

Notification For Hazardous Substance Discharge (Non-Emergency Only)

Form 4400-225 (R 02/20)

Page 1 of 2

Emergency Discharges / Spills should be reported via the 24-Hour Hotline: 1-800-943-0003

Notice: Hazardous substance discharges must be reported immediately according to s. 292.11 Wis. Stats. Non-emergency hazardous substance discharges may be reported by telefaxing or e-mailing a completed report to the Department, or calling or visiting a Department office in person. If you choose to notify the Department by telefax or by email, you should use this form to be sure that all necessary information is included. However, use of this form is not mandatory. Under s. 292.99, Wis. Stats., the penalty for violating the reporting requirements of ch. 292 Wis. Stats., shall be no less than \$10 nor more than \$5000 for each violation. Each day of continued violation is a separate offense. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than program administration. However, information submitted on this form may also be made available to requesters under Wisconsin's Open Records Law (ss. 19.31 – 19.39, Wis. Stats.).

Confirmatory laboratory data should be included with this form, to assist the DNR in processing this Hazardous Substance Release Notification.

Complete this form. **TYPE or PRINT LEGIBLY.** NOTIFY appropriate DNR region (see next page) **IMMEDIATELY** upon discovery of a potential release from (**check one**):

- Underground Petroleum Storage Tank System (additional information may be required for Item 6 below)
- Aboveground Petroleum Storage Tank System
- Dry Cleaner Facility
- Other - Describe: AFFF discharge during vehicle equipment testing

ATTN DNR: **R & R Program Associate**

Date DNR Notified: 03/26/2021

1. Discharge Reported By

Name Kevin Hedinger	Firm GZAGeoEnvironmental, Inc.	Phone Number (include area code) (262) 754-2578
Mailing Address 17975 West Sarah Lane, Suite 100, Brookfield, WI 53045		Email kevin.hedinger@gza.com

2. Site Information

Name of site at which discharge occurred. Include local name of site/business, not responsible party name, unless a residence/vacant property.

Oshkosh Defense Waukau Lot

Location: Include street address, not PO Box. If no street address, describe as precisely as possible, i.e., 1/4 mile NW of CTHs 60 & 123 on E side of CTH 60.

359 West Waukau Avenue

Municipality: (City, Village, Township) Specify municipality in which the site is located, not mailing address/city.

Oshkosh

County Winnebago	Legal Description: NE ¼ of NE ¼ Section 2, Town 17 N, Range 16 <input checked="" type="radio"/> E <input type="radio"/> W	WTM: X 636656 Y 390517
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3. Responsible Party (RP) and/or RP Representative

Responsible Party Name: Business or owner name that is responsible for cleanup. If more than one, list all. Attach additional pages as necessary.

Oshkosh Defense LLC

A local governmental unit claiming an exemption from state Spill Law and Solid Waste Management responsibilities for the discharge being reported, per Wis. Stat. §§ 292.11(9)(e) and 292.23, should: 1) check this box; 2) review [DNR publication RR-055](#); and 3) provide documentation to DNR that demonstrates compliance with the statutory requirements of the liability exemptions. Local governmental units may also request a fee-based liability clarification letter from DNR by using [DNR Form 4400-237](#).

Contact Person Name (if different) Kevin Tubbs	Phone Number (920) 502-3043	Email ktubbs@oshkoshcorp.com		
Mailing Address 1917 Four Wheel Drive		City Oshkosh	State WI	ZIP Code 54902

Responsible Party Name: Business or owner name that is responsible for cleanup. If more than one, list all. Attach additional pages as necessary.

Oshkosh Defense LLC

Contact Person Name (if different) Kevin Tubbs	Phone Number (920) 502-3043	Email ktubbs@oshkoshcorp.com		
Mailing Address 1917 Four Wheel Drive		City Oshkosh	State WI	ZIP Code 54902

(continued)

Notification For Hazardous Substance Discharge (Non-Emergency Only)

4. Hazardous Substance Information

Identify hazardous substance discharged (check all that apply):

- | | | |
|---|--|---|
| <input type="checkbox"/> VOCs
<input type="checkbox"/> PCE
<input type="checkbox"/> TCE
<input type="checkbox"/> Other Chlorinated
<input type="checkbox"/> Diesel
<input type="checkbox"/> Fuel Oil
<input type="checkbox"/> Gasoline
<input type="checkbox"/> Hydraulic Oil
<input type="checkbox"/> Jet Fuel | <i>(VOCs continued)</i>
<input type="checkbox"/> Mineral Oil
<input type="checkbox"/> Waste Oil
<input type="checkbox"/> Petroleum-Unknown Type
<input type="checkbox"/> PAHs
<input type="checkbox"/> PCBs
<input type="checkbox"/> Cyanide
<input type="checkbox"/> Leachate
<input type="checkbox"/> Manure | <input type="checkbox"/> Metals
<input type="checkbox"/> Arsenic
<input type="checkbox"/> Chromium
<input type="checkbox"/> Lead
<input type="checkbox"/> Other: _____
<input type="checkbox"/> Pesticides: _____
<input type="checkbox"/> Fertilizer: _____
<input type="checkbox"/> RCRA Hazardous Waste: _____
<input checked="" type="checkbox"/> Other: Perfluoralkyl Substances
<input type="checkbox"/> Unknown |
|---|--|---|

5. Impacts to the Environment Information

Enter "K" for known/confirmed or "P" for potential for all that apply.

- | | | |
|--|---|--|
| <input type="checkbox"/> Air Contamination | <input type="checkbox"/> Fire Explosion Threat | <input type="checkbox"/> Soil Contamination |
| <input type="checkbox"/> Co-mingled (Petroleum & Non-Petroleum) | <input type="checkbox"/> Free Product | <input type="checkbox"/> Soil Gas Contamination |
| <input type="checkbox"/> Contamination in Fractured Bedrock | <input type="checkbox"/> Groundwater Contamination | <input type="checkbox"/> Sub-slab Vapor Contamination |
| <input type="checkbox"/> Contamination Within 1 Meter of Bedrock | <input type="checkbox"/> Off-Site Contamination | <input type="checkbox"/> Surface Water Contamination |
| <input type="checkbox"/> Contaminated Private Well | <input type="checkbox"/> Sanitary Sewer Contamination | <input type="checkbox"/> Within 100 ft of Private Well |
| <input type="checkbox"/> Contaminated Public Well | <input type="checkbox"/> Storm Sewer Contamination | <input type="checkbox"/> Within 1000 ft of Public Well |
| <input type="checkbox"/> Contamination in Right of Way | <input type="checkbox"/> Sediment Contamination | |

Other (specify): Discharge of AFFF to asphalt lot during vehicle testing

Contamination was discovered as a result of:

- | | | |
|--|---|--|
| <input type="checkbox"/> Tank closure assessment | <input checked="" type="checkbox"/> Site assessment | <input type="checkbox"/> Other - Describe: _____ |
| Date <input type="text"/> | Date <input type="text" value="11/06/2020"/> | Date <input type="text"/> |

Lab results: Lab results will be faxed upon receipt Lab results are attached

Additional Comments: Include a brief description of immediate actions taken to halt the release and contain or cleanup hazardous substances that have been discharged.

The vehicle testing conducted by Oshkosh Defense in this parking lot was discontinued in 2019. During the testing, the AFFF was discharged to the asphalt parking lot and the AFFF was collected by a dam at the discharge location from the asphalt parking lot and removed using a vacuum truck. The recovered AFFF liquid was transported off-site for disposal.

6. Federal Energy Act Requirements (Section 9002(d) of the Solid Waste Disposal Act (SWDA))

For all confirmed releases from USTs occurring after 9/30/2007 please provide the following information:

- | <u>Source</u> | <u>Cause</u> |
|---|--|
| <input type="checkbox"/> Tank | <input type="checkbox"/> Spill |
| <input type="checkbox"/> Piping | <input type="checkbox"/> Overfill |
| <input type="checkbox"/> Dispenser | <input type="checkbox"/> Corrosion |
| <input type="checkbox"/> Submersible Turbine Pump | <input type="checkbox"/> Physical or Mechanical Damage |
| <input type="checkbox"/> Delivery Problem | <input type="checkbox"/> Installation Problem |
| | <input type="checkbox"/> Other (does not fit any of above) |
| <input checked="" type="checkbox"/> Does not apply. | <input type="checkbox"/> Unknown |
| <input type="checkbox"/> Other (specify): _____ | |

Submit this completed form along with any associate lab results using the RR Program Submittal Portal, found on the DNR website at <https://dnr.wi.gov/topic/Brownfields/Submittal.html>.

If you have any questions, please contact the appropriate regional Environmental Program Associate (EPA) listed under the "EPAs" tab at <https://dnr.wi.gov/topic/Brownfields/Contact.html>.



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SITE INVESTIGATION REPORT

Waukau Lot Site

359 West Waukau Avenue

Oshkosh, Wisconsin

March 29, 2021

File No. 20.0157080.00

PREPARED FOR:

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

GZA GeoEnvironmental, Inc.

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March 29, 2021
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: Site Investigation Report
Waukau Lot Site
359 West Waukau Avenue
Oshkosh, Wisconsin


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 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 information contained in this report is consistent with the meeting held on Friday, March 19, 2021, between the Wisconsin Department of Natural Resources (WDNR), Oshkosh, and Godfrey and Kahn, S.C.

