/2022 2358
Date Received: 06/21/2022 | Project Number:

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	07/05/2022 1159	MMM	06/30/2022 1207	46657

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.5	0.20	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		2.5	0.21	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		2.5	0.34	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		2.5	0.38	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		2.5	0.27	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		5.0	0.73	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		2.5	0.19	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		2.5	0.45	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		2.5	0.36	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		2.5	0.29	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		2.5	0.43	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		2.5	0.49	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		2.5	0.42	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		1.2	0.16	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		1.2	0.28	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		1.2	0.22	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		1.2	0.28	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		1.2	0.22	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		1.2	0.23	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		1.2	0.32	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		1.2	0.22	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		1.2	0.52	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		1.2	0.20	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		1.2	0.22	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		1.2	0.18	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		1.2	0.23	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		1.2	0.19	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.46	J	1.2	0.27	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		1.2	0.20	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		1.2	0.24	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		1.2	0.21	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		1.2	0.23	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	1.2		1.2	0.45	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		115	25-150
13C2_6:2FTS		108	25-150
13C2_8:2FTS		109	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		102	25-150
13C3-HFPO-DA		97	25-150
13C4_PFBA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.			Laboratory ID: XF21008-001
Description: B-12			Matrix: Solid
Date Sampled: 06/17/2022 1450	Project Name: Oshkosh		% Solids: 67.3 06/22/2022 2358
Date Received: 06/21/2022	Project Number:		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		100	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		95	25-150
13C7_PFUdA		109	25-150
13C8_PFOA		98	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		108	10-150
13C9_PFNA		100	25-150
d-EtFOSA		97	10-150
d5-EtFOSAA		113	25-150
d9-EtFOSE		99	10-150
d-MeFOSA		107	10-150
d3-MeFOSAA		103	25-150
d7-MeFOSE		110	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XF21008-002
Description: B-13 | Matrix: Solid
Date Sampled: 06/17/2022 1250 | Project Name: Oshkosh | % Solids: 38.0 07/13/2022 2345
Date Received: 06/21/2022 | Project Number:

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	07/05/2022 1210	MMM	06/30/2022 1207	46657

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		5.0	0.39	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		5.0	0.42	ug/kg	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	Q	5.0	0.68	ug/kg	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	7.6		5.0	0.76	ug/kg	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		5.0	0.54	ug/kg	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		9.9	1.4	ug/kg	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		5.0	0.37	ug/kg	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		5.0	0.89	ug/kg	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		5.0	0.72	ug/kg	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		5.0	0.57	ug/kg	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		5.0	0.87	ug/kg	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		5.0	0.98	ug/kg	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		5.0	0.83	ug/kg	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		2.5	0.32	ug/kg	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		2.5	0.55	ug/kg	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		2.5	0.44	ug/kg	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		2.5	0.55	ug/kg	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		2.5	0.44	ug/kg	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		2.5	0.46	ug/kg	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		2.5	0.64	ug/kg	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	0.86	J	2.5	0.44	ug/kg	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		2.5	1.0	ug/kg	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		2.5	0.39	ug/kg	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		2.5	0.44	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		2.5	0.35	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.2	J	2.5	0.46	ug/kg	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		2.5	0.37	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		2.5	0.53	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.0	J	2.5	0.39	ug/kg	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		2.5	0.47	ug/kg	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		2.5	0.43	ug/kg	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		2.5	0.46	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	4.7		2.5	0.89	ug/kg	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	25-150
13C2_6:2FTS		105	25-150
13C2_8:2FTS	N	151	25-150
13C2_PFDoA		97	25-150
13C2_PFTeDA		81	25-150
13C3_PFBS		86	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		78	25-150
13C4_PFBA		81	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.		Laboratory ID: XF21008-002	
Description: B-13		Matrix: Solid	
Date Sampled: 06/17/2022 1250	Project Name: Oshkosh	% Solids: 38.0	07/13/2022 2345
Date Received: 06/21/2022	Project Number:		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		80	25-150
13C5_PFHxA		80	25-150
13C5_PFPeA		79	25-150
13C6_PFDA		86	25-150
13C7_PFUdA		95	25-150
13C8_PFOA		77	25-150
13C8_PFOS		84	25-150
13C8_PFOSA		80	10-150
13C9_PFNA		81	25-150
d-EtFOSA		67	10-150
d5-EtFOSAA		118	25-150
d9-EtFOSE		67	10-150
d-MeFOSA		71	10-150
d3-MeFOSAA		108	25-150
d7-MeFOSE		75	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ46657-001
Batch: 46657
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 06/30/2022 1207

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	2.0	0.16	ug/kg	07/01/2022 1730
11Cl-PF3OUdS	ND		1	2.0	0.17	ug/kg	07/01/2022 1730
8:2 FTS	ND		1	2.0	0.27	ug/kg	07/01/2022 1730
6:2 FTS	ND		1	2.0	0.31	ug/kg	07/01/2022 1730
4:2 FTS	ND		1	2.0	0.22	ug/kg	07/01/2022 1730
GenX	ND		1	4.0	0.58	ug/kg	07/01/2022 1730
ADONA	ND		1	2.0	0.15	ug/kg	07/01/2022 1730
EtFOSA	ND		1	2.0	0.36	ug/kg	07/01/2022 1730
EtFOSAA	ND		1	2.0	0.29	ug/kg	07/01/2022 1730
EtFOSE	ND		1	2.0	0.23	ug/kg	07/01/2022 1730
MeFOSA	ND		1	2.0	0.35	ug/kg	07/01/2022 1730
MeFOSAA	ND		1	2.0	0.40	ug/kg	07/01/2022 1730
MeFOSE	ND		1	2.0	0.33	ug/kg	07/01/2022 1730
PFBS	ND		1	1.0	0.13	ug/kg	07/01/2022 1730
PFDS	ND		1	1.0	0.22	ug/kg	07/01/2022 1730
PFHpS	ND		1	1.0	0.18	ug/kg	07/01/2022 1730
PFNS	ND		1	1.0	0.22	ug/kg	07/01/2022 1730
PFOSA	ND		1	1.0	0.18	ug/kg	07/01/2022 1730
PFPeS	ND		1	1.0	0.19	ug/kg	07/01/2022 1730
PFDOS	ND		1	1.0	0.26	ug/kg	07/01/2022 1730
PFHxS	ND		1	1.0	0.18	ug/kg	07/01/2022 1730
PFBA	ND		1	1.0	0.42	ug/kg	07/01/2022 1730
PFDA	ND		1	1.0	0.16	ug/kg	07/01/2022 1730
PFDoA	ND		1	1.0	0.18	ug/kg	07/01/2022 1730
PFHpA	ND		1	1.0	0.14	ug/kg	07/01/2022 1730
PFHxA	ND		1	1.0	0.18	ug/kg	07/01/2022 1730
PFNA	ND		1	1.0	0.15	ug/kg	07/01/2022 1730
PFOA	ND		1	1.0	0.21	ug/kg	07/01/2022 1730
PFPeA	ND		1	1.0	0.16	ug/kg	07/01/2022 1730
PFTeDA	ND		1	1.0	0.19	ug/kg	07/01/2022 1730
PFTrDA	ND		1	1.0	0.17	ug/kg	07/01/2022 1730
PFUdA	ND		1	1.0	0.18	ug/kg	07/01/2022 1730
PFOS	ND		1	1.0	0.36	ug/kg	07/01/2022 1730

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		98	25-150
13C2_6:2FTS		103	25-150
13C2_8:2FTS		102	25-150
13C2_PFDoA		92	25-150
13C2_PFTeDA		95	25-150
13C3_PFBS		93	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		104	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ46657-001
Batch: 46657
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 06/30/2022 1207

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		97	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		92	25-150
13C5_PFPeA		94	25-150
13C6_PFDA		96	25-150
13C7_PFUdA		100	25-150
13C8_PFOA		95	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		95	25-150
d-EtFOSA		107	10-150
d5-EtFOSAA		104	25-150
d9-EtFOSE		101	10-150
d-MeFOSA		107	10-150
d3-MeFOSAA		100	25-150
d7-MeFOSE		102	10-150

LOQ = Limit of Quantitation
DL = Detection Limit

ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ46657-002
Batch: 46657
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 06/30/2022 1207

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	1.9	1.6		1	87	50-150	07/01/2022 1741
11Cl-PF3OUdS	1.9	1.7		1	91	50-150	07/01/2022 1741
8:2 FTS	1.9	1.6		1	85	50-150	07/01/2022 1741
6:2 FTS	1.9	1.9		1	101	50-150	07/01/2022 1741
4:2 FTS	1.9	1.6		1	86	50-150	07/01/2022 1741
GenX	4.0	3.7		1	93	50-150	07/01/2022 1741
ADONA	1.9	1.7		1	88	50-150	07/01/2022 1741
EtFOSA	2.0	2.1		1	103	50-150	07/01/2022 1741
EtFOSAA	2.0	1.9		1	96	50-150	07/01/2022 1741
EtFOSE	2.0	1.9		1	94	50-150	07/01/2022 1741
MeFOSA	2.0	1.9		1	93	50-150	07/01/2022 1741
MeFOSAA	2.0	1.8		1	91	50-150	07/01/2022 1741
MeFOSE	2.0	2.4		1	121	50-150	07/01/2022 1741
PFBS	1.8	1.7		1	98	50-150	07/01/2022 1741
PFDS	1.9	1.8		1	92	50-150	07/01/2022 1741
PFHpS	1.9	1.9		1	98	50-150	07/01/2022 1741
PFNS	1.9	1.7		1	87	50-150	07/01/2022 1741
PFOSA	2.0	1.8		1	90	50-150	07/01/2022 1741
PFPeS	1.9	2.0		1	106	50-150	07/01/2022 1741
PFDOS	1.9	2.3		1	117	50-150	07/01/2022 1741
PFHxS	1.8	1.6		1	90	50-150	07/01/2022 1741
PFBA	2.0	1.9		1	94	50-150	07/01/2022 1741
PFDA	2.0	1.9		1	95	50-150	07/01/2022 1741
PFDoA	2.0	2.0		1	100	50-150	07/01/2022 1741
PFHpA	2.0	1.9		1	94	50-150	07/01/2022 1741
PFHxA	2.0	1.9		1	93	50-150	07/01/2022 1741
PFNA	2.0	1.9		1	94	50-150	07/01/2022 1741
PFOA	2.0	1.8		1	90	50-150	07/01/2022 1741
PFPeA	2.0	1.9		1	95	50-150	07/01/2022 1741
PFTeDA	2.0	1.9		1	96	50-150	07/01/2022 1741
PFTrDA	2.0	1.9		1	94	50-150	07/01/2022 1741
PFUdA	2.0	1.8		1	89	50-150	07/01/2022 1741
PFOS	1.9	1.7		1	91	50-150	07/01/2022 1741