Based on the findings of this work, Oshkosh is requesting concurrence from the WDNR that a No Action Required determination is appropriate for the Waukau Lot Site. 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

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Attachments

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



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TABLE 1	SUMMARY OF SOIL ANALYTICAL RESULTS - PFAS
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FIGURES

FIGURE 1	SITE LOCATION
FIGURE 2	SURFACE DRAINAGE
FIGURE 3	SITE PLAN WITH SOIL BORING LOCATIONS
FIGURE 4	PFAS DETECTED IN SOIL

APPENDICES

APPENDIX A	LIMITATIONS
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APPENDIX C	WDNR SOIL BORING LOGS AND ABANDONMENT FORMS
APPENDIX D	SOIL LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION



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 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 for the presence of per- and polyfluoroalkyl substances (PFAS) at the Site. A release notification is being submitted to the Wisconsin Department of Natural Resources (WDNR) for this Site with this report. Based on the outcome of the work presented herein, Oshkosh is requesting a No Action Required determination from the WDNR for 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 covers an area of approximately 32.2 acres and is identified by Parcel ID No. 1413610000 in the City of Oshkosh Parcel Viewer. 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 southern 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 near the southeast corner, 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 an unnamed, intermittent creek located east of the Site. An approximately 4- to 6-foot-high berm separates the drainage ditch from the unnamed creek. The unnamed creek begins approximately 1 mile south 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 unnamed creek 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 documented 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 and to request a No Action Required determination from the WDNR in accordance with NR 716.05 (2)(a). This report is also subject to the Limitations provided in Appendix A.

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.

PFAS are a complex class of fluorinated compounds developed in the 1950s, and used in manufacturing processes and commercially available products, including AFFF. Until approximately 2000, the PFAS compounds, most commonly perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA), were manufactured to contain carbon chain lengths with eight completely fluorinated carbons. The strength of the carbon-fluorine bond enables PFOS, PFOA, and



other PFAS to persist in the environment, and the bioaccumulating nature of these compounds within humans and other organisms enhance their toxicity.

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 United States Environmental Protection Agency (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.¹

The testing performed at the Waukau Lot is fairly well 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.

3.0 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.² 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 Ordovician Sinnipee Group. The bedrock is generally encountered less than 40 feet below ground surface (bgs) in this portion of the County.³

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.

¹ Interstate Technology & Regulatory Council, History and Use of Per-and Polyfluoroalkyl Substances (PFAS), April 2020.

² 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.

³ 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.



4.0 INVESTIGATION ACTIVITIES AND METHODS

Based on the potential releases due to discharge of AFFF containing PFAS during testing, GZA performed Site investigation activities and sampling to evaluate soil conditions at the Site and identify the distribution of PFAS in unsaturated soils in the area most likely to be affected. This area was considered to be the testing area.

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 3. 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.

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 9 feet bgs underlain by brown, fine to medium sand to a depth of 8 to 10 feet bgs. In boring B-6, which was advanced to 15 feet, the sand is underlain by 2 to 3 feet of silt over red/brown clay.

Groundwater was visually observed to be present in the sand layer; 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, 6 to 7 feet bgs, closely coincides to the approximate elevation of the intermittent creek east of the Site, likely accounting for seasonal groundwater discharge to the creek depending on groundwater elevation. The sand layer appeared to be laterally continuous across the area in which borings were advanced. Bedrock was not encountered in any of the soil borings advanced during the investigation and the soil observations did not appear to indicate the presence of weathered bedrock in the borings. 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.

5.2 SOIL ANALYTICAL RESULTS

A total of 15 soil samples were analyzed for the Wisconsin list of 36 PFAS compounds. The only PFAS compounds with proposed residual contaminant levels (RCLs) are PFOS and PFOA for industrial and non-industrial direct contact exposure. The soil sample analytical results for the Site, however, indicate that the only constituents detected above the method detection limit include 1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS), Perfluorohexanoic acid (PFHxA), and Perfluoropentanoic acid (PFPeA). Presently, 6:2 FTS and PFPeA do not have soil or groundwater standards for comparison purposes due to limited health information and PFHxA has proposed groundwater quality standards in WDNR Cycle 11



rulemaking, but there are currently no soil standards for comparison. The concentrations detected in the soil samples are notably close to the method detection limits. A summary of the soil analytical results is presented on Table 1 and the laboratory analytical report is provided in Appendix D. Figure 4 shows the distribution of PFAS compounds detected above the laboratory method detection limit in soil samples. Also note that because of the limited detections of PFAS in the shallower soil samples analyzed, the deeper samples retained during field sampling, as shown on the chain-of-custody form, did not require analysis.

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.⁴

The presence of 6:2 FTS confirms that the AFFF substances that were used during the testing performed in the Waukau Lot likely did not contain the long-chain PFAS compounds, the periodic nature of the discharge did not result in impairment of the environment, and the management practice employed to contain the AFFF effectively reduced the potential for migration of the AFFF constituents off of the asphalt lot area. PFOS and PFOA were not reported in any of the samples above the method detection limit reported by the laboratory.

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 a total of 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, is believed to contain the short-chain PFAS or be fluorine free. Currently, the short-chain PFAS do not have proposed Chapter NR 140 Enforcement Standards (ESs) due to the lower toxicity.
- A total of 10 soil borings were advanced to depths up to 15 feet bgs within the immediate area where AFFF discharges were managed by Oshkosh, from which 15 soil samples were submitted to Pace to identify the potential presence of up to 36 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

⁴ National Association for Surface Finishing, 6:2 Fluorotelomer Sulfonate (6:2 FTS), Toxicology at a Glance, March 2019.



approximately 7 to 8 feet bgs. A sand layer, approximately 1 to 2 feet thick, which may represent patchy lake sediment, was encountered beneath the clay. In the boring advanced to 15 feet bgs, beneath the sand was a thin silt layer 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 6 to 7 feet bgs. The underlying sand layer appears to be continuous throughout the borings advanced on the Site. Note that the low hydraulic conductivity of the clay soils likely limits the hydraulic connection of the groundwater to the unnamed creek to the east.
- To provide perspective on possible regulatory thresholds for PFAS, the soil-to-groundwater RCL for PFOS and PFOA was calculated using the WDNR guidance and was established relative to the proposed ES of 20 nanograms per liter (ng/L) (0.02 micrograms per liter [$\mu\text{g/L}$]) for combined PFOA and PFOS. However, PFOS and PFOA were not detected in any of the soil samples collected to evaluate the Site.
- The only constituents detected at concentrations exceeding the method detection limit were 6:2 FTS, PFHxA, and PFPeA. These constituents do not currently have regulatory standards from which to calculate or estimate RCLs.

In GZA's opinion, the absence of long-chain PFAS (PFOS and PFOA) at the Site and the limited presence of shorter chain PFAS (6:2 FTS) support our understanding that Oshkosh employed more recent short-chain AFFF, or PFAS-free, formulations that eliminated long-chain PFAS in its mobile ARFF testing activities at the Site. Note that PFHxA and PFPeA, which were also detected, are potential degradation products of 6:2 FTS.

Given the limited and sporadic nature of PFAS detections in the majority of soil samples, GZA concludes that the periodic nature of the vehicle testing and the best management practices employed by Oshkosh personnel to contain and collect its AFFF discharges on the asphalt lot were effective in reducing the potential migration of PFAS compounds off of the asphalt lot and preventing a large-scale release of compounds as a result of its testing activities. Furthermore, the vehicle testing activities in this area have been discontinued, eliminating the potential for future PFAS discharges.

Although the investigation has detected very low-level PFAS in soil, the area is covered by the asphalt lot, which promotes surface water runoff and limits surface infiltration into the subsurface. The limited detection of PFAS in the soils underlying the asphalt lot and at the drainage ditch leaving the asphalt is strong evidence that the vehicle testing has not resulted in a material release to the environment. Based on these findings, in GZA's opinion, no further investigation is warranted. On behalf of Oshkosh, GZA requests the WDNR's concurrence with these conclusions through the issuance of a No Action Required determination for the Waukau Lot in accordance with NR716.05(2)(a).

7.0 CERTIFICATIONS

"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

March 29, 2021
Date



TABLES

**TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS - PFAS**

Waukau Lot
Oshkosh, Wisconsin

Location		Wisconsin Non-Industrial Direct Contact RCL ² (µg/kg)	Wisconsin Industrial Direct Contact RCL ² (µg/kg)	Soil-to-Groundwater Pathway RCL (µg/kg)	WL B-1	WL B-2	WL B-3		WL B-4	
Sample Name	Laboratory Sample ID				Sample Date	WL B-1 (1-2')	WL B-2 (1-2')	WL B-3 (1-2')	WL B-3 (6-7')	WL B-4 (1-2')
Parameter (µg/kg)	CAS Number				VK08048-016 11/6/2020	VK08048-014 11/6/2020	VK08048-011 11/6/2020	VK08048-012 11/6/2020	VK08048-009 11/6/2020	VK08048-010 11/6/2020
11-Chloroeicosfluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NA	NA	NA	7.5	< 2.4	2.5	4.2	2.8	< 2.2
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-IP)	13252-13-6	NA	NA	NA	< 4.2	< 4.7	< 4.2	< 4.8	< 4.0	< 4.4
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NETFOSAA)	2991-50-6	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NA	NA	NA	< 2.1	< 2.4	< 2.1	< 2.4	< 2.0	< 2.2
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorobutanoic Acid (PFBA)	375-22-4	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorodecanoic Acid (PFDA)	335-76-2	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorododecanoic Acid (PFDoA)	307-55-1	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluoroheptanesulfonic Acid (PFHPS)	375-92-8	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorohexanoic Acid (PFHxA)	307-24-4	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorononanoic Acid (PFNA)	375-95-1	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorooctanesulfonamide (FOSA)	754-91-6	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1,260	16,400	0.038	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorooctanoic Acid (PFOA)	335-67-1	1,260	16,400	0.006	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
PFOS + PFOA (Calculated)	PFOS+PFOA	1,260	16,400	NA	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NA	NA	NA	< 1.0	< 1.2	< 1.0	1.6	< 1.0	< 1.1
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NA	NA	NA	< 1.0	< 1.2	< 1.0	< 1.2	< 1.0	< 1.1

Notes:

1. The Soil-to-Groundwater Pathway RCL was calculated using the United States Environmental Protection Agency (USEPA) Regional Screening Level Web Calculator, https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search, and the Wisconsin Department of Natural Resources (WDNR) Soil Residual Contaminant Level Determinations document, Pub-RR-890.
2. Results are presented in micrograms per kilogram (µg/kg).
3. **Bold** indicates that the parameter was detected above the method detection limit, but less than the Wisconsin non-industrial direct contact criteria listed.
4. "NA" indicates there is no standard for that parameter and "ND" indicates the parameters used in the calculation were not detected.

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS - PFAS

Waukau Lot
Oshkosh, Wisconsin

Location		Wisconsin Non-Industrial Direct Contact RCL ² (µg/kg)	Wisconsin Industrial Direct Contact RCL ² (µg/kg)	Soil-to-Groundwater Pathway RCL (µg/kg)	WL B-5	WL B-6		WL B-7	WL B-8	
Sample Name	Laboratory Sample ID				Sample Date	WL B-5 (1-2')	WL B-6 (1-2')	WL B-6 (4-5)	WL B-7 (1-2')	WL B-8 (1-2')
Parameter (µg/kg)	CAS Number				VK08048-013 11/6/2020	VK08048-007 11/6/2020	VK08048-008 11/6/2020	VK08048-018 11/6/2020	VK08048-005 11/6/2020	VK08048-006 11/6/2020
11-Chloroeicosfluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	763051-92-9	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NA	NA	NA	< 2.2	2.0	< 2.0	< 1.9	< 2.2	< 2.2
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-IP)	13252-13-6	NA	NA	NA	< 4.5	< 4.0	< 4.0	< 3.9	< 4.4	< 4.5
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NETFOSAA)	2991-50-6	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NA	NA	NA	< 2.2	< 2.0	< 2.0	< 1.9	< 2.2	< 2.2
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorobutanoic Acid (PFBA)	375-22-4	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorodecanoic Acid (PFDA)	335-76-2	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorododecanoic Acid (PFDoA)	307-55-1	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluoroheptanesulfonic Acid (PFHPS)	375-92-8	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorohexanoic Acid (PFHxA)	307-24-4	NA	NA	NA	1.2	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorononanoic Acid (PFNA)	375-95-1	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorooctanesulfonamide (FOSA)	754-91-6	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1,260	16,400	0.038	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorooctanoic Acid (PFOA)	335-67-1	1,260	16,400	0.006	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
PFOS + PFOA (Calculated)	PFOS+PFOA	1,260	16,400	NA	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NA	NA	NA	2.3	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NA	NA	NA	< 1.1	< 0.99	< 1.0	< 0.97	< 1.1	< 1.1

Notes:

1. The Soil-to-Groundwater Pathway RCL was calculated using the United States Environmental Protection Agency (USEPA) Regional Screening Level Web Calculator, https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search, and the Wisconsin Department of Natural Resources (WDNR) Soil Residual Contaminant Level Determinations document, Pub-RR-890.
2. Results are presented in micrograms per kilogram (µg/kg).
3. **Bold** indicates that the parameter was detected above the method detection limit, but less than the Wisconsin non-industrial direct contact criteria listed.
4. "NA" indicates there is no standard for that parameter and "ND" indicates the parameters used in the calculation were not detected.

**TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS - PFAS**

Waukau Lot
Oshkosh, Wisconsin

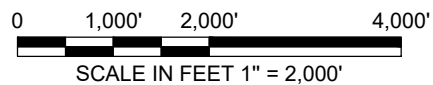
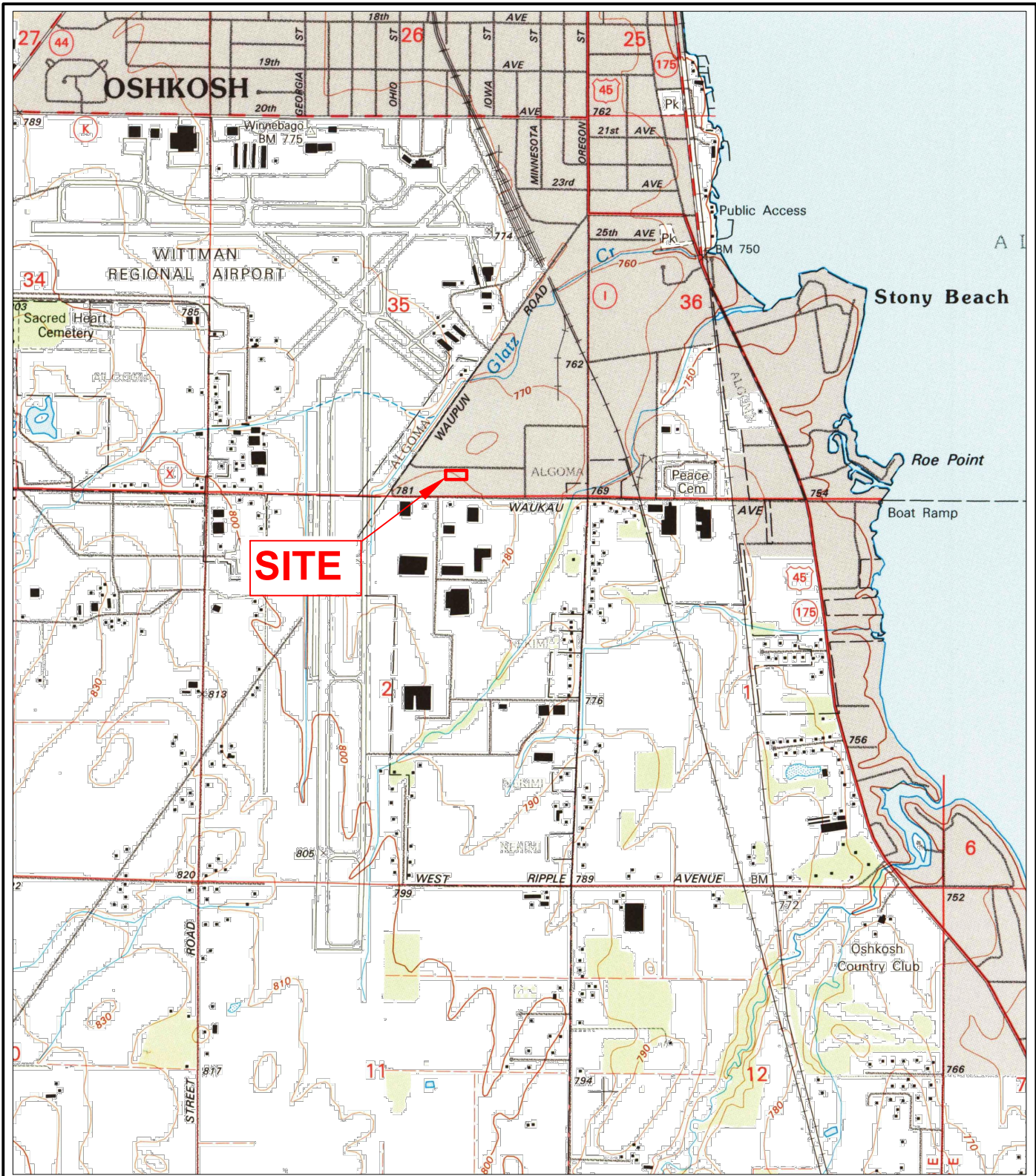
Location		Wisconsin Non-Industrial Direct Contact RCL ² (µg/kg)	Wisconsin Industrial Direct Contact RCL ² (µg/kg)	Soil-to-Groundwater Pathway RCL (µg/kg)	WL B-9	WL B-10	
Sample Name	Sample Date				WL B-9 (1-2')	WL B-10 (1-2')	WL B-10 (4-5')
Laboratory Sample ID					VK08048-019	VK08048-003	VK08048-004
					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	NA	NA	NA	< 2.2	< 2.5	< 1.9
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	NA	NA	NA	< 2.2	< 2.5	< 1.9
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	39108-34-4	NA	NA	NA	< 2.2	< 2.5	< 1.9
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	757124-72-4	NA	NA	NA	< 2.2	< 2.5	< 1.9
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-IP)	13252-13-6	NA	NA	NA	< 4.4	< 5.1	< 3.8
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	919005-14-4	NA	NA	NA	< 2.2	< 2.5	< 1.9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	756426-58-1	NA	NA	NA	< 2.2	< 2.5	< 1.9
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NETFOSAA)	2991-50-6	NA	NA	NA	< 2.2	< 2.5	< 1.9
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NA	NA	NA	< 2.2	< 2.5	< 1.9
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorobutanoic Acid (PFBA)	375-22-4	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorodecanoic Acid (PFDA)	335-76-2	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorododecanoic Acid (PFDoA)	307-55-1	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluoroheptanesulfonic Acid (PFHPS)	375-92-8	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluoroheptanoic Acid (PFHpA)	375-85-9	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorohexanoic Acid (PFHxA)	307-24-4	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluoronanesulfonic Acid (PFNS)	68259-12-1	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorononanoic Acid (PFNA)	375-95-1	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorooctanesulfonamide (FOSA)	754-91-6	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	1,260	16,400	0.038	< 1.1	< 1.3	< 0.94
Perfluorooctanoic Acid (PFOA)	335-67-1	1,260	16,400	0.006	< 1.1	< 1.3	< 0.94
PFOS + PFOA (Calculated)	PFOS+PFOA	1,260	16,400	NA	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	2706-91-4	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NA	NA	NA	1.8	< 1.3	< 0.94
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NA	NA	NA	< 1.1	< 1.3	< 0.94
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NA	NA	NA	< 1.1	< 1.3	< 0.94

Notes:

1. The Soil-to-Groundwater Pathway RCL was calculated using the United States Environmental Protection Agency (USEPA) Regional Screening Level Web Calculator, https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search, and the Wisconsin Department of Natural Resources (WDNR) Soil Residual Contaminant Level Determinations document, Pub-RR-890.
2. Results are presented in micrograms per kilogram (µg/kg).
3. **Bold** indicates that the parameter was detected above the method detection limit, but less than the Wisconsin non-industrial direct contact criteria listed.
4. "NA" indicates there is no standard for that parameter and "ND" indicates the parameters used in the calculation were not detected.