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		114	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		114	25-150
13C2_PFDoA		107	25-150
13C2_PFTeDA		108	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		110	25-150
13C3-HFPO-DA		123	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ46657-002
Batch: 46657
Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 06/30/2022 1207

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		112	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		113	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		110	25-150
13C7_PFUdA		121	25-150
13C8_PFOA		111	25-150
13C8_PFOS		112	25-150
13C8_PFOSA		123	10-150
13C9_PFNA		110	25-150
d-EtFOSA		121	10-150
d5-EtFOSAA		119	25-150
d9-EtFOSE		109	10-150
d-MeFOSA		114	10-150
d3-MeFOSAA		117	25-150
d7-MeFOSE		117	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical™

Chain-of-Custody is a LEGAL DOCUMENT. Complete all relevant fields.

LAB USE ONLY- Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-In Number Here

ALL SHADED AREAS are for LAB USE ONLY

Company: GZA GeoEnvironmental	Billing Information: AP@gza.com
Address: 17475 W. South Lane 100, Brookfield WI	
Report To: Kevin.Hedmyer@gza.com	Email To: Same
Copy To:	Site Collection Info/Address:
Customer Project Name/Number: Oshkosh - Waukau Lot	State: WI / County/City: / Time Zone Collected: [ ] PT [ ] MT [X] CT [ ] ET
Phone: 262-924-1761 Email:	Site/Facility ID #: / Compliance Monitoring? [ ] Yes [X] No
Collected By (print): Alex Amundson	Purchase Order #: / Quote #: / DW PWS ID #: / DW Location Code:
Collected By (signature):	Turnaround Date Required: Normal / Immediately Packed on Ice: [X] Yes [ ] No
Sample Disposal: [X] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:	Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply) / Field Filtered (if applicable): [ ] Yes [X] No / Analysis:

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Container Preservative Type **: 2

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Project Manager:

Analyses: Wisconsin List of 33 PFAs

Lab Profile/Line:

XF21008

KS82

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y N NA
Custody Signatures Present	Y N NA
Collector Signature Present	Y N NA
Bottles Intact	Y N NA
Correct Bottles	Y N NA
Sufficient Volume	Y N NA
Samples Received on Ice	Y N NA
VOA - Headspace Acceptable	Y N NA
USDA Regulated Soils	Y N NA
Samples in Holding Time	Y N NA
Residual Chlorine Present	Y N NA
Cl Strips:	
Sample pH Acceptable	Y N NA
pH Strips:	
Sulfide Present	Y N NA
Lead Acetate Strips:	

LAB USE ONLY:
Lab Sample # / Comments:

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res Cl	# of Cons
B-12	SL	G	6/17/22	1450				1
B-13	SL	G	6/17/22	1750				1

6/20/2022

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2781278

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: 4.4 °C
Cooler 1 Therm Corr. Factor: ____ °C
Cooler 1 Corrected Temp: ____ °C
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
	6/20/2022 15:30		
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Relinquished by/Company: (Signature) FedEx	Date/Time: 6/21/22 1000	Received by/Company: (Signature)	Date/Time: 6/21/22 1060

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: ____ of ____

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA Cooler inspected by/date: KSC / 06/21/2022 Lot #: XF21008

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☐ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☐ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 22-480

4.9 / 4.9 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: 6 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: KNR Date: 06/21/2022

Comments:

Report of Analysis

GZA GeoEnvironmental, Inc.
17975 West Sarah Lane, Suite 100
Brookfield, WI 53045
Attention: Kevin Hedinger

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Lot Number:**WH24025**

Date Completed:09/17/2021

09/17/2021 3:06 PM
Approved and released by:
Project Manager II: **Karen L. Coonan**

Case Narrative
GZA GeoEnvironmental, Inc.
Lot Number: WH24025

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH24025

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL-MW-1	Aqueous	08/19/2021 1655	08/24/2021

(1 sample)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH24025

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WL-MW-1	Aqueous	6:2 FTS	PFAS by ID	10000		ng/L	5
001	WL-MW-1	Aqueous	PFHxS	PFAS by ID	34	J	ng/L	5
001	WL-MW-1	Aqueous	PFBA	PFAS by ID	460		ng/L	5
001	WL-MW-1	Aqueous	PFHpA	PFAS by ID	320		ng/L	5
001	WL-MW-1	Aqueous	PFHxA	PFAS by ID	1600		ng/L	5
001	WL-MW-1	Aqueous	PFOA	PFAS by ID	41	J	ng/L	6
001	WL-MW-1	Aqueous	PFPeA	PFAS by ID	3200		ng/L	6

(7 detections)

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.
Laboratory ID: WH24025-001
Description: WL-MW-1
Matrix: Aqueous
Date Sampled: 08/19/2021 1655
Project Name: Oshkosh GW PFAS Sampling
Date Received: 08/24/2021
Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	20	09/15/2021 1832	MMM	09/13/2021 1227	15147

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		150	9.2	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		150	13	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		150	30	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	10000		150	38	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		150	17	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		150	39	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		150	9.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		150	26	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		150	14	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		150	18	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		300	24	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		150	18	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		150	24	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		76	7.9	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		76	15	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		76	9.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		76	14	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		76	12	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		76	11	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		150	20	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	34	J	76	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	460		76	11	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		76	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		76	9.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	320		76	8.5	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1600		76	13	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		76	8.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	41	J	76	16	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3200		76	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		76	11	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		76	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		76	12	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		76	38	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		132	25-150
13C2_6:2FTS		130	25-150
13C2_8:2FTS		120	25-150
13C2_PFDoA		102	25-150
13C2_PFTeDA		97	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		95	25-150
13C4_PFBA		98	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.
Laboratory ID: WH24025-001
Description: WL-MW-1
Matrix: Aqueous
Date Sampled: 08/19/2021 1655
Project Name: Oshkosh GW PFAS Sampling
Date Received: 08/24/2021
Project Number: 20.0157080

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		110	25-150
13C5_PFHxA		94	25-150
13C5_PFPeA		99	25-150
13C6_PFDA		92	25-150
13C7_PFUdA		90	25-150
13C8_PFOA		97	25-150
13C8_PFOS		72	25-150
13C8_PFOSA		82	10-150
13C9_PFNA		95	25-150
d-EtFOSA		94	10-150
d5-EtFOSAA		106	25-150
d9-EtFOSE		90	10-150
d-MeFOSA		85	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		90	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ15147-001
Batch: 15147
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/13/2021 1227

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	09/14/2021 1800
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	09/14/2021 1800
8:2 FTS	ND		1	8.0	1.6	ng/L	09/14/2021 1800
6:2 FTS	ND		1	8.0	2.0	ng/L	09/14/2021 1800
4:2 FTS	ND		1	8.0	0.87	ng/L	09/14/2021 1800
GenX	ND		1	8.0	2.1	ng/L	09/14/2021 1800
ADONA	ND		1	8.0	0.48	ng/L	09/14/2021 1800
EtFOSA	ND		1	8.0	1.4	ng/L	09/14/2021 1800
EtFOSAA	ND		1	8.0	0.75	ng/L	09/14/2021 1800
EtFOSE	ND		1	8.0	0.95	ng/L	09/14/2021 1800
MeFOSA	ND		1	16	1.3	ng/L	09/14/2021 1800
MeFOSAA	ND		1	8.0	0.93	ng/L	09/14/2021 1800
MeFOSE	ND		1	8.0	1.3	ng/L	09/14/2021 1800
PFBS	ND		1	4.0	0.41	ng/L	09/14/2021 1800
PFDS	ND		1	4.0	0.78	ng/L	09/14/2021 1800
PFHpS	ND		1	4.0	0.50	ng/L	09/14/2021 1800
PFNS	ND		1	4.0	0.71	ng/L	09/14/2021 1800
PFOSA	ND		1	4.0	0.61	ng/L	09/14/2021 1800
PFPeS	ND		1	4.0	0.59	ng/L	09/14/2021 1800
PFDOS	ND		1	8.0	1.0	ng/L	09/14/2021 1800
PFHxS	ND		1	4.0	0.55	ng/L	09/14/2021 1800
PFBA	ND		1	4.0	0.60	ng/L	09/14/2021 1800
PFDA	ND		1	4.0	0.52	ng/L	09/14/2021 1800
PFDoA	ND		1	4.0	0.47	ng/L	09/14/2021 1800
PFHpA	ND		1	4.0	0.45	ng/L	09/14/2021 1800
PFHxA	ND		1	4.0	0.69	ng/L	09/14/2021 1800
PFNA	ND		1	4.0	0.46	ng/L	09/14/2021 1800
PFOA	ND		1	4.0	0.83	ng/L	09/14/2021 1800
PFPeA	ND		1	4.0	0.54	ng/L	09/14/2021 1800
PFTeDA	ND		1	4.0	0.60	ng/L	09/14/2021 1800
PFTrDA	ND		1	4.0	0.53	ng/L	09/14/2021 1800
PFUdA	ND		1	4.0	0.63	ng/L	09/14/2021 1800
PFOS	ND		1	4.0	2.0	ng/L	09/14/2021 1800