FIGURES



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**OSHKOSH CORPORATION
WAUKAU LOT
OSHKOSH, WISCONSIN**

NO.	ISSUE/DESCRIPTION	BY	DATE

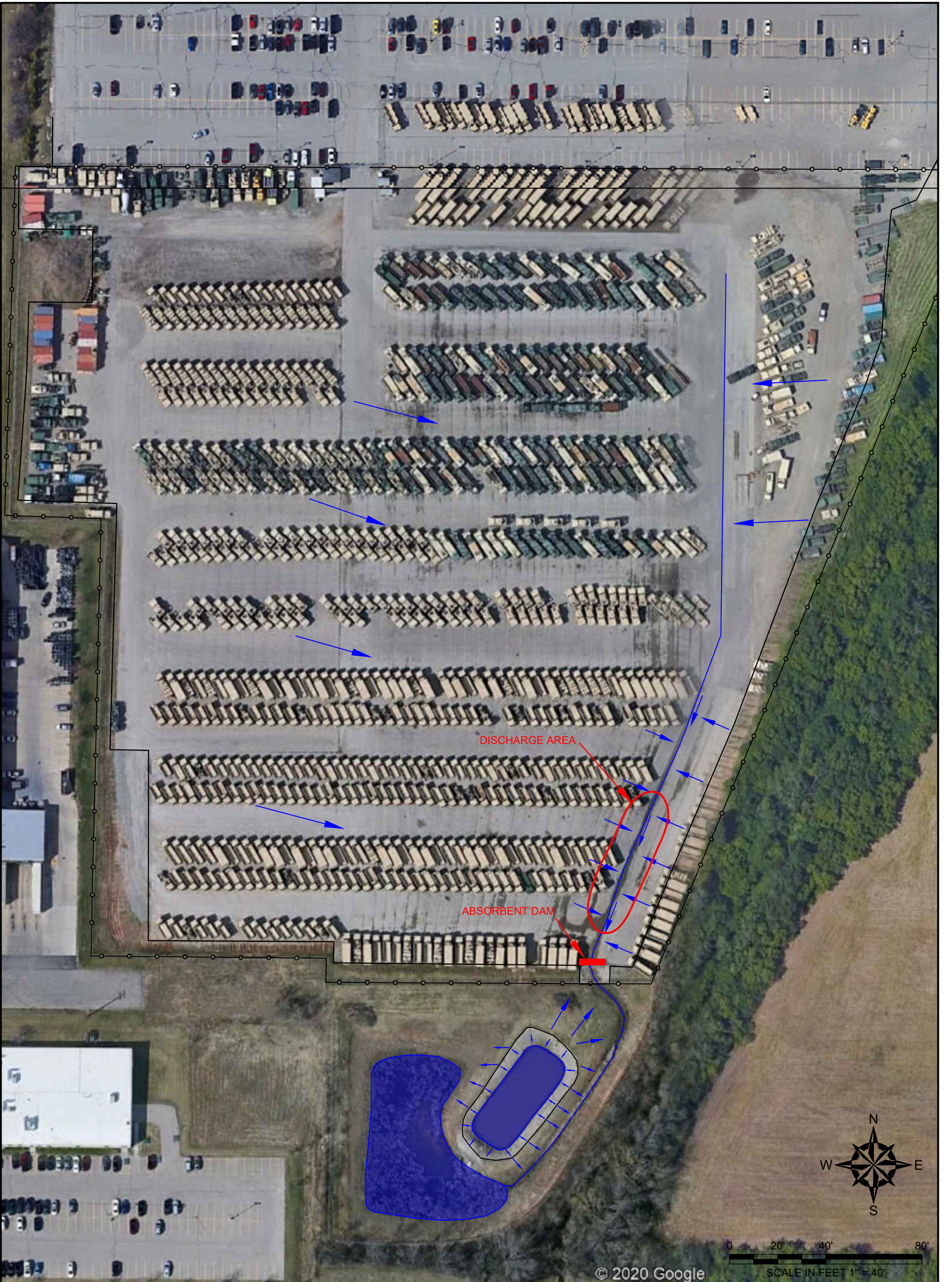
PREPARED BY: **GZA** GeoEnvironmental, Inc. Engineers and Scientists www.gza.com

PREPARED FOR: **OSHKOSH CORPORATION
OSHKOSH, WISCONSIN**

SITE LOCATION

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

©2020 - GZA GeoEnvironmental, Inc. GZA-J:\157000T0157099\157080 OSHKOSH\REPORT\SITE INVESTIGATION REPORT - WAUKAU LOT\FIGURES\CAD\SITE PLAN.DWG F2--SURFACE DRAINAGE DECEMBER 29, 2020 KEVIN HEDINGER



NO.	ISSUE/DESCRIPTION	BY	DATE

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

**OSHKOSH CORPORATION
WAUKAU LOT**

SURFACE DRAINAGE

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: OSHKOSH CORPORATION OSHKOSH, WISCONSIN	
PROJ MGR: KMH	REVIEWED BY: JO	CHECKED BY: JO	FIGURE 2 SHEET NO.
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: 1"=40'	
DATE: JANUARY 2021	PROJECT NO: 20.0157080.00	REVISION NO.	

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NO.	ISSUE/DESCRIPTION	BY	DATE

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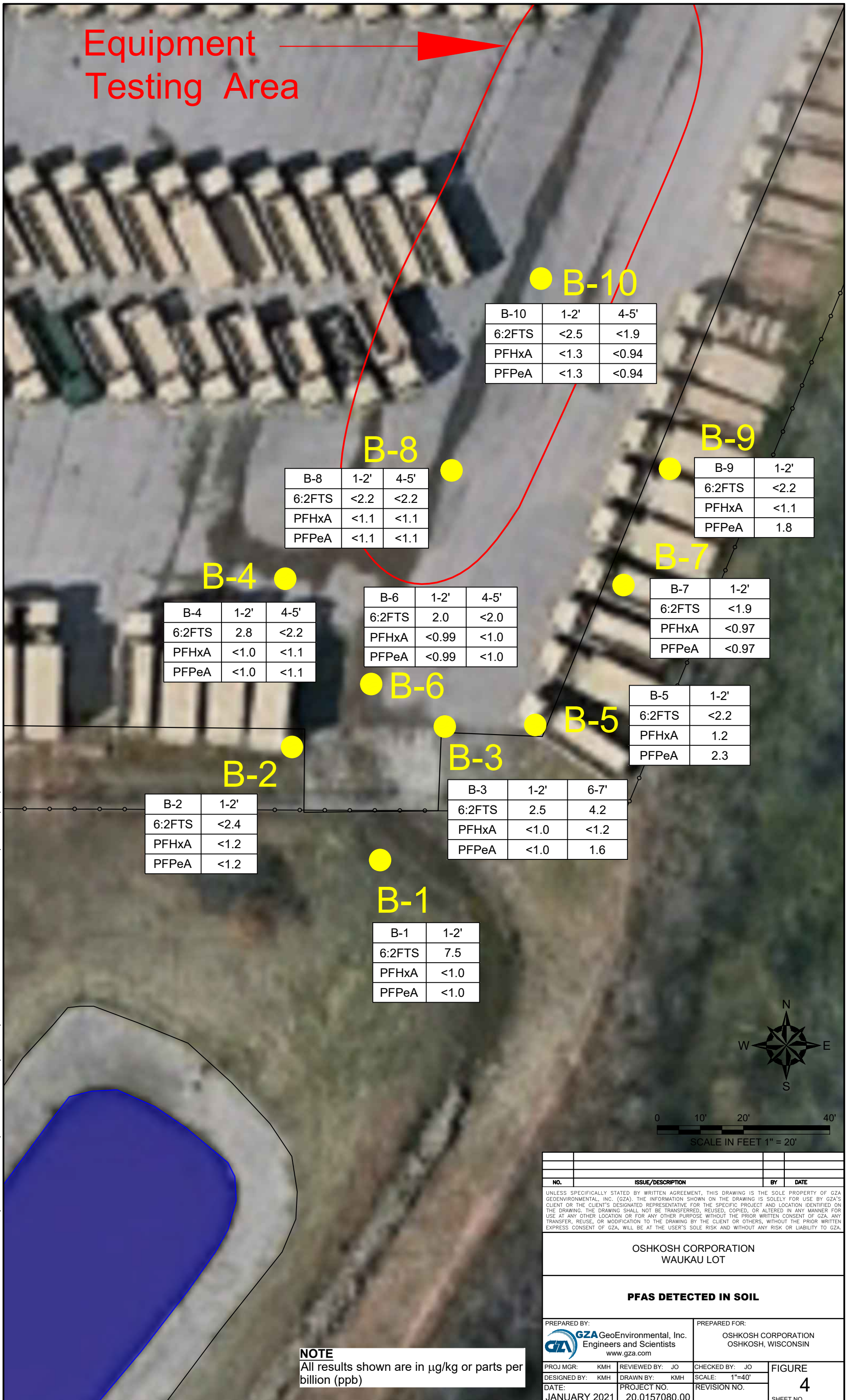
**OSHKOSH CORPORATION
WAUKAU LOT**

SITE PLAN WITH SOIL BORING LOCATIONS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: OSHKOSH CORPORATION OSHKOSH, WISCONSIN	
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Equipment Testing Area

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B-10	1-2'	4-5'
6:2FTS	<2.5	<1.9
PFHxA	<1.3	<0.94
PFPeA	<1.3	<0.94

B-8	1-2'	4-5'
6:2FTS	<2.2	<2.2
PFHxA	<1.1	<1.1
PFPeA	<1.1	<1.1

B-9	1-2'
6:2FTS	<2.2
PFHxA	<1.1
PFPeA	1.8

B-4	1-2'	4-5'
6:2FTS	2.8	<2.2
PFHxA	<1.0	<1.1
PFPeA	<1.0	<1.1

B-6	1-2'	4-5'
6:2FTS	2.0	<2.0
PFHxA	<0.99	<1.0
PFPeA	<0.99	<1.0

B-7	1-2'
6:2FTS	<1.9
PFHxA	<0.97
PFPeA	<0.97

B-5	1-2'
6:2FTS	<2.2
PFHxA	1.2
PFPeA	2.3

B-2	1-2'
6:2FTS	<2.4
PFHxA	<1.2
PFPeA	<1.2

B-3	1-2'	6-7'
6:2FTS	2.5	4.2
PFHxA	<1.0	<1.2
PFPeA	<1.0	1.6

B-1	1-2'
6:2FTS	7.5
PFHxA	<1.0
PFPeA	<1.0



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**OSHKOSH CORPORATION
WAUKAU LOT**

PFAS DETECTED IN SOIL

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: OSHKOSH CORPORATION OSHKOSH, WISCONSIN
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PROJ MGR: KMH	REVIEWED BY: JO	CHECKED BY: JO	FIGURE 4 SHEET NO.
DESIGNED BY: KMH	DRAWN BY: KMH	SCALE: 1"=40'	
DATE: JANUARY 2021	PROJECT NO. 20.0157080.00	REVISION NO.	

NOTE
All results shown are in µg/kg or parts per billion (ppb)



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



Product code 416493

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Concentrate

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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
Caprylcaprylyl 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.



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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



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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	Color	Light yellow
Odor	Characteristic		
Odor Threshold	No data available		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
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	



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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



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 Concentrate

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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



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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

<u>DOT</u>	NOT REGULATED
<u>TDG</u>	NOT REGULATED
<u>MEX</u>	NOT REGULATED
<u>ICAO (air)</u>	NOT REGULATED
<u>IATA</u>	NOT REGULATED
<u>IMDG</u>	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



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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-azoni a 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



Product code 416493

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<u>NFPA</u>	Health Hazards 3	Flammability 1	Instability 0	Physical and chemical properties -
<u>HMIS</u>	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, diethylene 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: C₄H₉O(CH₂CH₂O)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) LD₅₀ 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 macrochirus: 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
BOD₅ = 250 mg O₂/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/m³

Short term exposure limit value
(8 times, 5 minutes): 200mg/m³

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

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

<u>Chemical Name</u>	<u>Weight %*</u>	<u>CAS #</u>
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.

SAFETY DATA SHEET

BUCKEYE PLATINUM 3% AFFF

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: 97° C

Flash Point: N/A

Flammability: N/A

Solubility: 100%

SAFETY DATA SHEET
BUCKEYE PLATINUM 3% AFFF

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.

Degradability: 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

<u>Country</u>	<u>Agency</u>
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

SAFETY DATA SHEET

BUCKEYE PLATINUM 3% AFFF

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

<u>Chemical Name</u>	<u>Weight %*</u>	<u>CAS #</u>
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.

SAFETY DATA SHEET

IDENTITY- BUCKEYE 3% MIL SPEC AFFF

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: 97° C

Flash Point: N/A

Flammability: N/A

Solubility: 100%

SAFETY DATA SHEET
IDENTITY- BUCKEYE 3% MIL SPEC AFFF

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.

Degradability: 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

<u>Country</u>	<u>Agency</u>
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

SAFETY DATA SHEET
IDENTITY- BUCKEYE 3% MIL SPEC AFFF

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 AND ABANDONMENT FORMS

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B1	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 770.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Local Grid Location			
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Lat 724281	<input checked="" type="checkbox"/> N <input type="checkbox"/> E		
NE 1/4 of NE 1/4 of Section 2 , T 17 , R 16			Long 2351402	Feet <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
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.

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

Signature S. Stephenson	Firm GZA GeoEnvironmental, Inc.
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis Stats. Completion of this form is mandatory. 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 intended 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 - 1/12/21 12:40 - J:\GEO TECH PROJECTS\GINT PROJECT DATABASES\20.0157080.00 OSHKOSH CORP.GPJ

Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B10	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 772.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724410		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351431		<input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	60/60	NA		(0'-12") FILL; Well-graded SAND (SW), F-C; little Silt; little frag rocks; black; dry. (1'-2"-1'11") Base Coarse Gravel (GW); little 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 Silt; brown; wet. (8.5'-9'8") SILT (MH); with Clay/Clayey SILT; slight orange mottling; barves visible; brown; wet.	SP-SM MH			NA						

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

Signature **S. Stephenson** Firm **GZA GeoEnvironmental, Inc.**

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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B2	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 771.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724301		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351375		<input checked="" type="checkbox"/> N <input type="checkbox"/> S <input checked="" type="checkbox"/> E <input type="checkbox"/> W	
NE 1/4 of NE 1/4 of Section 2 , T 17 , R 16		Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200		
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'.

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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B3	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 771.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724306		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351411		<input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
NE 1/4 of NE 1/4 of Section 2 , T 17 , R 16		Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
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	[Hatched Box]		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	[Dotted Box]		NA						Softer consistency and black oxidation specs noted in clay from 8.5'-9'.

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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B4	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 772.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724340		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> C <input type="checkbox"/> N <input type="checkbox"/>			Long 2351376		<input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200		
1	60/60	NA		(0'-1') FILL; Well-graded 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".

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


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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B5	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 772.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724307		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351432		<input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
1	60/48	NA	5 10	(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").

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Signature S. Stephenson	Firm GZA GeoEnvironmental, Inc.
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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B6
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 771.0' Feet MSL	Borehole Diameter NA inches
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Local Grid Location		
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Lat 724316	<input checked="" type="checkbox"/> N <input type="checkbox"/> E	
NE 1/4 of NE 1/4 of Section 2, T 17, R 16			Long 2351394	Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	

Facility ID	County 71	County Code 71	Civil Town/City/or Village Oshkosh, Wisconsin
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Sample Number and Type	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					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
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 Sand and 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 S. Stephenson	Firm GZA GeoEnvironmental, Inc.
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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B7	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Hand Auger	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 772.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724340		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351452		<input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
NE 1/4 of NE 1/4 of Section 2 , T 17 , R 16		Facility ID	County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200		
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												

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Signature S. Stephenson	Firm GZA GeoEnvironmental, Inc.
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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B8	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Geoprobe	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 772.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724366		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351411		<input checked="" type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200	
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						

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Route to: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name OshKosh Corporation			License/Permit/Monitoring Number		Boring Number WL-B9	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name Tony Kapugi Last Name Firm On-Site Environmental Services			Date Drilling Started 11-6-20	Date Drilling Completed 11-6-20	Drilling Method Hand Auger	
WI Unique Well No.	DNR Well ID No.	Well Name	Final Static Water Level Feet	Surface Elevation 772.0' Feet MSL	Borehole Diameter NA inches	
Local Grid Origin <input type="checkbox"/> (estimated) <input checked="" type="checkbox"/> or Boring Location <input type="checkbox"/>			Lat 724367		Local Grid Location	
State Plane _____ N, _____ E S <input type="checkbox"/> /C <input type="checkbox"/> /N <input type="checkbox"/>			Long 2351462		<input checked="" type="checkbox"/> N <input type="checkbox"/> S <input checked="" type="checkbox"/> E <input type="checkbox"/> W	
NE 1/4 of NE 1/4 of Section 2 , T 17 , R 16		Facility ID		County 71	County Code 71	Civil Town/City/or Village 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	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plastic Limit	P 200		
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.	GM			NA							
				(1.5'-2') CLAY (CL); Little Sand, F-C; trace-little Gravel, F-M; red/brown; dry.	CL										
				(2'-3') CLAY (CL); Little Sand, F-C; trace-little Gravel, F-M; red/brown; dry.	CL										

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Signature S. Stephenson	Firm GZA GeoEnvironmental, Inc.
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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.

<input type="checkbox"/> Verification Only of Fill and Seal	Route to DNR Bureau: <input type="checkbox"/> Drinking Water <input type="checkbox"/> Watershed/Wastewater <input checked="" type="checkbox"/> Remediation/Redevelopment <input type="checkbox"/> Waste Management <input type="checkbox"/> Other: _____
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1. Well Location Information	2. Facility / Owner Information
------------------------------	---------------------------------

County Winnebago	WI Unique Well # of Removed Well _____	Hicap # _____	Facility Name Waukau Lot		
Latitude / Longitude (see instructions) _____ N _____ W			Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM	Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001	Facility ID (FID or PWS) _____
1/4 / 1/4 NE or Gov't Lot #	1/4 NE	Section 2	Township 17 N	Range 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W	License/Permit/Monitoring # WL-B1
Well Street Address 3231 Oregon Street			Original Well Owner _____		
Well City, Village or Town Oshkosh			Present Well Owner Oshkosh Corporation		
Subdivision Name			Mailing Address of Present Owner _____		
Reason for Removal from Service Soil Boring			Well ZIP Code 54902		
WI Unique Well # of Replacement Well _____			City of Present Owner Oshkosh		
Well City, Village or Town Oshkosh			State WI	ZIP Code 54209	
Subdivision Name			Lot # _____		

3. Filled & Sealed Well / Drillhole / Borehole Information	4. Pump, Liner, Screen, Casing & Sealing Material
--	---

<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input checked="" type="checkbox"/> Borehole / Drillhole	Original Construction Date (mm/dd/yyyy) 11/6/2020	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Pump and piping removed?			
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (specify): _____		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Liner(s) removed?			
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Liner(s) perforated?			
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Screen removed?			
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Casing left in place?			
Total Well Depth From Ground Surface (ft.) 10'		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Was casing cut off below surface?			
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Did sealing material rise to surface?			
Lower Drillhole Diameter (in.) _____		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Did material settle after 24 hours?			
		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A If yes, was hole retopped?			
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A If bentonite chips were used, were they hydrated with water from a known safe source?			
		Required Method of Placing Sealing Material <input type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Screened & Poured (Bentonite Chips) <input type="checkbox"/> Other (Explain): _____			
If yes, to what depth (feet)? _____		Sealing Materials <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Bentonite Chips			
		<i>For Monitoring Wells and Monitoring Well Boreholes Only:</i> <input checked="" type="checkbox"/> Bentonite Chips <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite - Sand Slurry			
Depth to Water (feet) _____		From (ft.) To (ft.) No. Yards, Sacks Sealant or Volume (circle one) Mix Ratio or Mud Weight Surface 10' 1 bag			