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		143	25-150
13C2_6:2FTS		92	25-150
13C2_8:2FTS		100	25-150
13C2_PFDoA		115	25-150
13C2_PFTeDA		126	25-150
13C3_PFBS		114	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		125	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ15147-001
Batch: 15147
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/13/2021 1227

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		111	25-150
13C4_PFHpA		121	25-150
13C5_PFHxA		123	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		115	25-150
13C7_PFUdA		118	25-150
13C8_PFOA		119	25-150
13C8_PFOS		128	25-150
13C8_PFOSA		105	10-150
13C9_PFNA		124	25-150
d-EtFOSA		104	10-150
d5-EtFOSAA		105	25-150
d9-EtFOSE		108	10-150
d-MeFOSA		107	10-150
d3-MeFOSAA		110	25-150
d7-MeFOSE		115	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ15147-002
Batch: 15147
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/13/2021 1227

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	13		1	88	50-150	09/14/2021 1810
11Cl-PF3OUdS	15	13		1	88	50-150	09/14/2021 1810
8:2 FTS	15	13		1	83	50-150	09/14/2021 1810
6:2 FTS	15	15		1	102	50-150	09/14/2021 1810
4:2 FTS	15	15		1	100	50-150	09/14/2021 1810
GenX	32	25		1	79	50-150	09/14/2021 1810
ADONA	15	16		1	104	50-150	09/14/2021 1810
EtFOSA	16	17		1	105	50-150	09/14/2021 1810
EtFOSAA	16	16		1	103	50-150	09/14/2021 1810
EtFOSE	16	16		1	102	50-150	09/14/2021 1810
MeFOSA	16	18		1	114	50-150	09/14/2021 1810
MeFOSAA	16	16		1	97	50-150	09/14/2021 1810
MeFOSE	16	14		1	89	50-150	09/14/2021 1810
PFBS	14	15		1	103	50-150	09/14/2021 1810
PFDS	15	13		1	87	50-150	09/14/2021 1810
PFHpS	15	16		1	104	50-150	09/14/2021 1810
PFNS	15	15		1	96	50-150	09/14/2021 1810
PFOSA	16	16		1	103	50-150	09/14/2021 1810
PFPeS	15	16		1	107	50-150	09/14/2021 1810
PFDOS	15	15		1	98	50-150	09/14/2021 1810
PFHxS	15	14		1	99	50-150	09/14/2021 1810
PFBA	16	17		1	107	50-150	09/14/2021 1810
PFDA	16	16		1	99	50-150	09/14/2021 1810
PFDoA	16	18		1	112	50-150	09/14/2021 1810
PFHpA	16	17		1	106	50-150	09/14/2021 1810
PFHxA	16	15		1	95	50-150	09/14/2021 1810
PFNA	16	16		1	97	50-150	09/14/2021 1810
PFOA	16	16		1	103	50-150	09/14/2021 1810
PFPeA	16	15		1	94	50-150	09/14/2021 1810
PFTeDA	16	18		1	112	50-150	09/14/2021 1810
PFTrDA	16	16		1	103	50-150	09/14/2021 1810
PFUdA	16	18		1	110	50-150	09/14/2021 1810
PFOS	15	15		1	101	50-150	09/14/2021 1810

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		141	25-150
13C2_6:2FTS		91	25-150
13C2_8:2FTS		104	25-150
13C2_PFDoA		102	25-150
13C2_PFTeDA		117	25-150
13C3_PFBS		112	25-150
13C3_PFHxS		108	25-150
13C3-HFPO-DA		133	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ15147-002
Batch: 15147
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/13/2021 1227

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		112	25-150
13C4_PFHpA		107	25-150
13C5_PFHxA		117	25-150
13C5_PFPeA		125	25-150
13C6_PFDA		122	25-150
13C7_PFUdA		104	25-150
13C8_PFOA		119	25-150
13C8_PFOS		111	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		128	25-150
d-EtFOSA		90	10-150
d5-EtFOSAA		112	25-150
d9-EtFOSE		108	10-150
d-MeFOSA		101	10-150
d3-MeFOSAA		107	25-150
d7-MeFOSE		113	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 124339

Client	Report to Contact	Telephone No. / E-mail	Quote No.
GZA GeoEnvironmental Inc	Kevin Hedinger	Kevin.hedinger@gza.com	

Address: 17975 W Sarah Lane Suite 100
City: Brookfield State: WI Zip Code: 53045
Sampler's Signature: x [signature]
Printed Name: Elizabeth Stapleton Yu
Project Name: Oshkosh Corporation
Project No.: 20.0157080
P.O. No.:
Analysis (Attach list if more space is needed): PFAS WI list 33
Page 1 of 1
WH24025
KLC2

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Other	PFAS WI list 33	Remarks / Cooler I.D.
WL-MW-1	8/19/21	1655	G	X			X							X	

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab

Possible Hazard Identification: ☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

QC Requirements (Specify)

Relinquished by	Date	Time	Received by	Date	Time
1. [signature]	8/23/21	900	1. FedEx	8/23/21	900
2.			2.		
3.			3.		
4. Fed Ex	8/24/21	1015	4. Laboratory received by [signature]	8/24/21	1015

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on ice (Circle) Yes No Ice Pack Receipt Temp 4.2 °C Temp Blank Y N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA Cooler Inspected by/date: JSM / 08/24/2021 Lot #: WH24025

Means of receipt: ☐ Pace ☑ Client ☐ UPS ☐ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

4.2 / 4.2 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☐ Yes	☑ No		21. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: JSM Date: 08/24/2021

Comments:

Report of Analysis

GZA GeoEnvironmental, Inc.
17975 West Sarah Lane, Suite 100
Brookfield, WI 53045
Attention: Kevin Hedinger

Project Name: OshKosh Corporation

Project Number: 20.0157080.00

Lot Number:**WJ23010**

Date Completed:11/12/2021

11/12/2021 9:48 AM
Approved and released by:
Project Manager II: **Kathy E. Smith**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
GZA GeoEnvironmental, Inc.
Lot Number: WJ23010

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples was in compliance with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). For undiluted analysis. For undiluted analysis, the extract is prepared for injection by adding 182 uL of sample extract + 8 uL of reagent water + 10 uL of internal standard solution to a polypropylene autosampler vial. An extra correction factor of 0.91 (182 uL / 200 uL = 0.91) applies. The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1/0.91.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation:

Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, Fecal Coliform SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, Solid Chemical Material: TOC Walkley-Black.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: WJ23010

Project Name: OshKosh Corporation

Project Number: 20.0157080.00

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL-MW-1	Aqueous	10/16/2021 1014	10/20/2021
002	Field Blank	Aqueous	10/16/2021 1024	10/20/2021

(2 samples)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: WJ23010

Project Name: OshKosh Corporation

Project Number: 20.0157080.00

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WL-MW-1	Aqueous	6:2 FTS	PFAS by ID	14000		ng/L	5
001	WL-MW-1	Aqueous	PFBS	PFAS by ID	44	J	ng/L	5
001	WL-MW-1	Aqueous	PFHxS	PFAS by ID	45	J	ng/L	5
001	WL-MW-1	Aqueous	PFBA	PFAS by ID	880		ng/L	5
001	WL-MW-1	Aqueous	PFHpA	PFAS by ID	590		ng/L	5
001	WL-MW-1	Aqueous	PFHxA	PFAS by ID	2200		ng/L	5
001	WL-MW-1	Aqueous	PFOA	PFAS by ID	56	J	ng/L	5
001	WL-MW-1	Aqueous	PFPeA	PFAS by ID	5400		ng/L	5
002	Field Blank	Aqueous	6:2 FTS	PFAS by ID	24		ng/L	7
002	Field Blank	Aqueous	PFBA	PFAS by ID	1.6	J	ng/L	7
002	Field Blank	Aqueous	PFHpA	PFAS by ID	1.2	J	ng/L	7
002	Field Blank	Aqueous	PFHxA	PFAS by ID	4.6		ng/L	7
002	Field Blank	Aqueous	PFPeA	PFAS by ID	11		ng/L	7

(13 detections)

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WJ23010-001
Description: WL-MW-1 | Matrix: Aqueous
Date Sampled: 10/16/2021 1014 | Project Name: OshKosh Corporation
Date Received: 10/20/2021 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	50	11/11/2021 1851	MMM	11/09/2021 1201	21762