5. Material Used to Fill Well / Drillhole	From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
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Bentonite Chips	Surface	10'	1 bag	

6. Comments

7. Supervision of Work	DNR Use Only
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Name of Person or Firm Doing Filling & Sealing Tony Kapugi- On-Site Environmental	License # _____	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020	Date Received _____	Noted By _____
Street or Route P.O. Box 280		Telephone Number (608) 837-8992		Comments _____
City Sun Prairie	State WI	ZIP Code 53290	Signature of Person Doing Work _____	
			Date Signed _____	

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 **2. Facility / Owner Information**

County Winnebago		WI Unique Well # of Removed Well		Hicap #	
Latitude / Longitude (see instructions) _____ N _____ W		Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM		Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001	
¼ / ¼ NE	¼ NE	Section 2	Township 17 N	Range 16	<input checked="" type="checkbox"/> E <input type="checkbox"/> W
Well Street Address 3231 Oregon Street		Well ZIP Code 54902			
Well City, Village or Town Oshkosh			Subdivision Name		
Reason for Removal from Service Soil Boring			WI Unique Well # of Replacement Well		

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 Oshkosh	State WI	ZIP Code 54209

3. Filled & Sealed Well / Drillhole / Borehole Information

<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input checked="" type="checkbox"/> Borehole / Drillhole		Original Construction Date (mm/dd/yyyy) 11/6/2020
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (specify): _____		
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		
Total Well Depth From Ground Surface (ft.) 10'	Casing Diameter (in.) NA	
Lower Drillhole Diameter (in.)	Casing Depth (ft.) NA	
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		
If yes, to what depth (feet)?	Depth to Water (feet)	

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

Pump and piping removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Liner(s) removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Liner(s) perforated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Screen removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Casing left in place?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Was casing cut off below surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Did sealing material rise to surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Did material settle after 24 hours?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
If yes, was hole retopped?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
If bentonite chips were used, were they hydrated with water from a known safe source?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Required Method of Placing Sealing Material			
<input type="checkbox"/> Conductor Pipe-Gravity		<input type="checkbox"/> Conductor Pipe-Pumped	
<input type="checkbox"/> Screened & Poured (Bentonite Chips)		<input type="checkbox"/> Other (Explain): _____	
Sealing Materials			
<input type="checkbox"/> Neat Cement Grout		<input type="checkbox"/> Concrete	
<input type="checkbox"/> Sand-Cement (Concrete) Grout		<input type="checkbox"/> Bentonite Chips	
For Monitoring Wells and Monitoring Well Boreholes Only:			
<input checked="" type="checkbox"/> Bentonite Chips		<input type="checkbox"/> Bentonite - Cement Grout	
<input type="checkbox"/> Granular Bentonite		<input type="checkbox"/> Bentonite - Sand Slurry	

5. Material Used to Fill Well / Drillhole

Material	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 Tony Kapugi- On-Site Environmental		License #	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020
Street or Route P.O. Box 280		Telephone Number (608) 837-8992	
City Sun Prairie	State WI	ZIP Code 53290	Signature of Person Doing Work

DNR Use Only

Date Received	Noted By
Comments	
Date Signed	

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.

<input type="checkbox"/> Verification Only of Fill and Seal	Route to DNR Bureau: <input type="checkbox"/> Drinking Water <input type="checkbox"/> Watershed/Wastewater <input checked="" type="checkbox"/> Remediation/Redevelopment <input type="checkbox"/> Waste Management <input type="checkbox"/> Other: _____
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1. Well Location Information				2. Facility / Owner Information			
County Winnebago		WI Unique Well # of Removed Well _____		Hicap # _____		Facility Name Waukau Lot	
Latitude / Longitude (see instructions) _____ N _____ W		Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM		Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001		Facility ID (FID or PWS) _____	
License/Permit/Monitoring # WL-B3		Original Well Owner _____		Present Well Owner Oshkosh Corporation		Mailing Address of Present Owner _____	
1/4 / 1/4 NE 1/4 NE or Gov't Lot #		Section 2		Township 17 N		Range <input checked="" type="checkbox"/> E <input type="checkbox"/> W	
Well Street Address 3231 Oregon Street				City of Present Owner Oshkosh			
Well City, Village or Town Oshkosh				State WI			
Subdivision Name				Lot #		ZIP Code 54209	
Reason for Removal from Service Soil Boring		WI Unique Well # of Replacement Well _____		City of Present Owner Oshkosh			

3. Filled & Sealed Well / Drillhole / Borehole Information				4. Pump, Liner, Screen, Casing & Sealing Material			
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input checked="" type="checkbox"/> Borehole / Drillhole		Original Construction Date (mm/dd/yyyy) 11/6/2020		Pump and piping removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Liner(s) removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (specify): _____		If a Well Construction Report is available, please attach.		Liner(s) perforated? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Screen removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock				Casing left in place? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Was casing cut off below surface? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Total Well Depth From Ground Surface (ft.) 10'		Casing Diameter (in.) NA		Did sealing material rise to surface? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		Did material settle after 24 hours? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Lower Drillhole Diameter (in.)		Casing Depth (ft.) NA		If yes, was hole retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		If bentonite chips were used, were they hydrated with water from a known safe source? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		Depth to Water (feet)		Required Method of Placing Sealing Material <input type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Screened & Poured (Bentonite Chips) <input type="checkbox"/> Other (Explain): _____			
If yes, to what depth (feet)?				Sealing Materials <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Bentonite Chips			
				For Monitoring Wells and Monitoring Well Boreholes Only: <input checked="" type="checkbox"/> Bentonite Chips <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Granular Bentonite <input type="checkbox"/> 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				DNR Use Only	
Name of Person or Firm Doing Filling & Sealing Tony Kapugi- On-Site Environmental		License #	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020	Date Received	Noted By
Street or Route P.O. Box 280			Telephone Number (608) 837-8992	Comments	
City Sun Prairie	State WI	ZIP Code 53290	Signature of Person Doing Work		Date Signed

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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 **2. Facility / Owner Information**

County Winnebago		WI Unique Well # of Removed Well		Hicap #	
Latitude / Longitude (see instructions) _____ N _____ W		Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM		Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001	
¼ / ¼ NE	¼ NE	Section 2	Township 17 N	Range 16	<input checked="" type="checkbox"/> E <input type="checkbox"/> W
Well Street Address 3231 Oregon Street		Well ZIP Code 54902			
Well City, Village or Town Oshkosh			Subdivision Name		
Reason for Removal from Service Soil Boring			WI Unique Well # of Replacement Well		

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 Oshkosh	State WI	ZIP Code 54209

3. Filled & Sealed Well / Drillhole / Borehole Information

<input type="checkbox"/> Monitoring Well	Original Construction Date (mm/dd/yyyy) 11/6/2020	
<input type="checkbox"/> Water Well	If a Well Construction Report is available, please attach.	
<input checked="" type="checkbox"/> Borehole / Drillhole		
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (specify): _____		
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		
Total Well Depth From Ground Surface (ft.) 4'	Casing Diameter (in.) NA	
Lower Drillhole Diameter (in.)	Casing Depth (ft.) NA	
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		
If yes, to what depth (feet)?	Depth to Water (feet)	

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

Pump and piping removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Liner(s) removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Liner(s) perforated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Screen removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Casing left in place?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Was casing cut off below surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Did sealing material rise to surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Did material settle after 24 hours?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
If yes, was hole retopped?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
If bentonite chips were used, were they hydrated with water from a known safe source?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Required Method of Placing Sealing Material			
<input type="checkbox"/> Conductor Pipe-Gravity		<input type="checkbox"/> Conductor Pipe-Pumped	
<input type="checkbox"/> Screened & Poured (Bentonite Chips)		<input type="checkbox"/> Other (Explain): _____	
Sealing Materials			
<input type="checkbox"/> Neat Cement Grout		<input type="checkbox"/> Concrete	
<input type="checkbox"/> Sand-Cement (Concrete) Grout		<input type="checkbox"/> Bentonite Chips	
For Monitoring Wells and Monitoring Well Boreholes Only:			
<input checked="" type="checkbox"/> Bentonite Chips		<input type="checkbox"/> Bentonite - Cement Grout	
<input type="checkbox"/> Granular Bentonite		<input type="checkbox"/> 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 Tony Kapugi- On-Site Environmental	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020
Street or Route P.O. Box 280	Telephone Number (608) 837-8992	
City Sun Prairie	State WI	ZIP Code 53290
Signature of Person Doing Work		Date Signed

DNR Use Only

Date Received	Noted By
Comments	

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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 **2. Facility / Owner Information**

County Winnebago		WI Unique Well # of Removed Well		Hicap #	
Latitude / Longitude (see instructions) _____ N _____ W		Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM		Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001	
¼ / ¼ NE	¼ NE	Section 2	Township 17 N	Range 16	<input checked="" type="checkbox"/> E <input type="checkbox"/> W
Well Street Address 3231 Oregon Street		Well ZIP Code 54902			
Well City, Village or Town Oshkosh			Subdivision Name		
Reason for Removal from Service Soil Boring			WI Unique Well # of Replacement Well		

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 Oshkosh	State WI	ZIP Code 54209

3. Filled & Sealed Well / Drillhole / Borehole Information

<input type="checkbox"/> Monitoring Well	Original Construction Date (mm/dd/yyyy) 11/6/2020	
<input type="checkbox"/> Water Well	If a Well Construction Report is available, please attach.	
<input checked="" type="checkbox"/> Borehole / Drillhole		
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (specify): _____		
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		
Total Well Depth From Ground Surface (ft.) 15'	Casing Diameter (in.) NA	
Lower Drillhole Diameter (in.)	Casing Depth (ft.) NA	
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown		
If yes, to what depth (feet)?	Depth to Water (feet)	

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

Pump and piping removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Liner(s) removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Liner(s) perforated?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Screen removed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Casing left in place?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Was casing cut off below surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Did sealing material rise to surface?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Did material settle after 24 hours?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
If yes, was hole retopped?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
If bentonite chips were used, were they hydrated with water from a known safe source?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A
Required Method of Placing Sealing Material			
<input type="checkbox"/> Conductor Pipe-Gravity		<input type="checkbox"/> Conductor Pipe-Pumped	
<input type="checkbox"/> Screened & Poured (Bentonite Chips)		<input type="checkbox"/> Other (Explain): _____	
Sealing Materials			
<input type="checkbox"/> Neat Cement Grout		<input type="checkbox"/> Concrete	
<input type="checkbox"/> Sand-Cement (Concrete) Grout		<input type="checkbox"/> Bentonite Chips	
For Monitoring Wells and Monitoring Well Boreholes Only:			
<input checked="" type="checkbox"/> Bentonite Chips		<input type="checkbox"/> Bentonite - Cement Grout	
<input type="checkbox"/> Granular Bentonite		<input type="checkbox"/> 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 **DNR Use Only**

Name of Person or Firm Doing Filling & Sealing Tony Kapugi- On-Site Environmental		License #	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020	Date Received	Noted By
Street or Route P.O. Box 280			Telephone Number (608) 837-8992	Comments	
City Sun Prairie	State WI	ZIP Code 53290	Signature of Person Doing Work		Date Signed

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<input type="checkbox"/> Verification Only of Fill and Seal	Route to DNR Bureau:		
<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Watershed/Wastewater	<input checked="" type="checkbox"/> Remediation/Redevelopment	
<input type="checkbox"/> Waste Management	<input type="checkbox"/> Other: _____		

1. Well Location Information				2. Facility / Owner Information			
County Winnebago		WI Unique Well # of Removed Well _____		Hicap # _____		Facility Name Waukau Lot	
Latitude / Longitude (see instructions) _____ N _____ W		Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM		Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001		Facility ID (FID or PWS) _____	
License/Permit/Monitoring # WL-B7		Original Well Owner _____		Present Well Owner Oshkosh Corporation		Mailing Address of Present Owner _____	
1/4 / 1/4 NE or Gov't Lot #		Section 2		Township 17 N		Range 16 <input checked="" type="checkbox"/> E <input type="checkbox"/> W	
Well Street Address 3231 Oregon Street				City of Present Owner Oshkosh			
Well City, Village or Town Oshkosh				Well ZIP Code 54902		State WI	
Subdivision Name				Lot #		ZIP Code 54209	

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

3. Filled & Sealed Well / Drillhole / Borehole Information				4. Pump, Liner, Screen, Casing & Sealing Material			
<input type="checkbox"/> Monitoring Well		Original Construction Date (mm/dd/yyyy) 11/6/2020		Pump and piping removed?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
<input type="checkbox"/> Water Well		If a Well Construction Report is available, please attach.		Liner(s) removed?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
<input checked="" type="checkbox"/> Borehole / Drillhole				Liner(s) perforated?		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Construction Type:				Screen removed?			
<input type="checkbox"/> Drilled		<input type="checkbox"/> Driven (Sandpoint)		<input type="checkbox"/> Dug		Casing left in place?	
<input checked="" type="checkbox"/> Other (specify): <u>Hand Auger</u>				<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
Formation Type:				Was casing cut off below surface?			
<input checked="" type="checkbox"/> Unconsolidated Formation		<input type="checkbox"/> Bedrock		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
Total Well Depth From Ground Surface (ft.) 3'		Casing Diameter (in.) NA		Did sealing material rise to surface?			
Lower Drillhole Diameter (in.)		Casing Depth (ft.) NA		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown				Did material settle after 24 hours?			
If yes, to what depth (feet)?		Depth to Water (feet)		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
If bentonite chips were used, were they hydrated with water from a known safe source?				<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A			
Required Method of Placing Sealing Material				<input type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped			
<input type="checkbox"/> Screened & Poured (Bentonite Chips)				<input type="checkbox"/> Other (Explain): _____			
Sealing Materials				<input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Concrete			
<input type="checkbox"/> Sand-Cement (Concrete) Grout				<input type="checkbox"/> Bentonite Chips			
For Monitoring Wells and Monitoring Well Boreholes Only:				<input checked="" type="checkbox"/> Bentonite Chips <input type="checkbox"/> Bentonite - Cement Grout			
<input type="checkbox"/> Granular Bentonite				<input type="checkbox"/> Bentonite - Sand Slurry			

5. Material Used to Fill Well / Drillhole			
Material	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				DNR Use Only	
Name of Person or Firm Doing Filling & Sealing Tony Kapugi- On-Site Environmental		License # _____	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020	Date Received	Noted By
Street or Route P.O. Box 280			Telephone Number (608) 837-8992	Comments	
City Sun Prairie	State WI	ZIP Code 53290	Signature of Person Doing Work	Date Signed	

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 **2. Facility / Owner Information**

County Winnebago		WI Unique Well # of Removed Well		Hicap #	
Latitude / Longitude (see instructions) _____ N _____ W		Format Code <input type="checkbox"/> DD <input type="checkbox"/> DDM		Method Code <input type="checkbox"/> GPS008 <input type="checkbox"/> SCR002 <input type="checkbox"/> OTH001	
¼ / ¼ NE	¼ NE	Section 2	Township 17 N	Range 16	<input checked="" type="checkbox"/> E <input type="checkbox"/> W
Well Street Address 3231 Oregon Street		Well ZIP Code 54902			
Well City, Village or Town Oshkosh		Lot #			
Reason for Removal from Service Soil Boring		WI Unique Well # of Replacement Well			

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 Oshkosh	State WI	ZIP Code 54209

3. Filled & Sealed Well / Drillhole / Borehole Information

<input type="checkbox"/> Monitoring Well	Original Construction Date (mm/dd/yyyy) 11/6/2020
<input type="checkbox"/> Water Well	
<input checked="" type="checkbox"/> Borehole / Drillhole	If a Well Construction Report is available, please attach.
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (specify): _____	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock	
Total Well Depth From Ground Surface (ft.) 10'	Casing Diameter (in.) NA
Lower Drillhole Diameter (in.)	Casing Depth (ft.) NA
Was well annular space grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
If yes, to what depth (feet)?	Depth to Water (feet)

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

Pump and piping removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Liner(s) removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Liner(s) perforated?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Screen removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Casing left in place?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Was casing cut off below surface?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Did sealing material rise to surface?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Did material settle after 24 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
If yes, was hole retopped?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
If bentonite chips were used, were they hydrated with water from a known safe source?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
Required Method of Placing Sealing Material	
<input type="checkbox"/> Conductor Pipe-Gravity	<input type="checkbox"/> Conductor Pipe-Pumped
<input type="checkbox"/> Screened & Poured (Bentonite Chips)	<input type="checkbox"/> Other (Explain): _____
Sealing Materials	
<input type="checkbox"/> Neat Cement Grout	<input type="checkbox"/> Concrete
<input type="checkbox"/> Sand-Cement (Concrete) Grout	<input type="checkbox"/> Bentonite Chips
For Monitoring Wells and Monitoring Well Boreholes Only:	
<input checked="" type="checkbox"/> Bentonite Chips	<input type="checkbox"/> Bentonite - Cement Grout
<input type="checkbox"/> Granular Bentonite	<input type="checkbox"/> 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 **DNR Use Only**

Name of Person or Firm Doing Filling & Sealing Tony Kapugi- On-Site Environmental		License #	Date of Filling & Sealing or Verification (mm/dd/yyyy) 11/6/2020	Date Received	Noted By
Street or Route P.O. Box 280		Telephone Number (608) 837-8992		Comments	
City Sun Prairie	State WI	ZIP Code 53290	Signature of Person Doing Work		Date Signed



APPENDIX D

SOIL LABORATORY ANALYTICAL REPORT 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**

Karen Coonan

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.
This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

PACE ANALYTICAL SERVICES, LLC

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

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.