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		370	22	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		370	30	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		370	73	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	14000		370	92	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		370	40	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		370	95	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		370	22	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		370	62	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		370	34	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		370	44	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		730	58	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		370	43	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		370	59	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	44	J	180	19	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		180	36	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		180	23	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		180	33	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		180	28	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		180	27	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		370	48	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	45	J	180	25	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	880		180	27	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		180	24	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		180	22	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	590		180	20	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2200		180	31	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		180	21	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	56	J	180	38	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	5400		180	25	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		180	27	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		180	24	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		180	29	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		180	92	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		112	25-150
13C2_6:2FTS		113	25-150
13C2_8:2FTS		94	25-150
13C2_PFDoA		90	25-150
13C2_PFTeDA		96	25-150
13C3_PFBS		105	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		112	25-150
13C4_PFBA		105	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.		Laboratory ID: WJ23010-001	
Description: WL-MW-1		Matrix: Aqueous	
Date Sampled: 10/16/2021 1014	Project Name: OshKosh Corporation		
Date Received: 10/20/2021	Project Number: 20.0157080.00		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		99	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		98	25-150
13C6_PFDA		116	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		103	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		94	10-150
13C9_PFNA		97	25-150
d-EtFOSA		107	10-150
d5-EtFOSAA		120	25-150
d9-EtFOSE		93	10-150
d-MeFOSA		107	10-150
d3-MeFOSAA		130	25-150
d7-MeFOSE		107	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: WJ23010-002
Description: Field Blank | Matrix: Aqueous
Date Sampled: 10/16/2021 1024 | Project Name: OshKosh Corporation
Date Received: 10/20/2021 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	11/10/2021 1910	MMM	11/09/2021 1201	21762

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	24		8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	0.90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.2	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.2	0.98	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.96	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.2	1.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.80	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	0.57	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1.6	J	4.1	0.61	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1.2	J	4.1	0.46	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.47	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	11		4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	2.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		121	25-150
13C2_6:2FTS		140	25-150
13C2_8:2FTS		119	25-150
13C2_PFDoA		106	25-150
13C2_PFTeDA		105	25-150
13C3_PFBS		115	25-150
13C3_PFHxS		114	25-150
13C3-HFPO-DA		147	25-150
13C4_PFBA		114	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.			Laboratory ID: WJ23010-002
Description: Field Blank			Matrix: Aqueous
Date Sampled: 10/16/2021 1024		Project Name: OshKosh Corporation	
Date Received: 10/20/2021		Project Number: 20.0157080.00	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		118	25-150
13C5_PFHxA		111	25-150
13C5_PFPeA		112	25-150
13C6_PFDA		117	25-150
13C7_PFUdA		105	25-150
13C8_PFOA		123	25-150
13C8_PFOS		112	25-150
13C8_PFOSA		121	10-150
13C9_PFNA		120	25-150
d-EtFOSA		84	10-150
d5-EtFOSAA		126	25-150
d9-EtFOSE		109	10-150
d-MeFOSA		57	10-150
d3-MeFOSAA		122	25-150
d7-MeFOSE		122	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ21762-001
Batch: 21762
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1201

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	11/10/2021 1806
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	11/10/2021 1806
8:2 FTS	ND		1	8.0	1.6	ng/L	11/10/2021 1806
6:2 FTS	ND		1	8.0	2.0	ng/L	11/10/2021 1806
4:2 FTS	ND		1	8.0	0.87	ng/L	11/10/2021 1806
GenX	ND		1	8.0	2.1	ng/L	11/10/2021 1806
ADONA	ND		1	8.0	0.48	ng/L	11/10/2021 1806
EtFOSA	ND		1	8.0	1.4	ng/L	11/10/2021 1806
EtFOSAA	ND		1	8.0	0.75	ng/L	11/10/2021 1806
EtFOSE	ND		1	8.0	0.95	ng/L	11/10/2021 1806
MeFOSA	ND		1	16	1.3	ng/L	11/10/2021 1806
MeFOSAA	ND		1	8.0	0.93	ng/L	11/10/2021 1806
MeFOSE	ND		1	8.0	1.3	ng/L	11/10/2021 1806
PFBS	ND		1	4.0	0.41	ng/L	11/10/2021 1806
PFDS	ND		1	4.0	0.78	ng/L	11/10/2021 1806
PFHpS	ND		1	4.0	0.50	ng/L	11/10/2021 1806
PFNS	ND		1	4.0	0.71	ng/L	11/10/2021 1806
PFOSA	ND		1	4.0	0.61	ng/L	11/10/2021 1806
PFPeS	ND		1	4.0	0.59	ng/L	11/10/2021 1806
PFDOS	ND		1	8.0	1.0	ng/L	11/10/2021 1806
PFHxS	ND		1	4.0	0.55	ng/L	11/10/2021 1806
PFBA	ND		1	4.0	0.60	ng/L	11/10/2021 1806
PFDA	ND		1	4.0	0.52	ng/L	11/10/2021 1806
PFDoA	ND		1	4.0	0.47	ng/L	11/10/2021 1806
PFHpA	ND		1	4.0	0.45	ng/L	11/10/2021 1806
PFHxA	ND		1	4.0	0.69	ng/L	11/10/2021 1806
PFNA	ND		1	4.0	0.46	ng/L	11/10/2021 1806
PFOA	ND		1	4.0	0.83	ng/L	11/10/2021 1806
PFPeA	ND		1	4.0	0.54	ng/L	11/10/2021 1806
PFTeDA	ND		1	4.0	0.60	ng/L	11/10/2021 1806
PFTrDA	ND		1	4.0	0.53	ng/L	11/10/2021 1806
PFUdA	ND		1	4.0	0.63	ng/L	11/10/2021 1806
PFOS	ND		1	4.0	2.0	ng/L	11/10/2021 1806

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		95	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		95	25-150
13C2_PFDoA		87	25-150
13C2_PFTeDA		89	25-150
13C3_PFBS		102	25-150
13C3_PFHxS		93	25-150
13C3-HFPO-DA		115	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: WQ21762-001
Batch: 21762
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1201

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		99	25-150
13C4_PFHpA		101	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		100	25-150
13C6_PFDA		93	25-150
13C7_PFUdA		88	25-150
13C8_PFOA		97	25-150
13C8_PFOS		94	25-150
13C8_PFOSA		96	10-150
13C9_PFNA		92	25-150
d-EtFOSA		75	10-150
d5-EtFOSAA		111	25-150
d9-EtFOSE		86	10-150
d-MeFOSA		67	10-150
d3-MeFOSAA		106	25-150
d7-MeFOSE		93	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21762-002
Batch: 21762
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1201

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	99	50-150	11/10/2021 1817
11Cl-PF3OUdS	15	14		1	96	50-150	11/10/2021 1817
8:2 FTS	15	15		1	100	50-150	11/10/2021 1817
6:2 FTS	15	14		1	90	50-150	11/10/2021 1817
4:2 FTS	15	16		1	104	50-150	11/10/2021 1817
GenX	32	33		1	104	50-150	11/10/2021 1817
ADONA	15	15		1	100	50-150	11/10/2021 1817
EtFOSA	16	15		1	95	50-150	11/10/2021 1817
EtFOSAA	16	15		1	95	50-150	11/10/2021 1817
EtFOSE	16	16		1	99	50-150	11/10/2021 1817
MeFOSA	16	18		1	111	50-150	11/10/2021 1817
MeFOSAA	16	13		1	79	50-150	11/10/2021 1817
MeFOSE	16	13		1	83	50-150	11/10/2021 1817
PFBS	14	13		1	92	50-150	11/10/2021 1817
PFDS	15	14		1	93	50-150	11/10/2021 1817
PFHpS	15	15		1	97	50-150	11/10/2021 1817
PFNS	15	15		1	100	50-150	11/10/2021 1817
PFOSA	16	15		1	97	50-150	11/10/2021 1817
PFPeS	15	15		1	98	50-150	11/10/2021 1817
PFDOS	15	13		1	87	50-150	11/10/2021 1817
PFHxS	15	14		1	94	50-150	11/10/2021 1817
PFBA	16	15		1	96	50-150	11/10/2021 1817
PFDA	16	17		1	103	50-150	11/10/2021 1817
PFDoA	16	16		1	102	50-150	11/10/2021 1817
PFHpA	16	15		1	92	50-150	11/10/2021 1817
PFHxA	16	15		1	96	50-150	11/10/2021 1817
PFNA	16	16		1	100	50-150	11/10/2021 1817
PFOA	16	16		1	101	50-150	11/10/2021 1817
PFPeA	16	16		1	98	50-150	11/10/2021 1817
PFTeDA	16	17		1	107	50-150	11/10/2021 1817
PFTrDA	16	14		1	90	50-150	11/10/2021 1817
PFUdA	16	16		1	98	50-150	11/10/2021 1817
PFOS	15	16		1	108	50-150	11/10/2021 1817

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		105	25-150
13C2_6:2FTS		99	25-150
13C2_8:2FTS		105	25-150
13C2_PFDoA		95	25-150
13C2_PFTeDA		98	25-150
13C3_PFBS		110	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		127	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: WQ21762-002
Batch: 21762
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 11/09/2021 1201

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		107	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		109	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		99	25-150
13C8_PFOA		104	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		106	25-150
d-EtFOSA		75	10-150
d5-EtFOSAA		127	25-150
d9-EtFOSE		93	10-150
d-MeFOSA		51	10-150
d3-MeFOSAA		146	25-150
d7-MeFOSE		110	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 127141

Client: GZA GeoEnvironmental Inc
Address: 17975 W. Sarah Lane STE 100
City: Brookfield State: WI Zip Code: 53045
Project Name: Oshkosh Corporation
Report to Contact: Kevin Hellinger
Sampler's Signature: X. [signature]
Printed Name: Alec Amundson
Telephone No. / E-mail: Kevin.Hellinger@gza.com
Analysis (Attach list if more space is needed): PFAS WI List 33
Quote No.
Page 1 of 1
WJ23010
Kress
Project No. 20.0157080.00
P.O. No.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Unpres.	H_2SO_4	HNO_3	HCl	NaOH	Other	Field Filtered	PFAS WI List 33	Remarks / Cooler I.D.
WL-MW-1	10/16/21	1014	6	X			X							X	
Field Blank	10/16/21	1024	6	X			X							X	

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☒ Standard ☐ Rush (Specify)
Sample Disposal: ☐ Return to Client ☒ Disposal by Lab
Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown
QC Requirements (Specify)

Relinquished by	Date	Time	Received by	Date	Time
1. [signature]	10-19-21	2000	1. FedEx	10-19-21	2000
2.			2.		
3.			3.		
4. FedEx	10/20/21	0905	4. Laboratory received by [signature]	10/20/21	0905

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on ice (Circle) (Yes) No Ice Pack
Receipt Temp. 3.6 °C
Temp Blank ☒ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N8-01

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA

Cooler Inspected by/date: KSC / 10/23/2021

Lot #: WJ23010

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other: _____

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

3.6 / 3.6 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)? _____
☑ Yes	☐ No		13. Was adequate sample volume available?
☐ Yes	☑ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☐ No	☑ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☑ Yes	☐ No		21. Was the quote number listed on the container label? If yes, Quote # 25431

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA.

Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA _____ were received with bubbles >6 mm in diameter.

Samples(s) NA _____ were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: JRG2 Date: 10/22/2021

Comments:

Report of Analysis

GZA GeoEnvironmental, Inc.
17975 West Sarah Lane, Suite 100
Brookfield, WI 53045
Attention: Kevin Hedinger

Project Name: Oshkosh Corp-West Plant

Project Number: 20.0157080.00

Lot Number:**XH08006**

Date Completed:09/08/2022

09/09/2022 12:19 PM
Approved and released by:
Project Manager II: **Kathy E. Smith**

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
GZA GeoEnvironmental, Inc.
Lot Number: XH08006

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the Pace Quality Assurance Management Plan (QAMP), applicable Shealy standard operating procedures (SOPs), the 2003 NELAC standard, and Shealy policies. Additionally, the DoD QSM version 5.3 has been followed for these samples, and specifically Table B-15 was followed for all PFAS samples. Any exceptions to the QAMP, SOPs, NELAC standards, the DoD QSM, or policies are qualified on the results page or discussed below.

All QC associated with these samples were compliant with DOD QSM 5.3 table B-15 and our PFAS SOP.

Correction factors (CF) are used to calculate the original sample concentration. The CF is the inverse of the concentration factor (sample volume / extract final volume) times the dilution factor (DF). The CF is calculated as follows:

CF = DF * FV / Vo

FV is volume of extract (mL)
Vo is initial sample volume (mL)
DF is dilution factor. For undiluted analysis, DF = 1.

Sample concentration for aqueous samples:
Concentration (ng/L) = Cs*CF,

$$C_s = \frac{\left(\frac{(A_s x C_{is})}{A_{is}}\right) - B}{M1}$$

Where

C_s is on column concentration of target analyte in the sample (ng/L)
C_{is} is concentration of internal standard in the sample (ng/L)
A_s is peak response of target analyte in the sample
A_{is} is peak response of internal standard in the sample
M1 is the average RF from ICAL or the slope from linear regression ICAL
B is the y-intercept from the ICAL

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

The method blank associated with batch 52513 had 6:2 FTS detected at a concentration that was above the MDL but below the PQL. All samples associated with this method blank that have detections for 6:2 FTS have been flagged with a "B".

Surrogate recovery for the following sample was outside the upper control limit: XH08006-001. This sample did not contain any target analytes over the LOQ; therefore, re-extraction and/or re-analysis was not performed.

Surrogate recovery for the following samples was outside the upper control limit: XH08006-003, XH08006-005, XH08006-006, XH08006-007. These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

The MS/MSD associated with sample XH08006-001 had compounds recovered outside of the acceptance limits. The LCS was recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: XH08006

Project Name: Oshkosh Corp-West Plant

Project Number: 20.0157080.00

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL-MW-1	Aqueous	08/03/2022 1218	08/05/2022
002	WL-MW-2	Aqueous	08/03/2022 1129	08/05/2022
003	WL-MW-3	Aqueous	08/03/2022 1043	08/05/2022
004	WL-MW-4	Aqueous	08/03/2022 1052	08/05/2022
005	WL-FB-1	Aqueous	08/03/2022 1200	08/05/2022
006	WL-EQ-1	Aqueous	08/03/2022 1211	08/05/2022
007	Trip	Aqueous	08/03/2022	08/05/2022

(7 samples)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: XH08006

Project Name: Oshkosh Corp-West Plant

Project Number: 20.0157080.00

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WL-MW-1	Aqueous	6:2 FTS	PFAS by ID	7600	B	ng/L	6
001	WL-MW-1	Aqueous	4:2 FTS	PFAS by ID	2.5	JQ	ng/L	6
001	WL-MW-1	Aqueous	PFPeS	PFAS by ID	4.6		ng/L	6
001	WL-MW-1	Aqueous	PFHxS	PFAS by ID	34		ng/L	6
001	WL-MW-1	Aqueous	PFBA	PFAS by ID	850		ng/L	6
001	WL-MW-1	Aqueous	PFHpA	PFAS by ID	590		ng/L	6
001	WL-MW-1	Aqueous	PFHxA	PFAS by ID	2100		ng/L	6
001	WL-MW-1	Aqueous	PFNA	PFAS by ID	5.6		ng/L	6
001	WL-MW-1	Aqueous	PFOA	PFAS by ID	38		ng/L	6
001	WL-MW-1	Aqueous	PFPeA	PFAS by ID	6100		ng/L	6
001	WL-MW-1	Aqueous	PFOS	PFAS by ID	9.9		ng/L	6
003	WL-MW-3	Aqueous	PFBS	PFAS by ID	0.73	J	ng/L	10
003	WL-MW-3	Aqueous	PFBA	PFAS by ID	5.4		ng/L	10
003	WL-MW-3	Aqueous	PFHxA	PFAS by ID	1.1	J	ng/L	10
003	WL-MW-3	Aqueous	PFOA	PFAS by ID	1.1	J	ng/L	10
003	WL-MW-3	Aqueous	PFPeA	PFAS by ID	2.9	J	ng/L	10
004	WL-MW-4	Aqueous	PFBS	PFAS by ID	0.95	J	ng/L	12
004	WL-MW-4	Aqueous	PFBA	PFAS by ID	3.7		ng/L	12

(18 detections)

PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-001
Description: WL-MW-1 | Matrix: Aqueous
Date Sampled: 08/03/2022 1218 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1412	ALM	08/29/2022 1015	52513
2	SOP SPE	PFAS by ID SOP	50	09/02/2022 1619	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	7600	B	350	88	ng/L	2
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	2.5	JQ	7.0	0.77	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.43	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.0	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.0	0.84	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.82	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.0	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND	S	3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.63	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	4.6		3.5	0.52	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.0	0.92	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	34		3.5	0.49	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	850		180	26	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.42	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	590		180	20	ng/L	2
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2100		180	30	ng/L	2
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.6		3.5	0.41	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	38		3.5	0.73	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	6100		180	24	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.53	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.47	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	9.9		3.5	1.8	ng/L	1

Surrogate	Run 1 Q	Run 1 % Recovery	Run 1 Acceptance Limits	Run 2 Q	Run 2 % Recovery	Run 2 Acceptance Limits
13C2_4:2FTS	N	226	25-150		129	25-150
13C2_6:2FTS		141	25-150		123	25-150
13C2_8:2FTS		106	25-150		126	25-150
13C2_PFDoA		96	25-150		124	25-150
13C2_PFTeDA		101	25-150		118	25-150
13C3_PFBS		88	25-150		121	25-150
13C3_PFHxS		96	25-150		111	25-150
13C3-HFPO-DA		82	25-150		118	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-001
Description: WL-MW-1 | Matrix: Aqueous
Date Sampled: 08/03/2022 1218 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
13C4_PFBA		41	25-150		125	25-150
13C4_PFHpA		97	25-150		128	25-150
13C5_PFHxA		73	25-150		120	25-150
13C5_PFPeA		41	25-150		121	25-150
13C6_PFDA		102	25-150		120	25-150
13C7_PFUdA		98	25-150		124	25-150
13C8_PFOA		103	25-150		122	25-150
13C8_PFOS		97	25-150		121	25-150
13C8_PFOSA		101	10-150		123	10-150
13C9_PFNA		105	25-150		123	25-150
d-EtFOSA		90	10-150		112	10-150
d5-EtFOSAA		104	25-150		127	25-150
d9-EtFOSE		93	10-150		129	10-150
d-MeFOSA		73	10-150		114	10-150
d3-MeFOSAA		100	25-150		126	25-150
d7-MeFOSE		91	10-150		123	10-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
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E = Quantitation of compound exceeded the calibration range
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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-002
Description: WL-MW-2 | Matrix: Aqueous
Date Sampled: 08/03/2022 1129 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1434	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.0	0.58	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.0	1.4	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.0	1.7	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.0	0.76	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.0	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.0	0.42	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.0	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.0	0.66	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.0	0.83	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.0	0.81	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.0	1.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		3.5	0.36	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.5	0.68	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.5	0.44	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.5	0.62	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.5	0.54	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.0	0.91	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.5	0.41	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.5	0.39	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.5	0.60	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.5	0.40	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.5	0.72	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.5	0.48	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.5	0.52	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.5	0.46	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.5	0.55	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.5	1.7	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	25-150
13C2_6:2FTS		115	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		105	25-150
13C3-HFPO-DA		103	25-150
13C4_PFBA		110	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.			Laboratory ID: XH08006-002
Description: WL-MW-2			Matrix: Aqueous
Date Sampled: 08/03/2022 1129		Project Name: Oshkosh Corp-West Plant	
Date Received: 08/05/2022		Project Number: 20.0157080.00	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		108	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		108	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		108	25-150
13C8_PFOS		98	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		102	25-150
d-EtFOSA		72	10-150
d5-EtFOSAA		105	25-150
d9-EtFOSE		92	10-150
d-MeFOSA		67	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		93	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-003
Description: WL-MW-3 | Matrix: Aqueous
Date Sampled: 08/03/2022 1043 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1517	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.7	0.64	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.7	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	7.7	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.7	0.84	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.7	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.7	0.47	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.7	1.3	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.7	0.72	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.7	0.92	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.2	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.7	0.90	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.7	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.73	J	3.9	0.40	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.75	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.48	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.69	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.59	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.57	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.7	1.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.53	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	5.4		3.9	0.58	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.46	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.43	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1.1	J	3.9	0.66	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.45	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	1.1	J	3.9	0.80	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.9	J	3.9	0.53	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.58	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.51	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.60	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	1.9	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		108	25-150
13C2_6:2FTS	N	163	25-150
13C2_8:2FTS		107	25-150
13C2_PFDoA		110	25-150
13C2_PFTeDA		118	25-150
13C3_PFBS		114	25-150
13C3_PFHxS		112	25-150
13C3-HFPO-DA		111	25-150
13C4_PFBA		109	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.			Laboratory ID: XH08006-003
Description: WL-MW-3			Matrix: Aqueous
Date Sampled: 08/03/2022 1043		Project Name: Oshkosh Corp-West Plant	
Date Received: 08/05/2022		Project Number: 20.0157080.00	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		115	25-150
13C5_PFHxA		110	25-150
13C5_PFPeA		117	25-150
13C6_PFDA		112	25-150
13C7_PFUdA		111	25-150
13C8_PFOA		114	25-150
13C8_PFOS		107	25-150
13C8_PFOSA		112	10-150
13C9_PFNA		112	25-150
d-EtFOSA		91	10-150
d5-EtFOSAA		117	25-150
d9-EtFOSE		102	10-150
d-MeFOSA		78	10-150
d3-MeFOSAA		114	25-150
d7-MeFOSE		111	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-004
Description: WL-MW-4 | Matrix: Aqueous
Date Sampled: 08/03/2022 1052 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1528	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.3	0.60	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.3	1.5	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.3	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.3	0.79	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.3	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.3	0.44	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.3	1.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.3	0.68	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.3	0.87	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		15	1.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.3	0.85	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.3	1.2	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	0.95	J	3.6	0.38	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.71	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.45	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.65	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.56	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.54	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.3	0.95	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.50	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	3.7		3.6	0.55	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.43	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.6	0.41	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.6	0.63	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.6	0.42	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		3.6	0.75	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.6	0.49	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.55	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.48	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.6	1.8	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		105	25-150
13C2_6:2FTS		122	25-150
13C2_8:2FTS		100	25-150
13C2_PFDoA		98	25-150
13C2_PFTeDA		105	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		105	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-004
Description: WL-MW-4 | Matrix: Aqueous
Date Sampled: 08/03/2022 1052 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		104	25-150
13C5_PFHxA		102	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		100	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		107	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		104	10-150
13C9_PFNA		102	25-150
d-EtFOSA		75	10-150
d5-EtFOSAA		101	25-150
d9-EtFOSE		85	10-150
d-MeFOSA		64	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		90	10-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-005
Description: WL-FB-1 | Matrix: Aqueous
Date Sampled: 08/03/2022 1200 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1539	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.4	0.50	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.4	0.69	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.4	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.4	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.4	0.91	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.4	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.4	0.51	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.4	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.4	0.78	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.4	1.0	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		17	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.4	0.98	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.4	1.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.2	0.43	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.2	0.81	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.2	0.52	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.2	0.74	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.2	0.64	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.2	0.62	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.4	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.2	0.58	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.2	0.63	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.2	0.55	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.2	0.49	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.2	0.47	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.2	0.72	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.2	0.48	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.2	0.87	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.2	0.57	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.2	0.63	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.2	0.55	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.2	0.66	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.2	2.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		104	25-150
13C2_6:2FTS	N	225	25-150
13C2_8:2FTS		105	25-150
13C2_PFDoA		107	25-150
13C2_PFTeDA		108	25-150
13C3_PFBS		105	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		107	25-150
13C4_PFBA		111	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.
Laboratory ID: XH08006-005
Description: WL-FB-1
Matrix: Aqueous
Date Sampled: 08/03/2022 1200
Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022
Project Number: 20.0157080.00

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		112	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		109	25-150
13C6_PFDA		105	25-150
13C7_PFUdA		106	25-150
13C8_PFOA		107	25-150
13C8_PFOS		101	25-150
13C8_PFOSA		103	10-150
13C9_PFNA		109	25-150
d-EtFOSA		74	10-150
d5-EtFOSAA		117	25-150
d9-EtFOSE		90	10-150
d-MeFOSA		63	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		96	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-006
Description: WL-EQ-1 | Matrix: Aqueous
Date Sampled: 08/03/2022 1211 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1550	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.7	0.53	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.7	0.72	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.7	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.7	2.2	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.7	0.95	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.7	2.3	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.7	0.53	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.7	1.5	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.7	0.82	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.7	1.0	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		17	1.4	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.7	1.0	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.7	1.4	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.4	0.45	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.4	0.85	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.4	0.54	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.4	0.78	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.4	0.67	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.4	0.65	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.7	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.4	0.60	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.4	0.66	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.4	0.57	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.4	0.52	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.4	0.49	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.4	0.75	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.4	0.50	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.4	0.91	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.4	0.59	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.4	0.65	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.4	0.58	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.4	0.68	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.4	2.2	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		99	25-150
13C2_6:2FTS	N	198	25-150
13C2_8:2FTS		101	25-150
13C2_PFDoA		97	25-150
13C2_PFTeDA		102	25-150
13C3_PFBS		104	25-150
13C3_PFHxS		109	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		107	25-150

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.			Laboratory ID: XH08006-006
Description: WL-EQ-1			Matrix: Aqueous
Date Sampled: 08/03/2022 1211	Project Name: Oshkosh Corp-West Plant		
Date Received: 08/05/2022	Project Number: 20.0157080.00		

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		106	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		103	25-150
13C7_PFUdA		100	25-150
13C8_PFOA		106	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		100	10-150
13C9_PFNA		108	25-150
d-EtFOSA		65	10-150
d5-EtFOSAA		106	25-150
d9-EtFOSE		88	10-150
d-MeFOSA		54	10-150
d3-MeFOSAA		102	25-150
d7-MeFOSE		92	10-150

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc. | Laboratory ID: XH08006-007
Description: Trip | Matrix: Aqueous
Date Sampled: 08/03/2022 | Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022 | Project Number: 20.0157080.00

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/31/2022 1601	ALM	08/29/2022 1015	52513

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	0.49	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	0.68	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	1.6	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.2	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	0.90	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	0.50	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.2	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	0.77	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.2	0.98	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	0.96	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.2	1.3	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.1	0.42	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	0.80	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	0.51	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	0.73	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	0.63	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.2	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.1	0.57	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	0.48	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.1	0.46	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.1	0.70	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	0.47	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.1	0.85	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.1	0.56	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	0.61	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	0.54	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	0.64	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.1	2.1	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS		96	25-150
13C2_6:2FTS	N	184	25-150
13C2_8:2FTS		99	25-150
13C2_PFDoA		100	25-150
13C2_PFTeDA		107	25-150
13C3_PFBS		103	25-150
13C3_PFHxS		106	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBA		109	25-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: GZA GeoEnvironmental, Inc.
Laboratory ID: XH08006-007
Description: Trip
Matrix: Aqueous
Date Sampled: 08/03/2022
Project Name: Oshkosh Corp-West Plant
Date Received: 08/05/2022
Project Number: 20.0157080.00

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C4_PFHpA		109	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		106	25-150
13C6_PFDA		97	25-150
13C7_PFUdA		101	25-150
13C8_PFOA		106	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		102	10-150
13C9_PFNA		105	25-150
d-EtFOSA		79	10-150
d5-EtFOSAA		106	25-150
d9-EtFOSE		93	10-150
d-MeFOSA		62	10-150
d3-MeFOSAA		102	25-150
d7-MeFOSE		96	10-150

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: XQ52513-001
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
9Cl-PF3ONS	ND		1	8.0	0.48	ng/L	08/31/2022 1222
11Cl-PF3OUdS	ND		1	8.0	0.66	ng/L	08/31/2022 1222
8:2 FTS	ND		1	8.0	1.6	ng/L	08/31/2022 1222
6:2 FTS	5.1	J	1	8.0	2.0	ng/L	08/31/2022 1222
4:2 FTS	ND		1	8.0	0.87	ng/L	08/31/2022 1222
GenX	ND		1	8.0	2.1	ng/L	08/31/2022 1222
ADONA	ND		1	8.0	0.48	ng/L	08/31/2022 1222
EtFOSA	ND		1	8.0	1.4	ng/L	08/31/2022 1222
EtFOSAA	ND		1	8.0	0.75	ng/L	08/31/2022 1222
EtFOSE	ND		1	8.0	0.95	ng/L	08/31/2022 1222
MeFOSA	ND		1	16	1.3	ng/L	08/31/2022 1222
MeFOSAA	ND		1	8.0	0.93	ng/L	08/31/2022 1222
MeFOSE	ND		1	8.0	1.3	ng/L	08/31/2022 1222
PFBS	ND		1	4.0	0.41	ng/L	08/31/2022 1222
PFDS	ND		1	4.0	0.78	ng/L	08/31/2022 1222
PFHpS	ND		1	4.0	0.50	ng/L	08/31/2022 1222
PFNS	ND		1	4.0	0.71	ng/L	08/31/2022 1222
PFOSA	ND		1	4.0	0.61	ng/L	08/31/2022 1222
PFPeS	ND		1	4.0	0.59	ng/L	08/31/2022 1222
PFDOS	ND		1	8.0	1.0	ng/L	08/31/2022 1222
PFHxS	ND		1	4.0	0.55	ng/L	08/31/2022 1222
PFBA	ND		1	4.0	0.60	ng/L	08/31/2022 1222
PFDA	ND		1	4.0	0.52	ng/L	08/31/2022 1222
PFDoA	ND		1	4.0	0.47	ng/L	08/31/2022 1222
PFHpA	ND		1	4.0	0.45	ng/L	08/31/2022 1222
PFHxA	ND		1	4.0	0.69	ng/L	08/31/2022 1222
PFNA	ND		1	4.0	0.46	ng/L	08/31/2022 1222
PFOA	ND		1	4.0	0.83	ng/L	08/31/2022 1222
PFPeA	ND		1	4.0	0.54	ng/L	08/31/2022 1222
PFTeDA	ND		1	4.0	0.60	ng/L	08/31/2022 1222
PFTrDA	ND		1	4.0	0.53	ng/L	08/31/2022 1222
PFUdA	ND		1	4.0	0.63	ng/L	08/31/2022 1222
PFOS	ND		1	4.0	2.0	ng/L	08/31/2022 1222

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		101	25-150
13C2_6:2FTS		122	25-150
13C2_8:2FTS		103	25-150
13C2_PFDoA		103	25-150
13C2_PFTeDA		104	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		104	25-150
13C3-HFPO-DA		105	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: XQ52513-001
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		109	25-150
13C4_PFHpA		106	25-150
13C5_PFHxA		104	25-150
13C5_PFPeA		107	25-150
13C6_PFDA		102	25-150
13C7_PFUdA		104	25-150
13C8_PFOA		109	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		102	10-150
13C9_PFNA		106	25-150
d-EtFOSA		76	10-150
d5-EtFOSAA		105	25-150
d9-EtFOSE		93	10-150
d-MeFOSA		67	10-150
d3-MeFOSAA		104	25-150
d7-MeFOSE		101	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ52513-002
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	15	15		1	98	50-150	08/31/2022 1233
11Cl-PF3OUdS	15	13		1	88	50-150	08/31/2022 1233
8:2 FTS	15	16		1	107	50-150	08/31/2022 1233
6:2 FTS	15	15		1	100	50-150	08/31/2022 1233
4:2 FTS	15	17		1	111	50-150	08/31/2022 1233
GenX	32	34		1	107	50-150	08/31/2022 1233
ADONA	15	14		1	92	50-150	08/31/2022 1233
EtFOSA	16	18		1	110	50-150	08/31/2022 1233
EtFOSAA	16	16		1	98	50-150	08/31/2022 1233
EtFOSE	16	19		1	119	50-150	08/31/2022 1233
MeFOSA	16	18		1	115	50-150	08/31/2022 1233
MeFOSAA	16	15		1	97	50-150	08/31/2022 1233
MeFOSE	16	15		1	92	50-150	08/31/2022 1233
PFBS	14	14		1	98	50-150	08/31/2022 1233
PFDS	15	14		1	90	50-150	08/31/2022 1233
PFHpS	15	15		1	99	50-150	08/31/2022 1233
PFNS	15	14		1	93	50-150	08/31/2022 1233
PFOSA	16	16		1	99	50-150	08/31/2022 1233
PFPeS	15	15		1	98	50-150	08/31/2022 1233
PFDOS	15	15		1	94	50-150	08/31/2022 1233
PFHxS	15	14		1	98	50-150	08/31/2022 1233
PFBA	16	16		1	101	50-150	08/31/2022 1233
PFDA	16	15		1	96	50-150	08/31/2022 1233
PFDoA	16	16		1	101	50-150	08/31/2022 1233
PFHpA	16	15		1	96	50-150	08/31/2022 1233
PFHxA	16	16		1	100	50-150	08/31/2022 1233
PFNA	16	15		1	95	50-150	08/31/2022 1233
PFOA	16	16		1	102	50-150	08/31/2022 1233
PFPeA	16	15		1	96	50-150	08/31/2022 1233
PFTeDA	16	16		1	100	50-150	08/31/2022 1233
PFTrDA	16	17		1	108	50-150	08/31/2022 1233
PFUdA	16	16		1	98	50-150	08/31/2022 1233
PFOS	15	15		1	102	50-150	08/31/2022 1233

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		92	25-150
13C2_6:2FTS		111	25-150
13C2_8:2FTS		98	25-150
13C2_PFDoA		101	25-150
13C2_PFTeDA		103	25-150
13C3_PFBS		101	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		101	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: XQ52513-002
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		104	25-150
13C4_PFHpA		109	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		105	25-150
13C6_PFDA		108	25-150
13C7_PFUdA		103	25-150
13C8_PFOA		105	25-150
13C8_PFOS		96	25-150
13C8_PFOSA		97	10-150
13C9_PFNA		103	25-150
d-EtFOSA		63	10-150
d5-EtFOSAA		103	25-150
d9-EtFOSE		93	10-150
d-MeFOSA		52	10-150
d3-MeFOSAA		99	25-150
d7-MeFOSE		96	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: XQ52513-003
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
9Cl-PF3ONS	15	14		1	95	2.7	50-150	30	08/31/2022 1244
11Cl-PF3OUdS	15	13		1	84	4.1	50-150	30	08/31/2022 1244
8:2 FTS	15	17		1	108	1.3	50-150	30	08/31/2022 1244
6:2 FTS	15	15		1	96	4.5	50-150	30	08/31/2022 1244
4:2 FTS	15	15		1	99	12	50-150	30	08/31/2022 1244
GenX	32	34		1	106	0.83	50-150	30	08/31/2022 1244
ADONA	15	14		1	92	0.24	50-150	30	08/31/2022 1244
EtFOSA	16	18		1	115	3.8	50-150	30	08/31/2022 1244
EtFOSAA	16	15		1	97	1.6	50-150	30	08/31/2022 1244
EtFOSE	16	21		1	128	7.8	50-150	30	08/31/2022 1244
MeFOSA	16	19		1	121	5.3	50-150	30	08/31/2022 1244
MeFOSAA	16	16		1	98	0.86	50-150	30	08/31/2022 1244
MeFOSE	16	15		1	94	1.6	50-150	30	08/31/2022 1244
PFBS	14	14		1	99	1.5	50-150	30	08/31/2022 1244
PFDS	15	15		1	98	7.9	50-150	30	08/31/2022 1244
PFHpS	15	15		1	102	2.5	50-150	30	08/31/2022 1244
PFNS	15	14		1	94	0.88	50-150	30	08/31/2022 1244
PFOSA	16	16		1	101	2.0	50-150	30	08/31/2022 1244
PFPeS	15	15		1	98	0.65	50-150	30	08/31/2022 1244
PFDOS	15	14		1	92	2.6	50-150	30	08/31/2022 1244
PFHxS	15	14		1	99	0.84	50-150	30	08/31/2022 1244
PFBA	16	16		1	102	0.30	50-150	30	08/31/2022 1244
PFDA	16	17		1	104	7.5	50-150	30	08/31/2022 1244
PFDoA	16	16		1	101	0.13	50-150	30	08/31/2022 1244
PFHpA	16	17		1	105	8.6	50-150	30	08/31/2022 1244
PFHxA	16	16		1	98	2.4	50-150	30	08/31/2022 1244
PFNA	16	16		1	97	2.2	50-150	30	08/31/2022 1244
PFOA	16	16		1	97	5.0	50-150	30	08/31/2022 1244
PFPeA	16	16		1	101	5.1	50-150	30	08/31/2022 1244
PFTeDA	16	16		1	101	1.3	50-150	30	08/31/2022 1244
PFTrDA	16	17		1	106	2.4	50-150	30	08/31/2022 1244
PFUdA	16	15		1	95	3.4	50-150	30	08/31/2022 1244
PFOS	15	15		1	100	2.3	50-150	30	08/31/2022 1244

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		99	25-150
13C2_6:2FTS		109	25-150
13C2_8:2FTS		97	25-150
13C2_PFDoA		97	25-150
13C2_PFTeDA		100	25-150
13C3_PFBS		99	25-150
13C3_PFHxS		103	25-150
13C3-HFPO-DA		99	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCSD

Sample ID: XQ52513-003
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		102	25-150
13C4_PFHpA		103	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		104	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		99	25-150
13C8_PFOA		104	25-150
13C8_PFOS		97	25-150
13C8_PFOSA		95	10-150
13C9_PFNA		102	25-150
d-EtFOSA		71	10-150
d5-EtFOSAA		100	25-150
d9-EtFOSE		88	10-150
d-MeFOSA		63	10-150
d3-MeFOSAA		99	25-150
d7-MeFOSE		99	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XH08006-001MS
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Parameter	Sample Amount (ng/L)	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
9Cl-PF3ONS	ND	13	12		1	91	50-150	08/31/2022 1423
11Cl-PF3OUdS	ND	13	11		1	84	50-150	08/31/2022 1423
8:2 FTS	ND	14	16		1	114	50-150	08/31/2022 1423
6:2 FTS	6400	13	6100	N	1	-2090	50-150	08/31/2022 1423
4:2 FTS	2.5	13	15		1	91	50-150	08/31/2022 1423
GenX	ND	28	31		1	109	50-150	08/31/2022 1423
ADONA	ND	13	13		1	94	50-150	08/31/2022 1423
EtFOSA	ND	14	17		1	119	50-150	08/31/2022 1423
EtFOSAA	ND	14	14		1	101	50-150	08/31/2022 1423
EtFOSE	ND	14	17		1	122	50-150	08/31/2022 1423
MeFOSA	ND	14	17		1	119	50-150	08/31/2022 1423
MeFOSAA	ND	14	13		1	93	50-150	08/31/2022 1423
MeFOSE	ND	14	14		1	96	50-150	08/31/2022 1423
PFBS	ND	13	20	N	1	158	50-150	08/31/2022 1423
PFDS	ND	14	12		1	89	50-150	08/31/2022 1423
PFHpS	ND	14	14		1	102	50-150	08/31/2022 1423
PFNS	ND	14	13		1	95	50-150	08/31/2022 1423
PFOSA	ND	14	14		1	96	50-150	08/31/2022 1423
PFPeS	4.6	13	19		1	109	50-150	08/31/2022 1423
PFDOS	ND	14	13		1	94	50-150	08/31/2022 1423
PFHxS	34	13	47		1	101	50-150	08/31/2022 1423
PFBA	850	14	860	N	1	38	50-150	08/31/2022 1423
PFDA	ND	14	14		1	101	50-150	08/31/2022 1423
PFDoA	ND	14	15		1	105	50-150	08/31/2022 1423
PFHpA	630	14	620	N	1	-35	50-150	08/31/2022 1423
PFHxA	1300	14	1400	N	1	222	50-150	08/31/2022 1423
PFNA	5.6	14	19		1	92	50-150	08/31/2022 1423
PFOA	38	14	51		1	90	50-150	08/31/2022 1423
PFPeA	2800	14	2800	N	1	165	50-150	08/31/2022 1423
PFTeDA	ND	14	14		1	101	50-150	08/31/2022 1423
PFTrDA	ND	14	15		1	108	50-150	08/31/2022 1423
PFUdA	ND	14	14		1	96	50-150	08/31/2022 1423
PFOS	9.9	13	23		1	99	50-150	08/31/2022 1423

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS	N	229	25-150
13C2_6:2FTS		139	25-150
13C2_8:2FTS		103	25-150
13C2_PFDoA		93	25-150
13C2_PFTeDA		99	25-150
13C3_PFBS		88	25-150
13C3_PFHxS		94	25-150
13C3-HFPO-DA		79	25-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MS

Sample ID: XH08006-001MS
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		40	25-150
13C4_PFHpA		96	25-150
13C5_PFHxA		70	25-150
13C5_PFPeA		41	25-150
13C6_PFDA		101	25-150
13C7_PFUdA		96	25-150
13C8_PFOA		103	25-150
13C8_PFOS		100	25-150
13C8_PFOSA		99	10-150
13C9_PFNA		105	25-150
d-EtFOSA		82	10-150
d5-EtFOSAA		97	25-150
d9-EtFOSE		89	10-150
d-MeFOSA		72	10-150
d3-MeFOSAA		100	25-150
d7-MeFOSE		93	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: XH08006-002DU
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Parameter	Sample Amount (ng/L)	Result (ng/L)	Q	Dil	% RPD	%RPD Limit	Analysis Date
9Cl-PF3ONS	ND	ND		1	0.00	20	08/31/2022 1444
11Cl-PF3OUdS	ND	ND		1	0.00	20	08/31/2022 1444
8:2 FTS	ND	ND		1	0.00	20	08/31/2022 1444
6:2 FTS	ND	ND		1	0.00	20	08/31/2022 1444
4:2 FTS	ND	ND		1	0.00	20	08/31/2022 1444
GenX	ND	ND		1	0.00	20	08/31/2022 1444
ADONA	ND	ND		1	0.00	20	08/31/2022 1444
EtFOSA	ND	ND		1	0.00	20	08/31/2022 1444
EtFOSAA	ND	ND		1	0.00	20	08/31/2022 1444
EtFOSE	ND	ND		1	0.00	20	08/31/2022 1444
MeFOSA	ND	ND		1	0.00	20	08/31/2022 1444
MeFOSAA	ND	ND		1	0.00	20	08/31/2022 1444
MeFOSE	ND	ND		1	0.00	20	08/31/2022 1444
PFBS	ND	ND		1	0.00	20	08/31/2022 1444
PFDS	ND	ND		1	0.00	20	08/31/2022 1444
PFHpS	ND	ND		1	0.00	20	08/31/2022 1444
PFNS	ND	ND		1	0.00	20	08/31/2022 1444
PFOSA	ND	ND		1	0.00	20	08/31/2022 1444
PFPeS	ND	ND		1	0.00	20	08/31/2022 1444
PFDOS	ND	ND		1	0.00	20	08/31/2022 1444
PFHxS	ND	ND		1	0.00	20	08/31/2022 1444
PFBA	ND	ND		1	0.00	20	08/31/2022 1444
PFDA	ND	ND		1	0.00	20	08/31/2022 1444
PFDoA	ND	ND		1	0.00	20	08/31/2022 1444
PFHpA	ND	ND		1	0.00	20	08/31/2022 1444
PFHxA	ND	ND		1	0.00	20	08/31/2022 1444
PFNA	ND	ND		1	0.00	20	08/31/2022 1444
PFOA	ND	ND		1	0.00	20	08/31/2022 1444
PFPeA	ND	ND		1	0.00	20	08/31/2022 1444
PFTeDA	ND	ND		1	0.00	20	08/31/2022 1444
PFTrDA	ND	ND		1	0.00	20	08/31/2022 1444
PFUdA	ND	ND		1	0.00	20	08/31/2022 1444
PFOS	ND	ND		1	0.00	20	08/31/2022 1444

Surrogate	Q	% Rec	Acceptance Limit
13C2_4:2FTS		110	25-150
13C2_6:2FTS		121	25-150
13C2_8:2FTS		108	25-150
13C2_PFDoA		107	25-150
13C2_PFTeDA		113	25-150
13C3_PFBS		111	25-150
13C3_PFHxS		113	25-150
13C3-HFPO-DA		108	25-150

LOQ = Limit of Quantitation
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* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - Duplicate

Sample ID: XH08006-002DU
Batch: 52513
Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 08/29/2022 1015

Surrogate	Q	% Rec	Acceptance Limit
13C4_PFBA		112	25-150
13C4_PFHpA		110	25-150
13C5_PFHxA		106	25-150
13C5_PFPeA		113	25-150
13C6_PFDA		111	25-150
13C7_PFUdA		110	25-150
13C8_PFOA		109	25-150
13C8_PFOS		103	25-150
13C8_PFOSA		109	10-150
13C9_PFNA		110	25-150
d-EtFOSA		84	10-150
d5-EtFOSAA		107	25-150
d9-EtFOSE		102	10-150
d-MeFOSA		68	10-150
d3-MeFOSAA		112	25-150
d7-MeFOSE		107	10-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody

and

Miscellaneous Documents

Pace Analytical®

PACE ANALYTICAL SERVICES, LLC
108 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 135644

Client: ZA GeoEnvironmental Inc.	Report to Contact: Kevin Hedinger	Telephone No. / E-mail: 262-424-1761 Kevin.Hedinger@gza.com	Quote No.
Address: 17975 W. Sarah Lane #100	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page 1 of 1
City: Brookfield / State: WI / Zip Code: 53045	Printed Name: Alex Amundson		XH08006
Project Name: Oshkosh Corp - Wautoma Lot			KES2
Project No.: 20.0157080.00	P.O. No.		Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Grab=G, Composite=C	Matrix: Aqueous	Solid	Other Aqueous	No. of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered	PFAS
WL-MW-1	8/3/22	1218	G	X			2							X
WL-MW-2	8/3/22	1129	G	X			2							X
WL-MW-3	8/3/22	1043	G	X			2							X
WL-MW-4	8/3/22	1052	G	X			2							X
~~WL-MW-5~~ WL-FB-1	8/3/22	1200	G	X			2							X
WL-EQ-1	8/3/22	1211	G	X			2							X
Trip	8/3/22	—	-	X			1							X

Turn Around Time Required (Prior lab approval required for expedited TAT.)	Sample Disposal	Possible Hazard Identification	QC Requirements (Specify)
☑ Standard ☐ Rush (Specify)	☐ Return to Client ☐ Disposal by Lab	☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	

	Date	Time		Date	Time
1. Relinquished by	8-4-22	1600	1. Received by: FedEx	8-4-22	1600
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by: FedEx	8/5/22	0720	4. Laboratory received by: Jennifer Yates (PACE)	8.5.22	0720

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle): (Yes) No Ice Pack — Receipt Temp: 2.9 °C — Temp Blank: ☑ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: GZA Cooler Inspected by/date: KSC / 08/03/2022 Lot #: XE08006

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☑ Yes	☑ No		1. Were custody seals present on the cooler?
☑ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

2.8/2.8 °C NA / NA °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☑ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☑ Yes	☐ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote # 25164

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA. ☐
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA.

Comments:

Qualtrax ID: 56360 Pace® Analytical Services, LLC Page 1 of 1