PACE ANALYTICAL SERVICES, LLC

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)

PACE ANALYTICAL SERVICES, LLC

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		9.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDa		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 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

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: **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

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDa		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 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: **VK08048-002**

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

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

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: VK08048-003
Description: WL B-10 (1-2')	Matrix: Solid
Date Sampled: 11/06/2020 0830	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 82.8 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.5	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: **VK08048-003**

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

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: VK08048-004
Description: WL B-10 (4-5')	Matrix: Solid
Date Sampled: 11/06/2020 0840	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 81.4 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: **VK08048-004**

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

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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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 81.0 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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**

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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PFAS by LC/MS/MS

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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 81.6 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDa		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 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: **VK08048-006**

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_PFOA		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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PFAS by LC/MS/MS

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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 82.3 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: **VK08048-007**

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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 80.3 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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**

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

W = Reported on wet weight basis

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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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 84.1 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.0	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: VK08048-009
Description: WL B-4 (1-2')	Matrix: Solid
Date Sampled: 11/06/2020 0955	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 84.1 11/10/2020 0016

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 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: VK08048-010
Description: WL B-4 (4-5')	Matrix: Solid
Date Sampled: 11/06/2020 1000	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 79.3 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDa		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 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: **VK08048-010**

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

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: VK08048-011
Description: WL B-3 (1-2')	Matrix: Solid
Date Sampled: 11/06/2020 1025	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 79.6 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.1	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: **VK08048-011**

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

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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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 80.5 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.4	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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**

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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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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 81.4 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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 (PFDaA)	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_PFDaA		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 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: VK08048-013	
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 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: VK08048-014
Description: WL B-2 (1-2')	Matrix: Solid
Date Sampled: 11/06/2020 1050	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 81.3 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.4	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: **VK08048-014**

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

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: VK08048-016
Description: WL B-1 (1-2')	Matrix: Solid
Date Sampled: 11/06/2020 1110	Project Name: Oshkosh Corporation
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 82.7 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.1	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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 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: **VK08048-016**

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

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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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 81.1 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		1.9	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDa		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

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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

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
Date Received: 11/07/2020	Project Number: 20.0157080
	% Solids: 84.8 11/10/2020 0016

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 (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		2.2	ug/kg	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-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-butanefluoronic 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_PFDaA		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

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: VQ72992-001

Matrix: Solid

Batch: 72992

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/11/2020 0952

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9CI-PF3ONS	ND		1	2.0	ug/kg	11/12/2020 1700
11CI-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
PFDaA	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
PFTTrDA	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_PFDaA		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

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PFAS by LC/MS/MS - MB

Sample ID: VQ72992-001

Matrix: Solid

Batch: 72992

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

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PFAS by LC/MS/MS - LCS

Sample ID: VQ72992-002

Matrix: Solid

Batch: 72992

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/11/2020 0952

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9CI-PF3ONS	1.9	1.9		1	101	50-150	11/12/2020 1711
11CI-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
PFDaA	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
PFTTrDA	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_PFDaA		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

Matrix: Solid

Batch: 72992

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

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PFAS by LC/MS/MS - MB

Sample ID: VQ73594-001

Matrix: Solid

Batch: 73594

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/16/2020 1200

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9CI-PF3ONS	ND		1	2.0	ug/kg	11/17/2020 1546
11CI-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
PFDaA	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_PFDaA		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

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PFAS by LC/MS/MS - MB

Sample ID: VQ73594-001

Matrix: Solid

Batch: 73594

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

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PFAS by LC/MS/MS - LCS

Sample ID: VQ73594-002

Matrix: Solid

Batch: 73594

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/16/2020 1200

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9CI-PF3ONS	1.9	2.2		1	118	50-150	11/17/2020 1556
11CI-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
PFDaA	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_PFDaA		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

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PFAS by LC/MS/MS - LCS

Sample ID: VQ73594-002

Matrix: Solid

Batch: 73594

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

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PFAS by LC/MS/MS - MB

Sample ID: VQ73728-001

Matrix: Aqueous

Batch: 73728

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/17/2020 1034

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9CI-PF3ONS	ND		1	8.0	ng/L	11/18/2020 1323
11CI-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
PFDaA	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
PFTTrDA	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_PFDaA		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

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MB

Sample ID: VQ73728-001

Matrix: Aqueous

Batch: 73728

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - LCS

Sample ID: VQ73728-002

Matrix: Aqueous

Batch: 73728

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/17/2020 1034

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9CI-PF3ONS	15	14		1	91	50-150	11/18/2020 1334
11CI-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
PFDaA	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
PFTTrDA	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_PFDaA		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

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PFAS by LC/MS/MS - LCS

Sample ID: VQ73728-002

Matrix: Aqueous

Batch: 73728

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

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PFAS by LC/MS/MS - MB

Sample ID: VQ73795-001

Matrix: Aqueous

Batch: 73795

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/17/2020 1704

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
9CI-PF3ONS	ND		1	8.0	ng/L	11/18/2020 1750
11CI-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
PFDaA	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
PFTTrDA	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_PFDaA		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

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PFAS by LC/MS/MS - MB

Sample ID: VQ73795-001

Matrix: Aqueous

Batch: 73795

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

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PFAS by LC/MS/MS - LCS

Sample ID: VQ73795-002

Matrix: Aqueous

Batch: 73795

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 11/17/2020 1704

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
9CI-PF3ONS	15	16		1	109	50-150	11/18/2020 1800
11CI-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
PFDaA	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
PFTTrDA	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_PFDaA		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

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Note: Calculations are performed before rounding to avoid round-off errors in calculated results

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PFAS by LC/MS/MS - LCS

Sample ID: VQ73795-002

Matrix: Aqueous

Batch: 73795

Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

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

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**Chain of Custody
and
Miscellaneous Documents**



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 113141

Client: GZA Geoenvironmental Inc		Report to Contact: Kevin Hedmyer		Telephone No. / E-mail: 202-754-2500 / k.hedmyer@gza.com		Quote No.	
Address: 17975 W Search Lane Suite 100		Sampler's Signature: <i>[Signature]</i>		Analysis (Attach for if more space is needed)		Page: 1 of 2	
City: Brookfield		Printed Name: Elizabeth Stapleton Yu		Barcode:		MMS: VK08048	
State: WI		Project Name: Oshkosh Corporation		Remarks / Cooler I.D.			
Zip Code: 53015		Project No.: 20-0157050					
RO No.		Collection Date(s)		No. of Containers by Preservative Type			
Sample ID / Description (Comments for each sample may be contained on one line.)		Collection Time (Military)		Priority			
WL Equipment Blank DS 1		810		G X		X PFA 5 (W/36)	
WL Equipment Blank HA-2		815		G X		X PFA 5 (W/36)	
WL B-10 (1-2')		830		G X		X PFA 5 (W/36)	
WL B-10 (4-5')		840		G X		X PFA 5 (W/36)	
WL B-8 (1-2')		910		G X		X PFA 5 (W/36)	
WL B-8 (4-5')		920		G X		X PFA 5 (W/36)	
WL B-6 (1-2')		930		G X		X PFA 5 (W/36)	
WL B-6 (4-5')		935		G X		X PFA 5 (W/36)	
WL B-4 (1-2')		955		G X		X PFA 5 (W/36)	
WL B-4 (4-5')		1000		G X		X PFA 5 (W/36)	

Turn Around Time Required (Prior lab approval required for expedited TAT.)
 Standard Rush (Specify)

1. Relinquished by: *[Signature]* Date: **11/16/2020** Time: **1415**

2. Relinquished by: *[Signature]* Date: _____ Time: _____

3. Relinquished by: _____ Date: _____ Time: _____

4. Relinquished by: **FedEx** Date: **11/17/2020** Time: **0852**

Notes: All samples are retained for four weeks from receipt unless other arrangements are made.

GC Requirements (Specify):
 Date: **11/16/2020** Time: **1415**
 Date: _____ Time: _____
 Date: _____ Time: _____
 Date: **11/17/2020** Time: **0852**
 Temp Blank: Y N
 Receipt Temp: **3.3** °C



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 113143

Client GZA Geoenvironmental Inc		Report to Contact Kevin Hedinger		Telephone No. / E-mail 262-791-2560 k.hedinger@ryancpa.com		Quote No.	
Address 17975 W Sarah Lane Suite 100		Sampler's Signature <i>[Signature]</i>		Analysis (Attach list if more space is needed)		Page 2 of 2	
City Brookfield		Project Name Osakosh Corporation		Principal Name Elizabeth Skapleton Yu		Barcode V/K08048	
State WI		P.O. No.		Matrix		NIMS	
Zip Code 53045		Collection Locality		No. of Containers by Preservative Type		Remains / Cooler I.D.	
Project No. 20.065-7080		Collection Time (M:PM)		Form			
Sample ID / Description (Containers for each sample may be combined on one line.)		Date		Matrix			
WL B-3 (1-2')		11/6/20		G			
WL B-3 (6-7')		1030		G			
WL B-5 (1-2')		1040		G			
WL B-2 (1-2')		1050		G			
WL B-2 (6-7')		1055		G			
WL B-1 (1-2')		1110		G			
WL B-1 (5-6')		1115		G			
WL B-7 (1-2')		1135		G			
WL B-9 (1-2')		1150		G			

Turn Around Time Required (Prior lab approval required for expedited RLT)		Sample Disposal		Reasonable Hazard Identification	
<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> Rush (Specify)	<input type="checkbox"/> Return to Client	<input checked="" type="checkbox"/> Deposit by Lab	<input type="checkbox"/> Non-Halal	<input type="checkbox"/> Skin Irritant
1. Relinquished by <i>[Signature]</i>		Date	Time	1. Received by <i>[Signature]</i>	
2. Relinquished by		Date	Time	2. Received by	
3. Relinquished by		Date	Time	3. Received by	
4. Relinquished by <i>[Signature]</i>		Date	Time	4. Laboratory received by <i>[Signature]</i>	
Note: All samples are retained for four weeks from receipt unless other arrangements are made.		Date	Time	LAB USE ONLY	
		Date	Time	Received on ice (Strike) <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/>	
		Date	Time	Receipt Temp. 3.3 °C	

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy
 Document Number: MED02912-01

PACE ANALYTICAL SERVICES, LLC



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: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: <u>NA</u> Chlorine Strip ID: <u>NA</u> Tested by: <u>NA</u>	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: <u>20-1458</u> <u>3.3 / 3.3</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C <u>NA / NA</u> °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: <u>phone / email / face-to-face</u> (circle one).
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # <u>24122</u>
Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)	
Sample(s) <u>NA</u> were received incorrectly preserved and were adjusted accordingly in sample receiving with <u>NA</u> mL of circle one: H ₂ SO ₄ , HNO ₃ , HCl, NaOH using SR # <u>NA</u>	
Time of preservation <u>NA</u> . If more than one preservative is needed, please note in the comments below.	
Sample(s) <u>NA</u> were received with bubbles >6 mm in diameter.	
Sample(s) <u>NA</u> were received with TRC > 0.5 mg/L (If #19 is <u>no</u>) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₅) with Shealy ID: <u>NA</u>	
SR barcode labels applied by: <u>KBS</u> Date: <u>11/08/2020</u>	

Comments:
