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ENVIRONMENT
& HEALTH

Mr. Paul Bucholtz

Michigan Department of Environment, Great Lakes, and Energy
Remediation and Redevelopment Division
Constitution Hall
525 West Allegan Street
Lansing, MI 48909

RE: ***PFAS Screening Results***
RACER Trust – Hemphill Road Industrial Land, Burton, Michigan

FILE: 15388/75237/Docs

Dear **Mr. Bucholtz**:

This technical memorandum (memo) has been prepared by O'Brien & Gere, a Ramboll Company (Ramboll), on behalf of the Revitalizing Auto Communities Environmental Response Trust (RACER Trust) to provide the results of the recently completed initial screening sampling and analysis for per- and polyfluoroalkyl substances (PFAS) at the Hemphill Road Industrial Land (HRIL) facility located in Burton, Michigan (Site).

This work was completed in response to EGLE's April 7, 2020 letter requesting an investigation to evaluate the presence of PFAS at the Site.

Date August 14, 2020

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Background

The HRIL Site is located at the southeast corner of the South Saginaw Street and Hemphill Road intersection in Genesee County, Burton, Michigan (**Figure 1**). The Site is 7.8-acres and includes approximately 2.6 acres of waste fill, which is the western portion of the former Hemphill Landfill. The Site is presently an unused with portions covered with asphalt or gravel. A section is currently being leased as a construction laydown area for Consumers Energy.

The Site is bounded to the north by Hemphill Road; to the west by an active service station, medical center, and South Saginaw Street; to the east by an open field (privately owned) which was previously the primary part of the former municipal Hemphill Landfill; and to the south by Storage One (commercial property).

Prior to 1941 the Site was used for agricultural purposes. As part of the former municipal Hemphill Landfill, a portion of the Site was filled with industrial and municipal wastes from sometime after 1941 to approximately 1958. Filling activities continued east of the Site until 1978. The Site was developed for commercial use beginning in 1955 with the construction of a building occupied by Kroger on the northern portion. A second building occupied by Taystee Bread was formerly located in the central portion of the Site, and a discount department store was added in the southern part of the Site in 1959.

The former General Motors Corporation (GMC) purchased the property in 1978. Prior to GMC purchasing the property it was owned by the City of Burton. Remediation & Liability Management Company, Inc. (REALM), a wholly owned subsidiary of GMC, managed the Site from 2001 until 2009, when GMC changed its name to Motors Liquidation Company (MLC) and continued management of the property as part of the GMC bankruptcy process. The property was transferred to the current owner, RACER Properties LLC, (an entity wholly owned by RACER Trust), on March 31, 2011.

Groundwater Sample Collection

Groundwater samples for PFAS analysis were collected from seven shallow onsite monitoring wells (OBG MW-1S, OBG MW-2S, OBG MW-3, OBG MW-5S, OBG MW-6S, OBG MW-7S, and OBG MW-8), one shallow onsite monitoring well with LNAPL impacts (OBG MW-10), and one deep onsite monitoring well (OBG MW-7D) to evaluate for the presence of PFAS in groundwater at the Site. **Figure 2** illustrates the location of each of the monitoring wells sampled for PFAS. An attempt was made to sample OBG MW-4S, another well with LNAPL impacts; however, a sample could not be collected from this location. Several attempts were made to withdraw groundwater using quarter inch high density polyethylene (HDPE) tubing inserted beneath the LNAPL layer and a peristaltic pump, but the viscosity of the LNAPL precluded the withdrawal of the water. Even when the tubing was removed from the well, it was hard to blow out the LNAPL from the tubing because it was so viscus. Approximately 1 to 2 feet of LNAPL was estimated to be in the well. An attempt was made to blow air through the tubing while in the well and then withdrawal groundwater from beneath the LNAPL, but this was not successful either.

Special care was taken during sampling and transport of the samples to avoid cross-contamination from clothing, sampling materials, and storage containers due to the extremely low detection limits for PFAS (<1 ng/L). New HDPE and silicon tubing were utilized for sample collection at each well location. Samples were collected in accordance with the EGLE Groundwater PFAS Sampling Guidance (EGLE, 2018).

Low flow groundwater sampling was performed in accordance with USEPA, *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* (EPA/540/S-95/504) and the USEPA Region 1 (July 30, 1996, Revision 4) *Low Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells*.

Low-flow groundwater sampling was performed using HDPE sample tubing lowered approximately to the midpoint of the well screen and connected to a peristaltic pump utilizing silicon tubing. The tubing was then attached to a flow-through cell connected to a physical parameter measurement instrument capable of measuring temperature, conductivity, pH, dissolved oxygen (DO), and oxidation-reduction potential (ORP). Turbidity was measured with a separate turbidity meter.

Despite purging at rates less than 100 milliliters per minute (ml/min)(i.e., ultra-low flow purging) drawdowns of greater than 0.3 ft were encountered in the monitoring wells with the exception of OBG MW-3 and OBG MW-7D, which had little drawdown.

Purging continued until the water quality parameters stabilized within USEPA's Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells over three consecutive 5-minute periods. Once stabilized, the pumping rate was reduced (when possible) and the flow-through cell was disconnected. Purge water was discharged to the ground surface onsite.

Samples were collected directly into laboratory supplied containers. The sample container selection and preservation techniques followed EGLE Remediation and Redevelopment Division (RRD) Standard Operating Procedure for Sample Preservation, Sample Handling, and Holding Time (RRD-34).

The samples were labeled, packed on ice, and shipped via courier under routine chain-of-custody protocols to Merit Laboratories, Inc. (Merit) of East Lansing, Michigan. The groundwater samples were analyzed for PFAS by method ASTMD7979-19 (no preservative).

Quality Assurance/Quality Control (QA/QC) samples consisted of a field duplicate and field (ambient) blank which will act as a check for cross contamination. An equipment blank was not collected.

PFAS Sample Results

PFAS were not detected in the samples from shallow monitoring well OBG MW-8 and deep monitoring well OBG MW-7D. Note that detection of perfluorobutanoic acid (PFBA) in each of the three field blanks and elevated reporting levels for the samples (see **Table 1**) was according to Merit Laboratories, caused from the centrifuge tubes leaching PFBA to the samples during the extraction process. Apparently they received a bad batch of tubes from their vendor and any remaining tubes have been destroyed. Therefore, OBG applied a 5X Rule to PFBA detections in accordance with data validation procedures, which is applicable due to "laboratory" contamination. Sample results less than 5 times the associated blank concentration (5X Rule) were qualified "U" - undetected.

Monitoring wells OBG MW-1S, OBG MW-2S, and OBG MW-3 contained low level (<8 nanograms per liter [ng/l]) detections of PFAS below their respective cleanup criteria (**Table 1**), if established.

The remaining four (OBG MW-5S, OBG MW-6S, OBG MW-7S, and OBG MW-10) of the nine monitoring wells sampled contained either perfluorooctanoic acid (PFOA) and/or perfluorooctane sulfonic acid (PFOS) above EGLE drinking water cleanup criteria (8 ng/l and 16 ng/l, respectively). PFOA was detected at concentrations ranging from 8.7 ng/l at OBG MW-5S to 19 ng/l in OBG MW-7S within these four monitoring wells. PFOS was only detected in OBG MW-7S and OBG MW-10 at concentrations of 54 ng/l and 16 ng/l, respectively. **Attachment A** provides the laboratory analytical reports for the PFAS analyses.

The results indicate low level detections of PFAS on the western side of the Site and slightly higher results on the east side of the Site. There is no apparent source of PFAS detected on the western side of the Site while the slighty higher detections on the east side of the Site are at least in part most likely related to waste fill along the east side of the Site. However, this did not hold true at OBG MW-8, which is located on the east side of the Site and about 40 feet west of OBG MW-4S that contains LNAPL and was non-detect for PFAS. Although monitoring well OBG MW-7S had the highest results, it is furthest away from the LNAPL area, and although OBG MW-10, which contains LNAPL, had the second highest results, the results were just above the criteria for PFOA and at the criteria for PFOS. These results appear to indicate that the LNAPL is not the source of PFAS impacts at the Site.

The non-detect results at OBG MW-7D, beneath the most impacted shallow location indicates that the deeper zone is not impacted.

Figure 3 provides a summary of the sample results on the base map, and **Figure 4** provides a groundwater contour map for the recent sampling event. Shallow groundwater flow is toward the east near OBG MW-7S and is more southeast in the southern portion of the Site.

Exposure Pathway Evaluation

The likely source of the Site-related PFAS impacts to groundwater is the fill materials placed on the eastern portion of the Site. The completed interim remedial action (IRA) along with the existing and amended declaration of restrictive covenant (DRC) presented in the November 2019 draft No Further Action (NFA) report is intended to restrict groundwater use at the Site, and to allow proper due care to be taken at the Site.

An evaluation of potentially complete and applicable transport and exposure pathways for PFAS in groundwater is presented herein to address those transport and exposure pathways. Currently, the Site is zoned for general business (C-2) purposes and is vacant. In addition, RACER Trust has placed a deed restriction that limits future use to nonresidential. Therefore, the nonresidential scenario was used for evaluation purposes (*i.e.*, Generic Nonresidential Cleanup Criteria); however, for PFAS impacts, the nonresidential drinking water criteria are the same as the residential criteria.

PFOA and PFOS were the only PFAS detected above the drinking water criteria; therefore, PFOA and PFOS are considered the only constituents of concern (COCs) from a PFAS standpoint for the Site.

A site-specific comparison of relevant and applicable nonresidential criteria for groundwater is summarized on **Table 1**. Review of the analytical data indicates the highest concentrations of PFAS COCs detected in groundwater onsite are as follows:

Table 2 - Highest Detections of PFOA and PFOS in Groundwater

COC	Highest Concentration Detected	Location
PFOA	19 ng/L	OBG MW-7S (6/29/2020)
PFOS	54 ng/L	OBG MW-7S (6/29/2020)

Source: Ramboll

Groundwater Risk Evaluation

This subsection provides an evaluation of the PFAS impacted groundwater exposure pathway.

Risks Due to Groundwater PFAS Impact to Drinking Water Uses

The groundwater pathway is a relevant pathway for the Site. However, groundwater at the Site is not used for drinking water and the shallow unit containing PFOA and PFOS above drinking water criteria is not likely connected to the lower usable aquifer in this area or would shallow groundwater migrate horizontally through the adjacent landfill to private wells located east of Schram Drain.

The usage or exposure to the detected exceedances in groundwater in an aquifer can be addressed through recording a resource use restriction in a DRC preventing groundwater extraction or use at the Site; furthermore, it is reasonable to assume given the age (>60 years) of the landfilling activities at the Site that the PFAS concentrations are stable or decreasing at this time. Nearby well records indicate a thick clay unit, ranging in from 57 to 102 ft thick underlying the Site (this clay was observed onsite to a depth of 50 fbg in southeastern portion of the Site); therefore, it is unlikely the exceedances onsite in shallow groundwater would migrate to the useable aquifer, which is confirmed by the non-detect results

in OBG MW-7D. In addition, the City of Burton Ordinance §51.080 prohibits the installation of water wells and use of groundwater for human consumption in the Site area.

The Site is not located in a wellhead protection area and there are no wellhead protection areas within approximately 3,000 feet of the Site. The nearest private wells to the Site are located approximately 815 to 1,250 ft east of the Site, which is east of Schram drain, followed by additional wells approximately 2,300 ft east of the Site (**Figure 6**). The next closest well is approximately 2500 feet southwest of the Site. Furthermore, all but two of these wells are screened in bedrock at depths greater than 150 feet below grade (fbg). The shallowest well is located approximately 1,000 feet east of the Site and is screened from 80 to 90 fbg in a gravel aquifer and the other is screened from 140 to 150 fbg. **Attachment B** provides the well logs for the private wells within 2,500 feet of the Site. Therefore, the prohibition of installation of wells to extract groundwater at the Site via the current and planned amended DRC combined with the Site not being located in a wellhead protection area or the lack of nearby private wells makes risks highly unlikely from drinking water due to PFOS and PFOA.

Risks Due to Groundwater PFAS Impact from Dermal (Utility Work) Exposures

Groundwater PFAS impacts causing dermal (utility worker) exposure could be a complete or relevant exposure pathway for the Site but due to the low levels (<100 ng/l) at which PFAS have been detected at the Site no unacceptable risks exist. No current direct contact (dermal) criteria currently exist in the United States for PFAS. Criteria adopted or proposed elsewhere, such as in Australia, are much higher than the levels detected at the Site and would likely be on the order of thousands of ng/l (200,000 ng/l for PFOS and 1,800,000 ng/l for PFOA)(see Appendix E, Derivation of Water Criteria (Incidental Direct Contact), Human Health Risk Assessment for the RAAF Base Amberley PFAS Investigation, CH2M Hill, July 5, 2019).

Risks Due to Groundwater PFAS Impact for Indoor Air Hazards

Groundwater impacts causing indoor air hazards is **not** a current complete exposure pathway for the Site. The detected concentrations of PFAS in groundwater are low and PFAS is not considered to volatilize appreciably at the detected concentrations to cause an indoor air issue. Potential future risks via this exposure pathway are addressed through and the existing DRC and planned amended DRC, which both require assessment and/or mitigation of the vapor intrusion to indoor air pathway.

Risks Due to Groundwater PFAS Impact of Hazards to Surface Water Resources

The groundwater impact to surface water resources exposure pathway has been evaluated for the Site. The highest detection of PFOA was at 19 ng/L at OBG MW-7S, which is below both the drinking water (420 ng/L) and non-drinking water (12,000 ng/L) EGLE Rule 57 Surface Water Quality Values. The highest detection of PFOS was at 54 ng/L at OBG MW-7S, which is above the drinking water (11 ng/L) and non-drinking water (12 ng/L) surface water quality values. However, at these concentrations it is not likely that PFOS would migrate to surface water above the surface water values because surface water does not exist on or immediately adjacent to the Site. The nearest surface water body is the Schram Drain, which is approximately 500 feet east of OBG MW-7S and 400 feet to the east of OBG MW-10 (**Figure 1**). Shallow groundwater would need to migrate from the Site through waste fill in the adjacent former Hemphill Landfill to reach the drain. Furthermore, the storm sewers that traverse the Site (**Figure 5**) are installed

at depths above the groundwater level based on Site information. However, portions of the sanitary sewers that parallel and/or traverse the Site are below the groundwater level (**Figure 5**); therefore, there is a potential for groundwater migration from the Site to surface water through the currently existing sanitary sewer lines and ultimately the public treatment works. The planned Amended DRC will prevent any future infiltration of PFAS-impacted groundwater from migrating into any new utility by prohibiting construction, installation, or maintenance of subsurface utilities, structures or other features (collectively Subsurface Features), unless such activity is approved in writing in advance by EGLE and RACER Trust, and such activity incorporates engineering controls designed to eliminate the potential for the subsurface feature and/or the subsurface feature corridor to be a preferential contaminant migration pathway for impacted subsurface water or vapor, or for the subsurface feature to release fluids that could infiltrate through the subsurface and exacerbate existing environmental conditions including impacts to groundwater.

Exposure Pathway Evaluation Summary

As PFAS may remain in the subsurface material at the Site, the potential for exposure to these COCs has been evaluated in the above subsections. The presence of COCs above EGLE criteria is not, in itself, indicative of a threat to human health or the environment.

Based on the above evaluation of the potential exposure pathways, implementation of the proposed land and resource use restrictions presented in the draft NFA report will address all relevant exposure pathways, with the possible exception of the potential exposure pathway associated with the currently existing sanitary sewers. The planned Amended DRC will prevent potential future Subsurface Features creating complete exposure pathways.

Path Forward

Based on the results of the sampling and Exposure Pathway evaluation and to verify detected concentrations, a second round of groundwater sampling is recommended and can be completed during our next semiannual sampling event in October/November 2020. We will also be prepared to utilize a one inch PVC pipe with a slip cap on the end to insert in OBG MW-4S to below the LNAPL, followed by knocking off the slip cap to allow it to fall to the bottom of the well and collection of a sample through the PVC pipe below the LNAPL. This pipe could be dedicated to this well to allow future sampling events should they be deemed necessary. In addition, we propose the collection of sanitary sewer samples for ananlysis of PFAS from the manhole located just southeast of the Site from both the north and south sewer lines entering that manhole and from the manhole down stream from this manhole that is located west of the Site (**Figure 5**).

Following completion of the second round of PFAS groundwater and sewer sampling this technical memorandum will be updated to provide the results of both groundwater sampling events and the sanitary sewer sampling event, and present any recommendations for further activity.

If you have any questions or comments concerning this tech memo, please feel free to contact me at 313.333.0211 or Dave Favero at 217.741.6235.

Yours sincerely

O'BRIEN & GERE ENGINEERS, INC.

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Enclosures

Table 1 – Pre-and Polyfluroalkyl Substances (PFAS) Sampling Results - June/July 2020

Figure 1 – Site Location Map
Figure 2 – PFAS Sample Locations
Figure 3 – PFAS Sample Results
Figure 4 – Interpreted Shallow Groundwater Elevation Contours – June 29, 2020
Figure 5 – Site Utility Layout
Figure 6 – PFAS Sample Locations and Private Wells

Attachment A – Analytical Reports
Attachment B – Private Well Logs

cc: David Favero – RACER Trust
Kevin Schneider – Ramboll

TABLES

TABLE 1
RACER Trust - Hemphill Road Industrial Land
Pre-and Polyfluroalkyl Substances (PFAS) Sampling Results - June/July 2020

Hemphill Road Industrial Land - PFAS Pretreatment System Samples

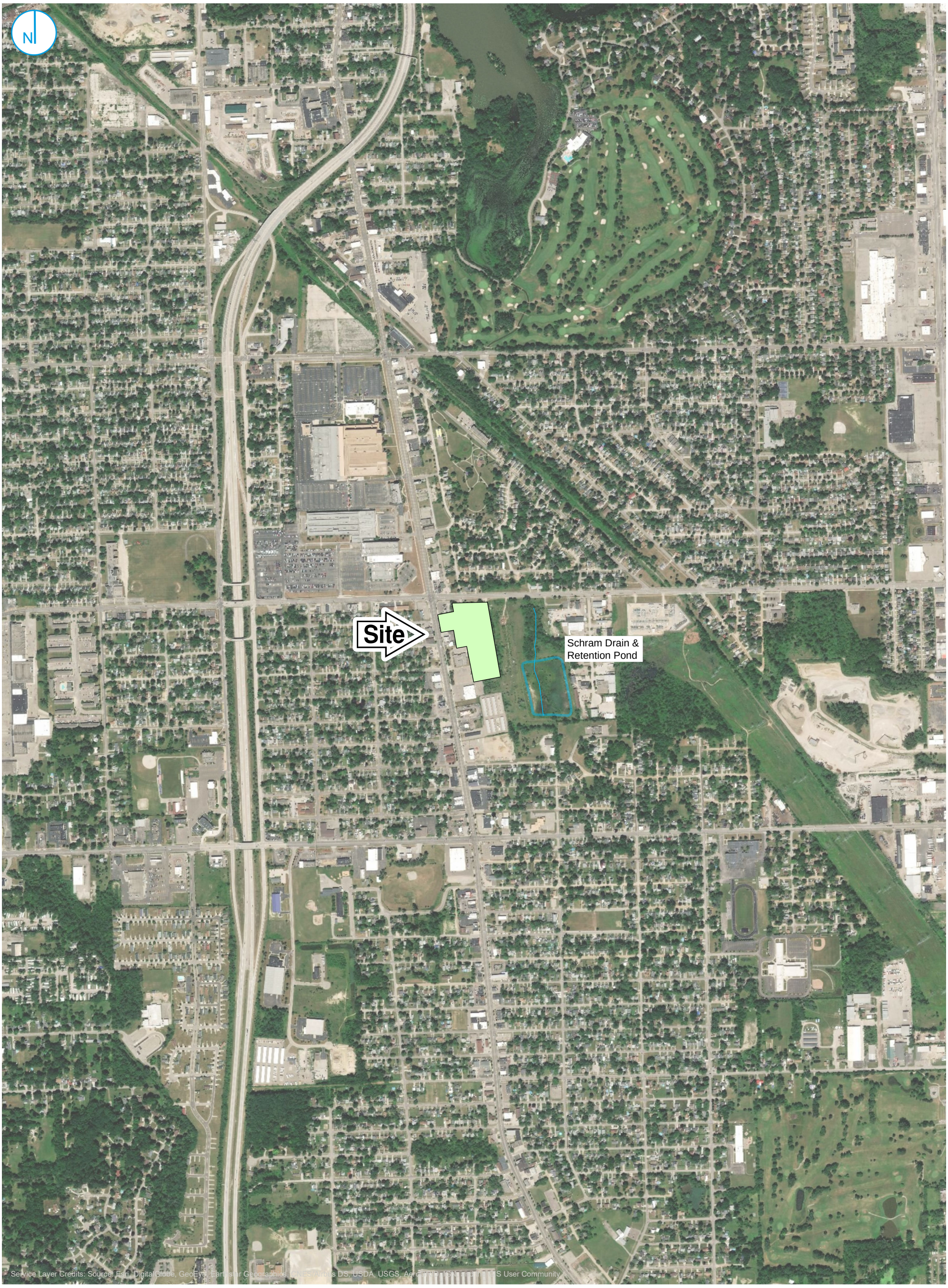
Perfluorinated Compound	Well/Sample ID:	OBG MW-1S	OBG MW-2S	OBG MW-3	OBG MW-5S	OBG MW-5S (DUP-1)	OBG MW-6S	OBG MW-7S	OBG MW-7D	OBG MW-8	OBG MW-10	Field Blank-062920 (Field Blank)	Field Blank-070120 (Field Blank)	Field Blank-070220 (Field Blank)	EGLE Drinking Water Maximum Contaminant Levels (MCLs)
	Sample Date:	6/29/2020	6/30/2020	6/30/2020	7/1/2020	7/1/2020	6/30/2020	6/29/2020	6/29/2020	6/30/2020	7/2/2020	6/29/2020	7/1/2020	7/2/2020	
Perfluorobutanoic Acid (PFBA)		**32 U**	**31 U**	**33 U**	<48 X	<38 X	**30 U**	**33 U**	**28 U**	**25 U**	**26 U**	**21**	**35**	**16**	--
Perfluoropentanoic Acid (PFPeA)		**7.7**	**7.6**	**4.1**	<3.8	<3.8	**4.9**	<3.8	<3.9	<4.1	<3.9	<4.0	<3.9	<4.0	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorohexanoic Acid (PFHxA)		**5.8**	**4.9**	**2.7**	<3.8 X	<3.8 X	**5.6**	**1.4 J**	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	**400,000**
Perfluorobutane Sulfonic Acid (PFBS)		**2.4**	<2.0	**3.8**	<3.8 X	<3.8 X	**4.4**	**1.5 J**	<1.9	<2.1	**1.4**	<2.0	<1.9	<2.0	**420**
Perfluoroheptanoic Acid (PFHpA)		<2.1	**1.8 J**	**2.2**	<1.9	**1.8 J**	**2.2**	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluoropentane Sulfonic Acid (PFPeS)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorooctanoic Acid (**PFOA**)		**3.9**	**2.3**	**4.2**	**8.7**	**9.8**	**8.8**	**19**	<1.9	<2.1	**9.6**	<2.0	<1.9	<2.0	**8**
Perfluorohexane Sulfonic Acid (PFHxS)		<2.1	<2.0	<1.9	**3.2**	**3.0**	<2.0	**3.7**	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	**51**
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		<2.1	<2.0	<1.9	**2.0**	<1.9	<2.0	**2.8**	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorononanoic Acid (PFNA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	**6**
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluoroheptane Sulfonic Acid (PFHpS)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorodecanoic Acid (PFDA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		<4.2	<3.9	<3.9	<3.8	<3.8	<4.0	**6.6**	<3.9	<4.1	**5.6**	<4.0	<3.9	<4.0	--
Perfluorooctane Sulfonic Acid (**PFOS**)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	**54**	<1.9	<2.1	**16**	<2.0	<1.9	<2.0	**16**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	**26**	<1.9	<2.1	**7.2**	<2.0	<1.9	<2.0	--
Perfluorooctane Sulfonic Acid (**PFOS**-BR)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	**27**	<1.9	<2.1	**8.5**	<2.0	<1.9	<2.0	--
Perfluoroundecanoic Acid (PFUnDA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorononane Sulfonic Acid (PFNS)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorododecanoic Acid (PFDoDA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorodecane Sulfonic Acid (PFDS)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorotridecanoic Acid (PFTrDA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorooctane Sulfonamide (FOSA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Perfluorotetradecanoic Acid (PFTeDA)		<4.2	<3.9	<3.9	<3.8	<3.8	<4.0	<3.8	<3.9	<4.1	<3.9	<4.0	<3.9	<4.0	--
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Hexafluoropropylene oxide dimer (HFPO-DA)		<2.1	<2.0	<1.9	<1.9	<1.9	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<1.9	<2.0	--
Total Per-and Polyfluoroalkyl Substances		**19.8**	**16.6**	**17.0**	**11.9**	**14.6**	**25.9**	**86.2**	**0.0**	**0.0**	**32.6**	**21.0**	**35.0**	**16.0**	--

Notes
1) Detections in **bold**.
2) Concentrations in ng/L.
3) < = Not detected at specified reporting limit.
4) -- = Not analyzed/No criteria.
5) Dup = Duplicate sample.
6) Concentrations above EGLE Drinking Water Maximum Contaminant Levels (MCLs) and cleanup criteria are highlighted in yellow.
7) According to Merit, the detection of PFBA in Field Blank-062920, Field Blank-070120, and Field Blank-070220 was caused from the laboratory centrifuge tubes leaching PFBA to the sample during the extraction process. A 5X Rule was applied to PFBA detections. Sample results less than 5 times the associated blank concentration (5X Rule) were qualified "U," undetected.
8) J - Estimated value less than reporting limit, but greater than MDL.
9) X - Elevated reporting limit due to matrix interference.

FIGURES

PROJECT: 169000XXXX | DATED: 4/21/2020 | DESIGNER: SCHNEIKB

I:\Racer-Trust.15388\75237.Hemphill-2020-B\Docs\Reports\PFAS Work Plan\001 - Figure 1 - Well Locations.mxd



0 500 1,000 2,000 Feet

SITE LOCATION MAP

RACER TRUST
HEMPHILL ROAD INDUSTRIAL LAND
BURTON, MICHIGAN

FIGURE 01

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 169000XXXX | DATED: 8/14/2020 | DESIGNER: MONETANT

I:\Racer-Trust.15388\75237.Hemphill-2020-B\Docs\Reports\PFAS Work Plan and Tech Memo\002 - Figure 2 - Well Locations_REV.mxd

LEGEND

- MONITORING WELL LOCATION (SCREENED IN NATIVE SOIL)
- MONITORING WELL LOCATION (SCREENED IN FILL)
- PFAS SAMPLE LOCATION
- FENCE LINE

0 50 100 Feet

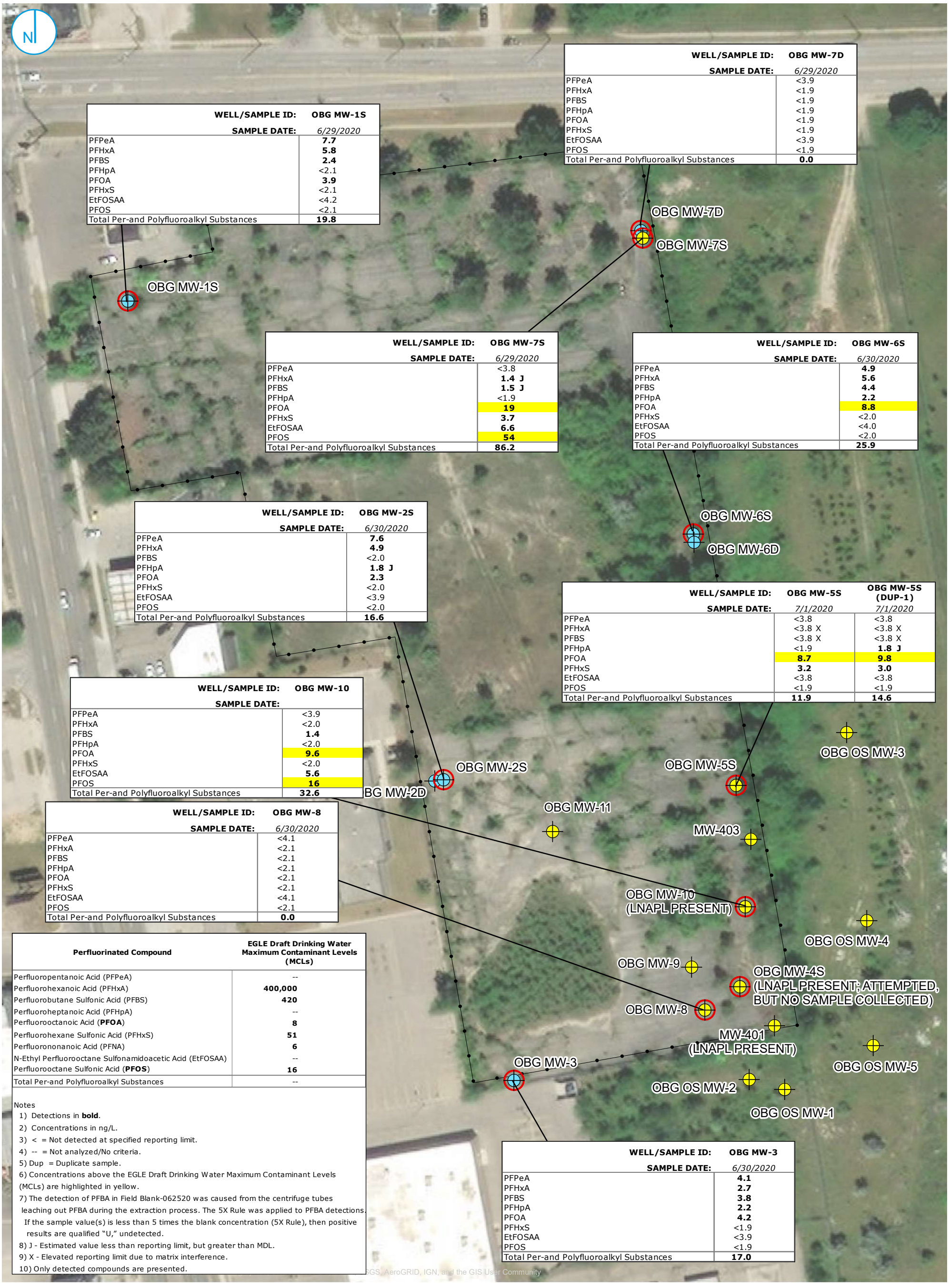
PFAS SAMPLE LOCATIONS

RACER TRUST
HEMPHILL ROAD INDUSTRIAL LAND
BURTON, MICHIGAN

FIGURE 02

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL



WELL/SAMPLE ID:	OBG MW-1S
SAMPLE DATE:	*6/29/2020*
PFPeA	**7.7**
PFHxA	**5.8**
PFBS	**2.4**
PFHpA	<2.1
PFOA	**3.9**
PFHxS	<2.1
EtFOSAA	<4.2
PFOS	<2.1
Total Per-and Polyfluoroalkyl Substances	**19.8**

WELL/SAMPLE ID:	OBG MW-7D
SAMPLE DATE:	*6/29/2020*
PFPeA	<3.9
PFHxA	<1.9
PFBS	<1.9
PFHpA	<1.9
PFOA	<1.9
PFHxS	<1.9
EtFOSAA	<3.9
PFOS	<1.9
Total Per-and Polyfluoroalkyl Substances	**0.0**

WELL/SAMPLE ID:	OBG MW-7S
SAMPLE DATE:	*6/29/2020*
PFPeA	<3.8
PFHxA	**1.4 J**
PFBS	**1.5 J**
PFHpA	<1.9
PFOA	**19**
PFHxS	**3.7**
EtFOSAA	**6.6**
PFOS	**54**
Total Per-and Polyfluoroalkyl Substances	**86.2**

WELL/SAMPLE ID:	OBG MW-6S
SAMPLE DATE:	*6/30/2020*
PFPeA	**4.9**
PFHxA	**5.6**
PFBS	**4.4**
PFHpA	**2.2**
PFOA	**8.8**
PFHxS	<2.0
EtFOSAA	<4.0
PFOS	<2.0
Total Per-and Polyfluoroalkyl Substances	**25.9**

WELL/SAMPLE ID:	OBG MW-2S
SAMPLE DATE:	*6/30/2020*
PFPeA	**7.6**
PFHxA	**4.9**
PFBS	<2.0
PFHpA	**1.8 J**
PFOA	**2.3**
PFHxS	<2.0
EtFOSAA	<3.9
PFOS	<2.0
Total Per-and Polyfluoroalkyl Substances	**16.6**

WELL/SAMPLE ID:	OBG MW-5S	OBG MW-5S (DUP-1)
SAMPLE DATE:	*7/1/2020*	*7/1/2020*
PFPeA	<3.8	<3.8
PFHxA	<3.8 X	<3.8 X
PFBS	<3.8 X	<3.8 X
PFHpA	<1.9	**1.8 J**
PFOA	**8.7**	**9.8**
PFHxS	**3.2**	**3.0**
EtFOSAA	<3.8	<3.8
PFOS	<1.9	<1.9
Total Per-and Polyfluoroalkyl Substances	**11.9**	**14.6**

WELL/SAMPLE ID:	OBG MW-10
SAMPLE DATE:	
PFPeA	<3.9
PFHxA	<2.0
PFBS	**1.4**
PFHpA	<2.0
PFOA	**9.6**
PFHxS	<2.0
EtFOSAA	**5.6**
PFOS	**16**
Total Per-and Polyfluoroalkyl Substances	**32.6**

WELL/SAMPLE ID:	OBG MW-8
SAMPLE DATE:	*6/30/2020*
PFPeA	<4.1
PFHxA	<2.1
PFBS	<2.1
PFHpA	<2.1
PFOA	<2.1
PFHxS	<2.1
EtFOSAA	<4.1
PFOS	<2.1
Total Per-and Polyfluoroalkyl Substances	**0.0**

Perfluorinated Compound	EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs)
Perfluoropentanoic Acid (PFPeA)	--
Perfluorohexanoic Acid (PFHxA)	**400,000**
Perfluorobutane Sulfonic Acid (PFBS)	**420**
Perfluoroheptanoic Acid (PFHpA)	--
Perfluorooctanoic Acid (**PFOA**)	**8**
Perfluorohexane Sulfonic Acid (PFHxS)	**51**
Perfluorononanoic Acid (PFNA)	**6**
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--
Perfluorooctane Sulfonic Acid (**PFOS**)	**16**
Total Per-and Polyfluoroalkyl Substances	--

Notes
1) Detections in **bold**.
2) Concentrations in ng/L.
3) < = Not detected at specified reporting limit.
4) -- = Not analyzed/No criteria.
5) Dup = Duplicate sample.
6) Concentrations above the EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs) are highlighted in yellow.
7) The detection of PFBA in Field Blank-062520 was caused from the centrifuge tubes leaching out PFBA during the extraction process. The 5X Rule was applied to PFBA detections. If the sample value(s) is less than 5 times the blank concentration (5X Rule), then positive results are qualified "U," undetected.
8) J - Estimated value less than reporting limit, but greater than MDL.
9) X - Elevated reporting limit due to matrix interference.
10) Only detected compounds are presented.

WELL/SAMPLE ID:	OBG MW-3
SAMPLE DATE:	*6/30/2020*
PFPeA	**4.1**
PFHxA	**2.7**
PFBS	**3.8**
PFHpA	**2.2**
PFOA	**4.2**
PFHxS	<1.9
EtFOSAA	<3.9
PFOS	<1.9
Total Per-and Polyfluoroalkyl Substances	**17.0**

LEGEND
- MONITORING WELL LOCATION (SCREENED IN NATIVE SOIL)
- MONITORING WELL LOCATION (SCREENED IN FILL)
- PFAS SAMPLE LOCATION
- FENCE LINE

0 50 100 Feet

PFAS SAMPLE RESULTS

RACER TRUST
HEMPHILL ROAD INDUSTRIAL LAND
BURTON, MICHIGAN

FIGURE 03

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

Notes:
1) Groundwater elevations for onsite wells OBG MW-4S, MW-401 and MW-403 were not recorded for this event.
2) OBG MW-1S, OBG MW-2S, OBG MW-3, and OBG MW-6S are screened in native soils.
The remaining wells are screened in waste material, which may constitue a different flow regime.
3) * Monitoring well screened in waste material.
4) This document was developed in color. Reproduction in B/W may not represent the data as intended.
5) Aerial photo provided by ESRI.

SHALLOW MONITORING WELL LOCATION

SHALLOW GROUNDWATER ELEVATION CONTOUR

FENCE LINE

0 50 100 Feet

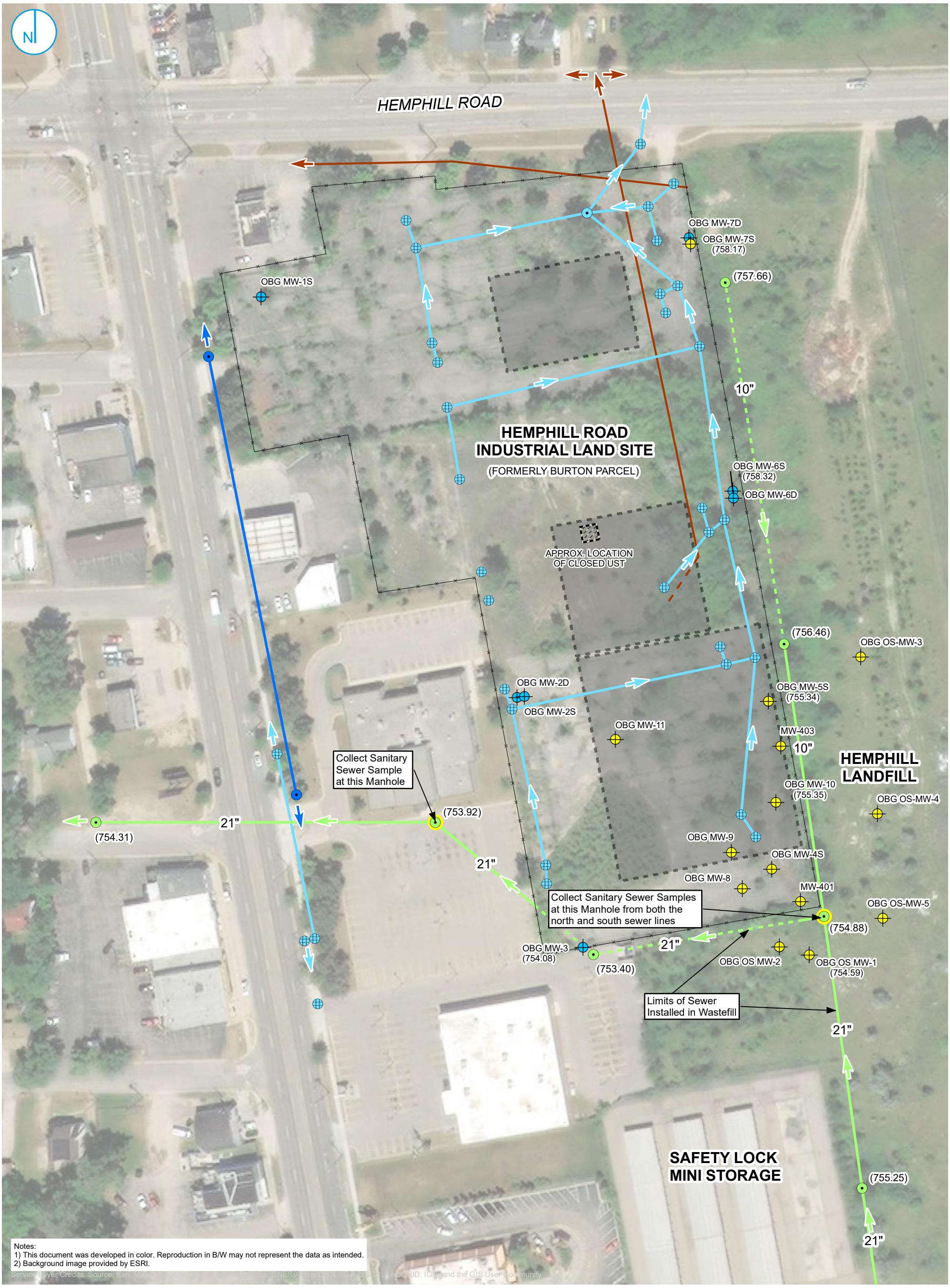
INTERPRETED SHALLOW GROUNDWATER ELEVATION CONTOURS JUNE 29, 2020

RACER TRUST
HEMPHILL ROAD INDUSTRIAL LAND
BURTON, MICHIGAN

FIGURE 04

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL



LEGEND

- STORM SEWER LINE
- SANITARY SEWER LINE (DIAMETER - 21")
- INSTALLED BELOW THE WATER TABLE
- WATER LINE
- MANHOLE (HIGHLIGHTED MANHOLE INDICATES PROPOSED SAMPLE)
- CATCH BASIN
- ELECTRICAL LINE (ABOVE/BELOW)
- FENCE LINE
- FORMER BUILDING

0 50 100 Feet

SITE UTILITY LAYOUT

Racer Trust
Hemphill Road Industrial Land
Burton, Michigan

FIGURE 05

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

LEGEND

- MONITORING WELL LOCATION (SCREENED IN NATIVE SOIL)
- MONITORING WELL LOCATION (SCREENED IN FILL)
- DRIFT AQUIFER WELL LOCATION
- BEDROCK AQUIFER WELL LOCATION
- PFAS SAMPLE LOCATION
- FENCE LINE

0 225 450
Feet

PFAS SAMPLE LOCATIONS AND PRIVATE WELLS

RACER TRUST
HEMPHILL ROAD INDUSTRIAL LAND
BURTON, MICHIGAN

FIGURE 06

RAMBOLL US CORPORATION
A RAMBOLL COMPANY

RAMBOLL

I:\Racer-Trust.15388\75237.Hemphill-2020-BI\Docs\Reports\PFAS Work Plan and Tech Memo\006 - Figure 6 - PFAS Sample Locations and Private Wells.mxd
PROJECT: 169000XXXX | DATED: 8/14/2020 | DESIGNER: MONETANT

ATTACHMENTS

RAMBOLL

ENVIRONMENT
& HEALTH

ATTACHMENT A
ANALYTICAL REPORTS

Analytical Laboratory Report

Report ID: S15307.01(01)
Generated on 07/22/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@obg.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S15307.01-S15307.06
Project: RACER Hemphill Road Industrial Land
Collected Date(s): 06/29/2020 - 06/30/2020
Submitted Date/Time: 06/30/2020 13:45
Sampled by: Kevin Schneider
P.O. #: PO

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S15307.01	Field Blank-062920	Water	06/29/20 00:01
S15307.02	OBG MW-1S	Groundwater	06/29/20 10:43
S15307.03	OBG MW-7S	Groundwater	06/29/20 13:24
S15307.04	OBG MW-7D	Groundwater	06/29/20 15:03
S15307.05	OBG MW-6S	Groundwater	06/30/20 09:47
S15307.06	OBG MW-2S	Groundwater	06/30/20 12:22

Lab Sample ID: S15307.01
Sample Tag: Field Blank-062920
Collected Date/Time: 06/29/2020 00:01
Matrix: Water
COC Reference: 134720

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	10.74/6.71/8	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 05:38, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	21	10.0	10.0	ng/L	1.99	375-22-4	
PFPeA*	Not detected	4.0	1.00	ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.99	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.99	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	Not detected	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	Not detected	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.99	13252-13-6	

Lab Sample ID: S15307.02
Sample Tag: OBG MW-1S
Collected Date/Time: 06/29/2020 10:43
Matrix: Groundwater
COC Reference: 134720

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.96/6.72/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 05:57, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	32	11	11	ng/L	2.1	375-22-4	
PFPeA*	7.7	4.2	1.1	ng/L	2.1	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.1	757124-72-4	
PFHxA*	5.8	2.1	1.5	ng/L	2.1	307-24-4	
PFBS*	2.4	2.1	1.5	ng/L	2.1	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.1	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.1	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.1	27619-97-2	
PFOA*	3.9	2.1	1.7	ng/L	2.1	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.1	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.1	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.1	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.1	375-95-1	
8:2 FTSA*	Not detected	2.1	1.1	ng/L	2.1	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.1	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.1	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.1	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.1	2991-50-6	
PFOS*	Not detected	2.1	2.1	ng/L	2.1	1763-23-1	
PFOS-LN*	Not detected	2.1	2.1	ng/L	2.1	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.1	ng/L	2.1	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.1	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.1	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.1	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.1	335-77-3	
PFTrDA*	Not detected	2.1	1.3	ng/L	2.1	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.1	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.1	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.1	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.1	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.1	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.1	13252-13-6	

Lab Sample ID: S15307.03
Sample Tag: OBG MW-7S
Collected Date/Time: 06/29/2020 13:24
Matrix: Groundwater
COC Reference: 134720

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.48/6.72/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 06:17, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	33	9.6	9.6	ng/L	1.91	375-22-4	
PFPeA*	Not detected	3.8	0.96	ng/L	1.91	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.91	757124-72-4	
PFHxA*	1.4	1.9	1.3	ng/L	1.91	307-24-4	J
PFBS*	1.5	1.9	1.3	ng/L	1.91	375-73-5	J
PFHpA*	Not detected	1.9	1.3	ng/L	1.91	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.91	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.91	27619-97-2	
PFOA*	19	1.9	1.5	ng/L	1.91	335-67-1	
PFHxS*	3.7	1.9	1.5	ng/L	1.91	355-46-4	
PFHxS-LN*	2.8	1.9	1.5	ng/L	1.91	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.91	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.91	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.91	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.91	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.91	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.91	2355-31-9	
EtFOSAA*	6.6	3.8	1.9	ng/L	1.91	2991-50-6	
PFOS*	54	1.9	1.9	ng/L	1.91	1763-23-1	
PFOS-LN*	26	1.9	1.9	ng/L	1.91	1763-23-1-LN	
PFOS-BR*	27	1.9	1.9	ng/L	1.91	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.91	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.91	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.91	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.91	335-77-3	
PFTrDA*	Not detected	1.9	1.1	ng/L	1.91	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.91	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.91	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.91	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.91	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.91	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.91	13252-13-6	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S15307.04
Sample Tag: OBG MW-7D
Collected Date/Time: 06/29/2020 15:03
Matrix: Groundwater
COC Reference: 134720

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.54/6.88/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 06:36, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	28	9.7	9.7	ng/L	1.94	375-22-4	
PFPeA*	Not detected	3.9	0.97	ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.6	ng/L	1.94	757124-72-4	
PFHxA*	Not detected	1.9	1.4	ng/L	1.94	307-24-4	
PFBS*	Not detected	1.9	1.4	ng/L	1.94	375-73-5	
PFHpA*	Not detected	1.9	1.4	ng/L	1.94	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.94	27619-97-2	
PFOA*	Not detected	1.9	1.6	ng/L	1.94	335-67-1	
PFHxS*	Not detected	1.9	1.6	ng/L	1.94	355-46-4	
PFHxS-LN*	Not detected	1.9	1.6	ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.6	ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.94	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.94	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.94	2991-50-6	
PFOS*	Not detected	1.9	1.9	ng/L	1.94	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.94	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.94	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.94	68259-12-1	
PFDoDA*	Not detected	1.9	1.6	ng/L	1.94	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.94	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.94	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.94	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.94	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.94	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.94	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.94	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.94	13252-13-6	

Lab Sample ID: S15307.05
Sample Tag: OBG MW-6S
Collected Date/Time: 06/30/2020 09:47
Matrix: Groundwater
COC Reference: 134720

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.89/6.85/10	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 06:56, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	30	9.9	9.9	ng/L	1.98	375-22-4	
PFPeA*	4.9	4.0	0.99	ng/L	1.98	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.98	757124-72-4	
PFHxA*	5.6	2.0	1.4	ng/L	1.98	307-24-4	
PFBS*	4.4	2.0	1.4	ng/L	1.98	375-73-5	
PFHpA*	2.2	2.0	1.4	ng/L	1.98	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.98	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.98	27619-97-2	
PFOA*	8.8	2.0	1.6	ng/L	1.98	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.98	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.98	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.98	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.98	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.98	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.98	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.98	2991-50-6	
PFOS*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.98	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.98	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.98	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.98	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.98	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.98	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.98	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.98	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.98	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.98	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.98	13252-13-6	

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S15307.06
Sample Tag: OBG MW-2S
Collected Date/Time: 06/30/2020 12:22
Matrix: Groundwater
COC Reference: 134720

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	5.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.78/6.69/10	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 07:15, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	31	9.8	9.8	ng/L	1.96	375-22-4	
PFPeA*	7.6	3.9	0.98	ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.96	757124-72-4	
PFHxA*	4.9	2.0	1.4	ng/L	1.96	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.96	375-73-5	
PFHpA*	1.8	2.0	1.4	ng/L	1.96	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.96	27619-97-2	
PFOA*	2.3	2.0	1.6	ng/L	1.96	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.96	2991-50-6	
PFOS*	Not detected	2.0	1.9	ng/L	1.96	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.9	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.96	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.96	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.96	13252-13-6	

J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories Login Checklist

Lab Set ID: S15307
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Hemphill Road Industrial Land
Submitted: 06/30/2020 13:45 Login User: SRS

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@obg.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 5.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[ ] Yes	[ ] No	[X] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

134720

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere, A Ramboll Company
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Hemphill Road Industrial Corridor
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jason Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
15307.01	6/29/20		Field Blank - 062920	QC	1	1							X	Low Level Reporting
.02		1043	OBG MW-1S	GW	3	3							X	limit with estimated
.03		1324	OBG MW-7S										X	values
.04		1503	OBG MW-7D										X	
.05	6/30/20	947	OBG MW-6S										X	
.06		1222	OBG MW-2S										X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 6/30/20	TIME 1255	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/30/20	TIME 1255	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6/30/20	TIME 1345	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/30/20	TIME 1345	

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 5.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Quality Control Report

Report ID: QC-S15307-01
Generated on 07/22/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S15307.01-S15307.06
Project: RACER Hemphill Road Industrial Land
Submitted Date/Time: 06/30/2020 13:45
Sampled by: Kevin Schneider
P.O. #: PO

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S15307.01
Sample Tag: Field Blank-062920
Collected Date/Time: 06/29/2020 00:01
Matrix: Water
COC Reference: 134720

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 05:38	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S15307.02
Sample Tag: OBG MW-1S
Collected Date/Time: 06/29/2020 10:43
Matrix: Groundwater
COC Reference: 134720

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 05:57	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S15307.03
Sample Tag: OBG MW-7S
Collected Date/Time: 06/29/2020 13:24
Matrix: Groundwater
COC Reference: 134720

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 06:17	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S15307.04
Sample Tag: OBG MW-7D
Collected Date/Time: 06/29/2020 15:03
Matrix: Groundwater
COC Reference: 134720

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 06:36	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S15307.05
Sample Tag: OBG MW-6S
Collected Date/Time: 06/30/2020 09:47
Matrix: Groundwater
COC Reference: 134720

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 06:56	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S15307.06

Sample Tag: OBG MW-2S

Collected Date/Time: 06/30/2020 12:22

Matrix: Groundwater

COC Reference: 134720

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 07:15	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF200710W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S15307.01	28 PFAs	ASTMD7979-19M	07/11/20 05:38	AK200710B
S15307.02	28 PFAs	ASTMD7979-19M	07/11/20 05:57	AK200710B
S15307.03	28 PFAs	ASTMD7979-19M	07/11/20 06:17	AK200710B
S15307.04	28 PFAs	ASTMD7979-19M	07/11/20 06:36	AK200710B
S15307.05	28 PFAs	ASTMD7979-19M	07/11/20 06:56	AK200710B
S15307.06	28 PFAs	ASTMD7979-19M	07/11/20 07:15	AK200710B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15307.01

Sample Tag: Field Blank-062920

Collected Date/Time: 06/29/2020 00:01

Matrix: Water

COC Reference: 134720

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 05:38, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**85.7**	50.0	150.0
M2-6:2FTSA		**82.1**	50.0	150.0
M2-8:2FTSA		**73.6**	50.0	150.0
M2PFTeDA		**124.1**	12.0	218.0
M3PFBS		**108.6**	50.0	150.0
M3PFHxS		**116.2**	50.0	150.0
M4PFHpA		**110.4**	50.0	150.0
M5PFHxA		**109.5**	50.0	150.0
M5PFPeA		**114.9**	50.0	150.0
M6PFDA		**104.0**	50.0	150.0
M7PFUnDA		**114.2**	50.0	150.0
M8FOSA		**131.1**	50.0	150.0
M8PFOA		**113.4**	50.0	150.0
M8PFOS		**109.7**	50.0	150.0
M9-PFNA		**101.8**	50.0	150.0
MPFBA		**116.9**	50.0	150.0
MPFDoDA		**106.3**	50.0	150.0
d3N-MeFOSAA		**98.5**	50.0	150.0
d5EtFOSAA		**101.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15307.02

Sample Tag: OBG MW-1S

Collected Date/Time: 06/29/2020 10:43

Matrix: Groundwater

COC Reference: 134720

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 05:57, Matrix: WW, Dilution: 2.1

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**91.9**	50.0	150.0
M2-6:2FTSA		**85.9**	50.0	150.0
M2-8:2FTSA		**94.8**	50.0	150.0
M2PFTeDA		**142.6**	12.0	218.0
M3PFBS		**116.5**	50.0	150.0
M3PFHxS		**114.9**	50.0	150.0
M4PFHpA		**119.9**	50.0	150.0
M5PFHxA		**118.3**	50.0	150.0
M5PFPeA		**121.4**	50.0	150.0
M6PFDA		**120.0**	50.0	150.0
M7PFUnDA		**118.8**	50.0	150.0
M8FOSA		**131.9**	50.0	150.0
M8PFOA		**117.8**	50.0	150.0
M8PFOS		**118.2**	50.0	150.0
M9-PFNA		**116.2**	50.0	150.0
MPFBA		**126.4**	50.0	150.0
MPFDoDA		**113.2**	50.0	150.0
d3N-MeFOSAA		**112.1**	50.0	150.0
d5EtFOSAA		**111.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15307.03

Sample Tag: OBG MW-7S

Collected Date/Time: 06/29/2020 13:24

Matrix: Groundwater

COC Reference: 134720

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 06:17, Matrix: WW, Dilution: 1.91

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**106.5**	50.0	150.0
M2-6:2FTSA		**88.7**	50.0	150.0
M2-8:2FTSA		**92.4**	50.0	150.0
M2PFTeDA		**130.8**	12.0	218.0
M3PFBS		**113.8**	50.0	150.0
M3PFHxS		**116.0**	50.0	150.0
M4PFHpA		**121.8**	50.0	150.0
M5PFHxA		**115.3**	50.0	150.0
M5PFPeA		**119.0**	50.0	150.0
M6PFDA		**111.7**	50.0	150.0
M7PFUnDA		**112.2**	50.0	150.0
M8FOSA		**131.9**	50.0	150.0
M8PFOA		**115.0**	50.0	150.0
M8PFOS		**110.3**	50.0	150.0
M9-PFNA		**110.2**	50.0	150.0
MPFBA		**126.0**	50.0	150.0
MPFDoDA		**113.9**	50.0	150.0
d3N-MeFOSAA		**104.0**	50.0	150.0
d5EtFOSAA		**111.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15307.04

Sample Tag: OBG MW-7D

Collected Date/Time: 06/29/2020 15:03

Matrix: Groundwater

COC Reference: 134720

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 06:36, Matrix: WW, Dilution: 1.94

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**85.8**	50.0	150.0
M2-6:2FTSA		**90.3**	50.0	150.0
M2-8:2FTSA		**82.0**	50.0	150.0
M2PFTeDA		**95.9**	12.0	218.0
M3PFBS		**106.4**	50.0	150.0
M3PFHxS		**113.6**	50.0	150.0
M4PFHpA		**108.1**	50.0	150.0
M5PFHxA		**109.4**	50.0	150.0
M5PFPeA		**117.6**	50.0	150.0
M6PFDA		**106.0**	50.0	150.0
M7PFUnDA		**102.6**	50.0	150.0
M8FOSA		**123.1**	50.0	150.0
M8PFOA		**114.1**	50.0	150.0
M8PFOS		**117.3**	50.0	150.0
M9-PFNA		**106.4**	50.0	150.0
MPFBA		**119.0**	50.0	150.0
MPFDoDA		**101.5**	50.0	150.0
d3N-MeFOSAA		**106.1**	50.0	150.0
d5EtFOSAA		**100.9**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15307.05

Sample Tag: OBG MW-6S

Collected Date/Time: 06/30/2020 09:47

Matrix: Groundwater

COC Reference: 134720

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 06:56, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**87.4**	50.0	150.0
M2-6:2FTSA		**82.3**	50.0	150.0
M2-8:2FTSA		**81.2**	50.0	150.0
M2PFTeDA		**115.5**	12.0	218.0
M3PFBS		**114.2**	50.0	150.0
M3PFHxS		**122.2**	50.0	150.0
M4PFHpA		**119.6**	50.0	150.0
M5PFHxA		**121.1**	50.0	150.0
M5PFPeA		**121.8**	50.0	150.0
M6PFDA		**112.9**	50.0	150.0
M7PFUnDA		**116.1**	50.0	150.0
M8FOSA		**129.8**	50.0	150.0
M8PFOA		**119.3**	50.0	150.0
M8PFOS		**116.4**	50.0	150.0
M9-PFNA		**114.6**	50.0	150.0
MPFBA		**125.1**	50.0	150.0
MPFDoDA		**106.7**	50.0	150.0
d3N-MeFOSAA		**115.4**	50.0	150.0
d5EtFOSAA		**120.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15307.06

Sample Tag: OBG MW-2S

Collected Date/Time: 06/30/2020 12:22

Matrix: Groundwater

COC Reference: 134720

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 07:15, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**83.4**	50.0	150.0
M2-6:2FTSA		**83.1**	50.0	150.0
M2-8:2FTSA		**82.0**	50.0	150.0
M2PFTeDA		**126.0**	12.0	218.0
M3PFBS		**111.6**	50.0	150.0
M3PFHxS		**111.7**	50.0	150.0
M4PFHpA		**115.0**	50.0	150.0
M5PFHxA		**111.6**	50.0	150.0
M5PFPeA		**116.3**	50.0	150.0
M6PFDA		**109.9**	50.0	150.0
M7PFUnDA		**111.4**	50.0	150.0
M8FOSA		**127.7**	50.0	150.0
M8PFOA		**107.3**	50.0	150.0
M8PFOS		**121.7**	50.0	150.0
M9-PFNA		**106.4**	50.0	150.0
MPFBA		**120.6**	50.0	150.0
MPFDoDA		**110.8**	50.0	150.0
d3N-MeFOSAA		**100.3**	50.0	150.0
d5EtFOSAA		**116.2**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF200710W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK200710B.BLK200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 05:18, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.6**	50.0	150.0
M2-6:2FTSA		**83.4**	50.0	150.0
M2-8:2FTSA		**77.1**	50.0	150.0
M2PFTeDA		**125.2**	12.0	218.0
M3PFBS		**115.3**	50.0	150.0
M3PFHxS		**111.8**	50.0	150.0
M4PFHpA		**120.8**	50.0	150.0
M5PFHxA		**114.2**	50.0	150.0
M5PFPeA		**115.9**	50.0	150.0
M6PFDA		**108.6**	50.0	150.0
M7PFUnDA		**98.3**	50.0	150.0
M8FOSA		**129.8**	50.0	150.0
M8PFOA		**120.2**	50.0	150.0
M8PFOS		**117.7**	50.0	150.0
M9-PFNA		**111.4**	50.0	150.0
MPFBA		**120.1**	50.0	150.0
MPFDoDA		**112.3**	50.0	150.0
d3N-MeFOSAA		**115.4**	50.0	150.0
d5EtFOSAA		**117.7**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**76.9**	50.0	150.0
M2-6:2FTSA		**77.1**	50.0	150.0
M2-8:2FTSA		**73.1**	50.0	150.0
M2PFTeDA		**119.8**	12.0	218.0
M3PFBS		**100.7**	50.0	150.0
M3PFHxS		**108.2**	50.0	150.0
M4PFHpA		**103.5**	50.0	150.0
M5PFHxA		**105.3**	50.0	150.0
M5PFPeA		**107.1**	50.0	150.0
M6PFDA		**103.6**	50.0	150.0
M7PFUnDA		**100.7**	50.0	150.0
M8FOSA		**118.2**	50.0	150.0
M8PFOA		**103.1**	50.0	150.0
M8PFOS		**103.3**	50.0	150.0
M9-PFNA		**102.8**	50.0	150.0
MPFBA		**110.5**	50.0	150.0
MPFDoDA		**97.9**	50.0	150.0
d3N-MeFOSAA		**95.4**	50.0	150.0
d5EtFOSAA		**114.8**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**78.3**	50.0	150.0
M2-6:2FTSA		**78.6**	50.0	150.0
M2-8:2FTSA		**72.0**	50.0	150.0
M2PFTeDA		**136.7**	12.0	218.0
M3PFBS		**109.2**	50.0	150.0
M3PFHxS		**111.6**	50.0	150.0
M4PFHpA		**110.9**	50.0	150.0
M5PFHxA		**110.5**	50.0	150.0
M5PFPeA		**113.8**	50.0	150.0
M6PFDA		**100.5**	50.0	150.0
M7PFUnDA		**104.9**	50.0	150.0
M8FOSA		**125.9**	50.0	150.0
M8PFOA		**108.6**	50.0	150.0
M8PFOS		**108.6**	50.0	150.0
M9-PFNA		**109.0**	50.0	150.0
MPFBA		**115.8**	50.0	150.0
MPFDoDA		**111.5**	50.0	150.0
d3N-MeFOSAA		**102.0**	50.0	150.0
d5EtFOSAA		**107.5**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK200710B.1540203M, Parent Sample ID: S15402.02

Run in Batch: AK200710B, Run Date: 07/11/2020 10:30, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**92.8**	50.0	150.0
M2-6:2FTSA		**94.1**	50.0	150.0
M2-8:2FTSA		**87.7**	50.0	150.0
M2PFTeDA		**115.7**	12.0	218.0
M3PFBS		**117.8**	50.0	150.0
M3PFHxS		**118.6**	50.0	150.0
M4PFHpA		**121.3**	50.0	150.0
M5PFHxA		**116.4**	50.0	150.0
M5PFPeA		**123.7**	50.0	150.0
M6PFDA		**109.7**	50.0	150.0
M7PFUnDA		**113.6**	50.0	150.0
M8FOSA		**137.4**	50.0	150.0
M8PFOA		**118.7**	50.0	150.0
M8PFOS		**118.4**	50.0	150.0
M9-PFNA		**120.5**	50.0	150.0
MPFBA		**128.6**	50.0	150.0
MPFDoDA		**109.6**	50.0	150.0
d3N-MeFOSAA		**111.5**	50.0	150.0
d5EtFOSAA		**113.9**	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**86.2**	50.0	150.0
M2-6:2FTSA		**89.5**	50.0	150.0
M2-8:2FTSA		**96.6**	50.0	150.0
M2PFTeDA		**117.7**	12.0	218.0
M3PFBS		**115.2**	50.0	150.0
M3PFHxS		**116.8**	50.0	150.0
M4PFHpA		**123.5**	50.0	150.0
M5PFHxA		**121.5**	50.0	150.0
M5PFPeA		**124.8**	50.0	150.0
M6PFDA		**119.5**	50.0	150.0
M7PFUnDA		**113.7**	50.0	150.0
M8FOSA		**141.2**	50.0	150.0
M8PFOA		**119.8**	50.0	150.0
M8PFOS		**124.8**	50.0	150.0
M9-PFNA		**115.1**	50.0	150.0
MPFBA		**129.7**	50.0	150.0
MPFDoDA		**101.1**	50.0	150.0
d3N-MeFOSAA		**112.5**	50.0	150.0
d5EtFOSAA		**117.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF200710W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK200710B.BLK200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 05:18, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	20.0	ng/l
PFPeA		ND	10.0	ng/l
4:2 FTSA		ND	10.0	ng/l
PFHxA		ND	10.0	ng/l
PFBS		ND	10.0	ng/l
PFHpA		ND	10.0	ng/l
PFPeS		ND	10.0	ng/l
6:2 FTSA		ND	10.0	ng/l
PFOA		ND	10.0	ng/l
PFHxS		ND	10.0	ng/l
PFHxS-LN		ND	10.0	ng/l
PFHxS-BR		ND	10.0	ng/l
PFNA		ND	10.0	ng/l
8:2 FTSA		ND	10.0	ng/l
PFHpS		ND	10.0	ng/l
PFDA		ND	10.0	ng/l
N-MeFOSAA		ND	10.0	ng/l
EtFOSAA		ND	10.0	ng/l
PFOS		ND	10.0	ng/l
PFOS-LN		ND	10.0	ng/l
PFOS-BR		ND	10.0	ng/l
PFUnDA		ND	10.0	ng/l
PFNS		ND	10.0	ng/l
PFDoDA		ND	10.0	ng/l
PFDS		ND	10.0	ng/l
PFTrDA		ND	10.0	ng/l
FOSA		ND	10.0	ng/l
PFTeDA		ND	10.0	ng/l
11CL-PF3OUdS		ND	1	ng/l
9CL-PF3ONS		ND	1	ng/l
ADONA		ND	1	ng/l
HFPO-DA		ND	1	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		118.0	70.0	130.0
PFPeA		117.0	70.0	130.0
4:2 FTSA		113.0	70.0	130.0
PFHxA		111.0	70.0	130.0
PFBS		117.0	70.0	130.0
HFPO-DA		112.0	70.0	130.0
PFHpA		113.0	70.0	130.0
PFPeS		128.0	70.0	130.0
ADONA		113.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		118.0	70.0	130.0
PFOA		127.0	70.0	130.0
PFHxS		99.6	70.0	130.0
PFNA		114.0	70.0	130.0
8:2 FTSA		112.0	70.0	130.0
PFHpS		104.0	70.0	130.0
N-MeFOSAA		128.0	70.0	130.0
PFDA		116.0	70.0	130.0
EtFOSAA		99.5	70.0	130.0
PFOS		119.0	70.0	130.0
PFUnDA		120.0	70.0	130.0
9CL-PF3ONS		123.0	70.0	130.0
PFNS		124.0	70.0	130.0
PFDoDA		129.0	70.0	130.0
PFDS		129.0	70.0	130.0
PFTrDA		119.0	70.0	130.0
FOSA		129.0	70.0	130.0
11CL-PF3OUdS		124.0	70.0	130.0
PFTeDA		124.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		115.0	70.0	130.0	2.6	30.0
PFPeA		111.0	70.0	130.0	5.3	30.0
4:2 FTSA		118.0	70.0	130.0	4.3	30.0
PFHxA		113.0	70.0	130.0	1.8	30.0
PFBS		112.0	70.0	130.0	4.4	30.0
HFPO-DA		114.0	70.0	130.0	1.8	30.0
PFHpA		111.0	70.0	130.0	1.8	30.0
PFPeS		116.0	70.0	130.0	9.8	30.0
ADONA		112.0	70.0	130.0	0.9	30.0
6:2 FTSA		127.0	70.0	130.0	7.3	30.0
PFOA		116.0	70.0	130.0	9.1	30.0
PFHxS		106.0	70.0	130.0	6.2	30.0
PFNA		119.0	70.0	130.0	4.3	30.0
8:2 FTSA		110.0	70.0	130.0	1.8	30.0
PFHpS		104.0	70.0	130.0	0.0	30.0
N-MeFOSAA		118.0	70.0	130.0	8.1	30.0
PFDA		118.0	70.0	130.0	1.7	30.0
EtFOSAA		105.0	70.0	130.0	5.4	30.0
PFOS		110.0	70.0	130.0	7.9	30.0
PFUnDA		109.0	70.0	130.0	9.6	30.0
9CL-PF3ONS		108.0	70.0	130.0	13.0	30.0
PFNS		109.0	70.0	130.0	12.9	30.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		114.0	70.0	130.0	12.3	30.0
PFDS		119.0	70.0	130.0	8.1	30.0
PFTrDA		112.0	70.0	130.0	6.1	30.0
FOSA		117.0	70.0	130.0	9.8	30.0
11CL-PF3OUdS		123.0	70.0	130.0	0.8	30.0
PFTeDA		112.0	70.0	130.0	10.2	30.0

Matrix Spike (MS)

Lab Sample ID: AK200710B.1540203M, Parent Sample ID: S15402.02

Run in Batch: AK200710B, Run Date: 07/11/2020 10:30, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFBA		103.6	70.0	130.0
PFPeA		116.8	70.0	130.0
4:2 FTSA		111.7	70.0	130.0
PFHxA		119.8	70.0	130.0
PFBS		106.6	70.0	130.0
PFHpA		113.7	70.0	130.0
PFPeS	*	133.0	70.0	130.0
6:2 FTSA		101.5	70.0	130.0
PFOA	*	136.0	70.0	130.0
PFHxS		101.5	70.0	130.0
PFNA		111.7	70.0	130.0
8:2 FTSA		85.3	70.0	130.0
PFHpS		99.5	70.0	130.0
PFDA		121.8	70.0	130.0
N-MeFOSAA		121.8	70.0	130.0
EtFOSAA		101.5	70.0	130.0
PFOS		101.5	70.0	130.0
PFUnDA		101.5	70.0	130.0
PFNS		111.7	70.0	130.0
PFDoDA		111.7	70.0	130.0
PFDS		111.7	70.0	130.0
PFTrDA		101.5	70.0	130.0
FOSA		111.7	70.0	130.0
PFTeDA		111.7	70.0	130.0
11CL-PF3OUdS		111.7	70.0	130.0
9CL-PF3ONS		111.7	70.0	130.0
ADONA		101.5	70.0	130.0
HFPO-DA		111.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		129.4	70.0	130.0	18.2	30.0
PFPeA		112.7	70.0	130.0	0.0	30.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
4:2 FTSA		117.6	70.0	130.0	8.7	30.0
PFHxA		105.9	70.0	130.0	6.1	30.0
PFBS		112.7	70.0	130.0	6.9	30.0
PFHpA		100.0	70.0	130.0	6.5	30.0
PFPeS		118.6	70.0	130.0	6.5	30.0
6:2 FTSA		117.6	70.0	130.0	18.2	30.0
PFOA		111.8	70.0	130.0	11.8	30.0
PFHxS		107.8	70.0	130.0	3.2	30.0
PFNA		107.8	70.0	130.0	0.0	30.0
8:2 FTSA		87.3	70.0	130.0	5.8	30.0
PFHpS		107.8	70.0	130.0	11.5	30.0
PFDA		98.0	70.0	130.0	18.2	30.0
N-MeFOSAA		107.8	70.0	130.0	8.7	30.0
EtFOSAA		91.2	70.0	130.0	7.3	30.0
PFOS		88.2	70.0	130.0	3.8	30.0
PFUnDA		107.8	70.0	130.0	9.5	30.0
PFNS		98.0	70.0	130.0	9.5	30.0
PFDoDA		117.6	70.0	130.0	8.7	30.0
PFDS		107.8	70.0	130.0	0.0	30.0
PFTrDA		117.6	70.0	130.0	18.2	30.0
FOSA		107.8	70.0	130.0	0.0	30.0
PFTeDA		117.6	70.0	130.0	8.7	30.0
11CL-PF3OUdS		98.0	70.0	130.0	9.5	30.0
9CL-PF3ONS		107.8	70.0	130.0	0.0	30.0
ADONA		107.8	70.0	130.0	9.5	30.0
HFPO-DA		107.8	70.0	130.0	0.0	30.0

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
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www.meritlabs.com

C.O.C. PAGE # 1 OF 1

134720

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere, A Ramboll Company
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Hemphill Road Industrial Corridor
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Jason Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
15307.01	6/29/20		Field Blank - 062920	QC	1	1							X	Low Level Reporting
.02		1043	OBG MW-1S	GW	3	3							X	limit with estimated
.03		1324	OBG MW-7S										X	values
.04		1503	OBG MW-7D										X	
.05	6/30/20	947	OBG MW-6S										X	
.06		1222	OBG MW-2S										X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 6/30/20	TIME 1255	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/30/20	TIME 1255	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6/30/20	TIME 1345	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 6/30/20	TIME 1345	

RELINQUISHED BY: SIGNATURE/ORGANIZATION — DATE — TIME
RECEIVED BY: SIGNATURE/ORGANIZATION — DATE — TIME

SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS
SEAL NO. — SEAL INTACT YES ☐ NO ☐ — INITIALS

NOTES: TEMP. ON ARRIVAL 5.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S15347.01(01)
Generated on 07/23/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@obg.com

Report produced by

Merit Laboratories, Inc.
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East Lansing, MI 48823

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Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S15347.01-S15347.05
Project: RACER Hemphill Road Industrial Land
Collected Date(s): 06/30/2020 - 07/01/2020
Submitted Date/Time: 07/01/2020 14:10
Sampled by: Kevin Schneider
P.O. #: PO

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S15347.01	OBG MW-3	Groundwater	06/30/20 14:47
S15347.02	OBG MW-8	Groundwater	06/30/20 16:08
S15347.03	Field Blank-070120	Water	07/01/20 09:50
S15347.04	DUP-1	Groundwater	07/01/20 00:01
S15347.05	OBG MW-5S	Groundwater	07/01/20 10:22

Lab Sample ID: S15347.01
Sample Tag: OBG MW-3
Collected Date/Time: 06/30/2020 14:47
Matrix: Groundwater
COC Reference: 134719

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.59/6.89/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 07:35, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	33	9.7	9.7	ng/L	1.93	375-22-4	
PFPeA*	4.1	3.9	0.97	ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.93	757124-72-4	
PFHxA*	2.7	1.9	1.4	ng/L	1.93	307-24-4	
PFBS*	3.8	1.9	1.4	ng/L	1.93	375-73-5	
PFHpA*	2.2	1.9	1.4	ng/L	1.93	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.93	27619-97-2	
PFOA*	4.2	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.93	13252-13-6	

Lab Sample ID: S15347.02
Sample Tag: OBG MW-8
Collected Date/Time: 06/30/2020 16:08
Matrix: Groundwater
COC Reference: 134719

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.70/6.87/10	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 07:54, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	25	10	10	ng/L	2.07	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.07	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.07	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.07	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.07	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.07	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.07	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.07	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.07	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.07	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.07	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.07	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.07	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.07	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.07	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.07	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.07	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.07	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.07	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.07	335-77-3	
PFTrDA*	Not detected	2.1	1.2	ng/L	2.07	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.07	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.07	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.07	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.07	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.07	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.07	13252-13-6	

Lab Sample ID: S15347.03
Sample Tag: Field Blank-070120
Collected Date/Time: 07/01/2020 09:50
Matrix: Water
COC Reference: 134719

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.71/7.00/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 08:14, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	35	9.7	9.7	ng/L	1.93	375-22-4	
PFPeA*	Not detected	3.9	0.97	ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.93	757124-72-4	
PFHxA*	Not detected	1.9	1.4	ng/L	1.93	307-24-4	
PFBS*	Not detected	1.9	1.4	ng/L	1.93	375-73-5	
PFHpA*	Not detected	1.9	1.4	ng/L	1.93	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.93	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.93	13252-13-6	

Lab Sample ID: S15347.04
Sample Tag: DUP-1
Collected Date/Time: 07/01/2020 00:01
Matrix: Groundwater
COC Reference: 134719

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.59/6.87/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 08:33, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	38	9.6	ng/L	1.92	375-22-4	X
PFPeA*	Not detected	3.8	0.96	ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.92	757124-72-4	
PFHxA*	Not detected	3.8	1.3	ng/L	1.92	307-24-4	X
PFBS*	Not detected	3.8	1.3	ng/L	1.92	375-73-5	X
PFHpA*	1.8	1.9	1.3	ng/L	1.92	375-85-9	J
PFPeS*	Not detected	1.9	1.7	ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.92	27619-97-2	
PFOA*	9.8	1.9	1.5	ng/L	1.92	335-67-1	
PFHxS*	3.0	1.9	1.5	ng/L	1.92	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.92	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.92	2991-50-6	
PFOS*	Not detected	1.9	1.9	ng/L	1.92	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.92	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.92	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.92	13252-13-6	

X-Elevated reporting limit due to matrix interference
J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S15347.05
Sample Tag: OBG MW-5S
Collected Date/Time: 07/01/2020 10:22
Matrix: Groundwater
COC Reference: 134719

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.46/6.74/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 08:53, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	48	9.6	ng/L	1.92	375-22-4	X
PFPeA*	Not detected	3.8	0.96	ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.92	757124-72-4	
PFHxA*	Not detected	3.8	1.3	ng/L	1.92	307-24-4	X
PFBS*	Not detected	3.8	1.3	ng/L	1.92	375-73-5	X
PFHpA*	Not detected	1.9	1.3	ng/L	1.92	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.92	27619-97-2	
PFOA*	8.7	1.9	1.5	ng/L	1.92	335-67-1	
PFHxS*	3.2	1.9	1.5	ng/L	1.92	355-46-4	
PFHxS-LN*	2.0	1.9	1.5	ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.92	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.92	2991-50-6	
PFOS*	Not detected	1.9	1.9	ng/L	1.92	1763-23-1	
PFOS-LN*	Not detected	1.9	1.9	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.92	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.92	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.92	13252-13-6	

X-Elevated reporting limit due to matrix interference

Merit Laboratories Login Checklist

Lab Set ID: S15347
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Hemphill Road Industrial Land
Submitted: 07/01/2020 14:10 Login User: MMC

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@obg.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

134719

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere, A Ramboll Company
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.:
E-MAIL ADDRESS: clifford.yantz@ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Hemphill Road Industrial Corr
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
15347.01	6/30/20	1447	OBG MW-3	GW	3	3							X	Low level reporting limit with estimated values
.02	6/30/20	1608	OBG MW-8	GW	3	3							X	
.03	7/1/20	950	Field Blank - 070120	QC	1	1							X	
.04	↓	—	DUP-1	GW	3	3							X	
.05		1022	OBG MW-5S	GW	3	3							X	

KBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE	TIME
		7/1/20	1321
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/1/20	1321
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/1/20	14:10
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/1/2020	1410

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Quality Control Report

Report ID: QC-S15347-01
Generated on 07/24/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S15347.01-S15347.05
Project: RACER Hemphill Road Industrial Land
Submitted Date/Time: 07/01/2020 14:10
Sampled by: Kevin Schneider
P.O. #: 12000648

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S15347.01
Sample Tag: OBG MW-3
Collected Date/Time: 06/30/2020 14:47
Matrix: Groundwater
COC Reference: 134719

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 07:35	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S15347.02
Sample Tag: OBG MW-8
Collected Date/Time: 06/30/2020 16:08
Matrix: Groundwater
COC Reference: 134719

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 07:54	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S15347.03
Sample Tag: Field Blank-070120
Collected Date/Time: 07/01/2020 09:50
Matrix: Water
COC Reference: 134719

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 08:14	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S15347.04

Sample Tag: DUP-1

Collected Date/Time: 07/01/2020 00:01

Matrix: Groundwater

COC Reference: 134719

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 08:33	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S15347.05
Sample Tag: OBG MW-5S
Collected Date/Time: 07/01/2020 10:22
Matrix: Groundwater
COC Reference: 134719

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 08:53	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF200710W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S15347.01	28 PFAs	ASTMD7979-19M	07/11/20 07:35	AK200710B
S15347.02	28 PFAs	ASTMD7979-19M	07/11/20 07:54	AK200710B
S15347.03	28 PFAs	ASTMD7979-19M	07/11/20 08:14	AK200710B
S15347.04	28 PFAs	ASTMD7979-19M	07/11/20 08:33	AK200710B
S15347.05	28 PFAs	ASTMD7979-19M	07/11/20 08:53	AK200710B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15347.01

Sample Tag: OBG MW-3

Collected Date/Time: 06/30/2020 14:47

Matrix: Groundwater

COC Reference: 134719

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 07:35, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**89.0**	50.0	150.0
M2-6:2FTSA		**80.9**	50.0	150.0
M2-8:2FTSA		**85.6**	50.0	150.0
M2PFTeDA		**95.9**	12.0	218.0
M3PFBS		**112.0**	50.0	150.0
M3PFHxS		**110.3**	50.0	150.0
M4PFHpA		**120.1**	50.0	150.0
M5PFHxA		**113.8**	50.0	150.0
M5PFPeA		**117.6**	50.0	150.0
M6PFDA		**100.7**	50.0	150.0
M7PFUnDA		**114.5**	50.0	150.0
M8FOSA		**128.7**	50.0	150.0
M8PFOA		**113.4**	50.0	150.0
M8PFOS		**115.7**	50.0	150.0
M9-PFNA		**108.9**	50.0	150.0
MPFBA		**122.2**	50.0	150.0
MPFDoDA		**105.7**	50.0	150.0
d3N-MeFOSAA		**113.5**	50.0	150.0
d5EtFOSAA		**109.9**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15347.02

Sample Tag: OBG MW-8

Collected Date/Time: 06/30/2020 16:08

Matrix: Groundwater

COC Reference: 134719

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 07:54, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**118.1**	50.0	150.0
M2-6:2FTSA		**98.3**	50.0	150.0
M2-8:2FTSA		**96.1**	50.0	150.0
M2PFTeDA		**145.6**	12.0	218.0
M3PFBS		**113.7**	50.0	150.0
M3PFHxS		**122.0**	50.0	150.0
M4PFHpA		**119.8**	50.0	150.0
M5PFHxA		**124.4**	50.0	150.0
M5PFPeA		**122.4**	50.0	150.0
M6PFDA		**116.3**	50.0	150.0
M7PFUnDA		**119.0**	50.0	150.0
M8FOSA		**141.1**	50.0	150.0
M8PFOA		**121.7**	50.0	150.0
M8PFOS		**120.2**	50.0	150.0
M9-PFNA		**121.6**	50.0	150.0
MPFBA		**127.9**	50.0	150.0
MPFDoDA		**118.0**	50.0	150.0
d3N-MeFOSAA		**108.9**	50.0	150.0
d5EtFOSAA		**120.2**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15347.03

Sample Tag: Field Blank-070120

Collected Date/Time: 07/01/2020 09:50

Matrix: Water

COC Reference: 134719

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 08:14, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.3**	50.0	150.0
M2-6:2FTSA		**90.6**	50.0	150.0
M2-8:2FTSA		**100.7**	50.0	150.0
M2PFTeDA		**117.5**	12.0	218.0
M3PFBS		**111.7**	50.0	150.0
M3PFHxS		**110.6**	50.0	150.0
M4PFHpA		**113.5**	50.0	150.0
M5PFHxA		**109.5**	50.0	150.0
M5PFPeA		**117.3**	50.0	150.0
M6PFDA		**100.6**	50.0	150.0
M7PFUnDA		**115.9**	50.0	150.0
M8FOSA		**129.6**	50.0	150.0
M8PFOA		**109.3**	50.0	150.0
M8PFOS		**115.0**	50.0	150.0
M9-PFNA		**109.1**	50.0	150.0
MPFBA		**120.5**	50.0	150.0
MPFDoDA		**103.1**	50.0	150.0
d3N-MeFOSAA		**106.3**	50.0	150.0
d5EtFOSAA		**108.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15347.04

Sample Tag: DUP-1

Collected Date/Time: 07/01/2020 00:01

Matrix: Groundwater

COC Reference: 134719

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 08:33, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**128.7**	50.0	150.0
M2-6:2FTSA		**91.4**	50.0	150.0
M2-8:2FTSA		**67.7**	50.0	150.0
M2PFTeDA		**131.0**	12.0	218.0
M3PFBS		**118.9**	50.0	150.0
M3PFHxS		**122.6**	50.0	150.0
M4PFHpA		**119.0**	50.0	150.0
M5PFHxA		**116.3**	50.0	150.0
M5PFPeA		**122.1**	50.0	150.0
M6PFDA		**115.4**	50.0	150.0
M7PFUnDA		**111.9**	50.0	150.0
M8FOSA		**127.0**	50.0	150.0
M8PFOA		**117.7**	50.0	150.0
M8PFOS		**119.9**	50.0	150.0
M9-PFNA		**114.4**	50.0	150.0
MPFBA		**129.7**	50.0	150.0
MPFDoDA		**116.0**	50.0	150.0
d3N-MeFOSAA		**110.1**	50.0	150.0
d5EtFOSAA		**114.9**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15347.05

Sample Tag: OBG MW-5S

Collected Date/Time: 07/01/2020 10:22

Matrix: Groundwater

COC Reference: 134719

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 08:53, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**144.4**	50.0	150.0
M2-6:2FTSA		**106.9**	50.0	150.0
M2-8:2FTSA		**93.4**	50.0	150.0
M2PFTeDA		**141.5**	12.0	218.0
M3PFBS		**124.1**	50.0	150.0
M3PFHxS		**119.5**	50.0	150.0
M4PFHpA		**129.7**	50.0	150.0
M5PFHxA		**121.4**	50.0	150.0
M5PFPeA		**127.8**	50.0	150.0
M6PFDA		**126.2**	50.0	150.0
M7PFUnDA		**125.6**	50.0	150.0
M8FOSA		**137.6**	50.0	150.0
M8PFOA		**127.0**	50.0	150.0
M8PFOS		**116.8**	50.0	150.0
M9-PFNA		**113.9**	50.0	150.0
MPFBA		**134.5**	50.0	150.0
MPFDoDA		**117.8**	50.0	150.0
d3N-MeFOSAA		**127.0**	50.0	150.0
d5EtFOSAA		**121.4**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF200710W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK200710B.BLK200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 05:18, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.6**	50.0	150.0
M2-6:2FTSA		**83.4**	50.0	150.0
M2-8:2FTSA		**77.1**	50.0	150.0
M2PFTeDA		**125.2**	12.0	218.0
M3PFBS		**115.3**	50.0	150.0
M3PFHxS		**111.8**	50.0	150.0
M4PFHpA		**120.8**	50.0	150.0
M5PFHxA		**114.2**	50.0	150.0
M5PFPeA		**115.9**	50.0	150.0
M6PFDA		**108.6**	50.0	150.0
M7PFUnDA		**98.3**	50.0	150.0
M8FOSA		**129.8**	50.0	150.0
M8PFOA		**120.2**	50.0	150.0
M8PFOS		**117.7**	50.0	150.0
M9-PFNA		**111.4**	50.0	150.0
MPFBA		**120.1**	50.0	150.0
MPFDoDA		**112.3**	50.0	150.0
d3N-MeFOSAA		**115.4**	50.0	150.0
d5EtFOSAA		**117.7**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**76.9**	50.0	150.0
M2-6:2FTSA		**77.1**	50.0	150.0
M2-8:2FTSA		**73.1**	50.0	150.0
M2PFTeDA		**119.8**	12.0	218.0
M3PFBS		**100.7**	50.0	150.0
M3PFHxS		**108.2**	50.0	150.0
M4PFHpA		**103.5**	50.0	150.0
M5PFHxA		**105.3**	50.0	150.0
M5PFPeA		**107.1**	50.0	150.0
M6PFDA		**103.6**	50.0	150.0
M7PFUnDA		**100.7**	50.0	150.0
M8FOSA		**118.2**	50.0	150.0
M8PFOA		**103.1**	50.0	150.0
M8PFOS		**103.3**	50.0	150.0
M9-PFNA		**102.8**	50.0	150.0
MPFBA		**110.5**	50.0	150.0
MPFDoDA		**97.9**	50.0	150.0
d3N-MeFOSAA		**95.4**	50.0	150.0
d5EtFOSAA		**114.8**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**78.3**	50.0	150.0
M2-6:2FTSA		**78.6**	50.0	150.0
M2-8:2FTSA		**72.0**	50.0	150.0
M2PFTeDA		**136.7**	12.0	218.0
M3PFBS		**109.2**	50.0	150.0
M3PFHxS		**111.6**	50.0	150.0
M4PFHpA		**110.9**	50.0	150.0
M5PFHxA		**110.5**	50.0	150.0
M5PFPeA		**113.8**	50.0	150.0
M6PFDA		**100.5**	50.0	150.0
M7PFUnDA		**104.9**	50.0	150.0
M8FOSA		**125.9**	50.0	150.0
M8PFOA		**108.6**	50.0	150.0
M8PFOS		**108.6**	50.0	150.0
M9-PFNA		**109.0**	50.0	150.0
MPFBA		**115.8**	50.0	150.0
MPFDoDA		**111.5**	50.0	150.0
d3N-MeFOSAA		**102.0**	50.0	150.0
d5EtFOSAA		**107.5**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK200710B.1540203M, Parent Sample ID: S15402.02

Run in Batch: AK200710B, Run Date: 07/11/2020 10:30, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**92.8**	50.0	150.0
M2-6:2FTSA		**94.1**	50.0	150.0
M2-8:2FTSA		**87.7**	50.0	150.0
M2PFTeDA		**115.7**	12.0	218.0
M3PFBS		**117.8**	50.0	150.0
M3PFHxS		**118.6**	50.0	150.0
M4PFHpA		**121.3**	50.0	150.0
M5PFHxA		**116.4**	50.0	150.0
M5PFPeA		**123.7**	50.0	150.0
M6PFDA		**109.7**	50.0	150.0
M7PFUnDA		**113.6**	50.0	150.0
M8FOSA		**137.4**	50.0	150.0
M8PFOA		**118.7**	50.0	150.0
M8PFOS		**118.4**	50.0	150.0
M9-PFNA		**120.5**	50.0	150.0
MPFBA		**128.6**	50.0	150.0
MPFDoDA		**109.6**	50.0	150.0
d3N-MeFOSAA		**111.5**	50.0	150.0
d5EtFOSAA		**113.9**	50.0	150.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.2**	50.0	150.0
M2-6:2FTSA		**89.5**	50.0	150.0
M2-8:2FTSA		**96.6**	50.0	150.0
M2PFTeDA		**117.7**	12.0	218.0
M3PFBS		**115.2**	50.0	150.0
M3PFHxS		**116.8**	50.0	150.0
M4PFHpA		**123.5**	50.0	150.0
M5PFHxA		**121.5**	50.0	150.0
M5PFPeA		**124.8**	50.0	150.0
M6PFDA		**119.5**	50.0	150.0
M7PFUnDA		**113.7**	50.0	150.0
M8FOSA		**141.2**	50.0	150.0
M8PFOA		**119.8**	50.0	150.0
M8PFOS		**124.8**	50.0	150.0
M9-PFNA		**115.1**	50.0	150.0
MPFBA		**129.7**	50.0	150.0
MPFDoDA		**101.1**	50.0	150.0
d3N-MeFOSAA		**112.5**	50.0	150.0
d5EtFOSAA		**117.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF200710W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK200710B.BLK200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 05:18, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	20.0	ng/l
PFPeA		ND	10.0	ng/l
4:2 FTSA		ND	10.0	ng/l
PFHxA		ND	10.0	ng/l
PFBS		ND	10.0	ng/l
PFHpA		ND	10.0	ng/l
PFPeS		ND	10.0	ng/l
6:2 FTSA		ND	10.0	ng/l
PFOA		ND	10.0	ng/l
PFHxS		ND	10.0	ng/l
PFHxS-LN		ND	10.0	ng/l
PFHxS-BR		ND	10.0	ng/l
PFNA		ND	10.0	ng/l
8:2 FTSA		ND	10.0	ng/l
PFHpS		ND	10.0	ng/l
PFDA		ND	10.0	ng/l
N-MeFOSAA		ND	10.0	ng/l
EtFOSAA		ND	10.0	ng/l
PFOS		ND	10.0	ng/l
PFOS-LN		ND	10.0	ng/l
PFOS-BR		ND	10.0	ng/l
PFUnDA		ND	10.0	ng/l
PFNS		ND	10.0	ng/l
PFDoDA		ND	10.0	ng/l
PFDS		ND	10.0	ng/l
PFTrDA		ND	10.0	ng/l
FOSA		ND	10.0	ng/l
PFTeDA		ND	10.0	ng/l
11CL-PF3OUdS		ND	1	ng/l
9CL-PF3ONS		ND	1	ng/l
ADONA		ND	1	ng/l
HFPO-DA		ND	1	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		118.0	70.0	130.0
PFPeA		117.0	70.0	130.0
4:2 FTSA		113.0	70.0	130.0
PFHxA		111.0	70.0	130.0
PFBS		117.0	70.0	130.0
HFPO-DA		112.0	70.0	130.0
PFHpA		113.0	70.0	130.0
PFPeS		128.0	70.0	130.0
ADONA		113.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		118.0	70.0	130.0
PFOA		127.0	70.0	130.0
PFHxS		99.6	70.0	130.0
PFNA		114.0	70.0	130.0
8:2 FTSA		112.0	70.0	130.0
PFHpS		104.0	70.0	130.0
N-MeFOSAA		128.0	70.0	130.0
PFDA		116.0	70.0	130.0
EtFOSAA		99.5	70.0	130.0
PFOS		119.0	70.0	130.0
PFUnDA		120.0	70.0	130.0
9CL-PF3ONS		123.0	70.0	130.0
PFNS		124.0	70.0	130.0
PFDoDA		129.0	70.0	130.0
PFDS		129.0	70.0	130.0
PFTrDA		119.0	70.0	130.0
FOSA		129.0	70.0	130.0
11CL-PF3OUdS		124.0	70.0	130.0
PFTeDA		124.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		115.0	70.0	130.0	2.6	30.0
PFPeA		111.0	70.0	130.0	5.3	30.0
4:2 FTSA		118.0	70.0	130.0	4.3	30.0
PFHxA		113.0	70.0	130.0	1.8	30.0
PFBS		112.0	70.0	130.0	4.4	30.0
HFPO-DA		114.0	70.0	130.0	1.8	30.0
PFHpA		111.0	70.0	130.0	1.8	30.0
PFPeS		116.0	70.0	130.0	9.8	30.0
ADONA		112.0	70.0	130.0	0.9	30.0
6:2 FTSA		127.0	70.0	130.0	7.3	30.0
PFOA		116.0	70.0	130.0	9.1	30.0
PFHxS		106.0	70.0	130.0	6.2	30.0
PFNA		119.0	70.0	130.0	4.3	30.0
8:2 FTSA		110.0	70.0	130.0	1.8	30.0
PFHpS		104.0	70.0	130.0	0.0	30.0
N-MeFOSAA		118.0	70.0	130.0	8.1	30.0
PFDA		118.0	70.0	130.0	1.7	30.0
EtFOSAA		105.0	70.0	130.0	5.4	30.0
PFOS		110.0	70.0	130.0	7.9	30.0
PFUnDA		109.0	70.0	130.0	9.6	30.0
9CL-PF3ONS		108.0	70.0	130.0	13.0	30.0
PFNS		109.0	70.0	130.0	12.9	30.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		114.0	70.0	130.0	12.3	30.0
PFDS		119.0	70.0	130.0	8.1	30.0
PFTrDA		112.0	70.0	130.0	6.1	30.0
FOSA		117.0	70.0	130.0	9.8	30.0
11CL-PF3OUdS		123.0	70.0	130.0	0.8	30.0
PFTeDA		112.0	70.0	130.0	10.2	30.0

Matrix Spike (MS)

Lab Sample ID: AK200710B.1540203M, Parent Sample ID: S15402.02

Run in Batch: AK200710B, Run Date: 07/11/2020 10:30, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFBA		103.6	70.0	130.0
PFPeA		116.8	70.0	130.0
4:2 FTSA		111.7	70.0	130.0
PFHxA		119.8	70.0	130.0
PFBS		106.6	70.0	130.0
PFHpA		113.7	70.0	130.0
PFPeS	*	133.0	70.0	130.0
6:2 FTSA		101.5	70.0	130.0
PFOA	*	136.0	70.0	130.0
PFHxS		101.5	70.0	130.0
PFNA		111.7	70.0	130.0
8:2 FTSA		85.3	70.0	130.0
PFHpS		99.5	70.0	130.0
PFDA		121.8	70.0	130.0
N-MeFOSAA		121.8	70.0	130.0
EtFOSAA		101.5	70.0	130.0
PFOS		101.5	70.0	130.0
PFUnDA		101.5	70.0	130.0
PFNS		111.7	70.0	130.0
PFDoDA		111.7	70.0	130.0
PFDS		111.7	70.0	130.0
PFTrDA		101.5	70.0	130.0
FOSA		111.7	70.0	130.0
PFTeDA		111.7	70.0	130.0
11CL-PF3OUdS		111.7	70.0	130.0
9CL-PF3ONS		111.7	70.0	130.0
ADONA		101.5	70.0	130.0
HFPO-DA		111.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		129.4	70.0	130.0	18.2	30.0
PFPeA		112.7	70.0	130.0	0.0	30.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
4:2 FTSA		117.6	70.0	130.0	8.7	30.0
PFHxA		105.9	70.0	130.0	6.1	30.0
PFBS		112.7	70.0	130.0	6.9	30.0
PFHpA		100.0	70.0	130.0	6.5	30.0
PFPeS		118.6	70.0	130.0	6.5	30.0
6:2 FTSA		117.6	70.0	130.0	18.2	30.0
PFOA		111.8	70.0	130.0	11.8	30.0
PFHxS		107.8	70.0	130.0	3.2	30.0
PFNA		107.8	70.0	130.0	0.0	30.0
8:2 FTSA		87.3	70.0	130.0	5.8	30.0
PFHpS		107.8	70.0	130.0	11.5	30.0
PFDA		98.0	70.0	130.0	18.2	30.0
N-MeFOSAA		107.8	70.0	130.0	8.7	30.0
EtFOSAA		91.2	70.0	130.0	7.3	30.0
PFOS		88.2	70.0	130.0	3.8	30.0
PFUnDA		107.8	70.0	130.0	9.5	30.0
PFNS		98.0	70.0	130.0	9.5	30.0
PFDoDA		117.6	70.0	130.0	8.7	30.0
PFDS		107.8	70.0	130.0	0.0	30.0
PFTrDA		117.6	70.0	130.0	18.2	30.0
FOSA		107.8	70.0	130.0	0.0	30.0
PFTeDA		117.6	70.0	130.0	8.7	30.0
11CL-PF3OUdS		98.0	70.0	130.0	9.5	30.0
9CL-PF3ONS		107.8	70.0	130.0	0.0	30.0
ADONA		107.8	70.0	130.0	9.5	30.0
HFPO-DA		107.8	70.0	130.0	0.0	30.0

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C.O.C. PAGE # 1 OF 1

134719

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere, A Ramboll Company
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.:
E-MAIL ADDRESS: clifford.yantz@ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Hemphill Road Industrial Corr
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
15347.01	6/30/20	1447	OBG MW-3	GW	3	3							X	Low level reporting limit with estimated values
.02	6/30/20	1608	OBG MW-8	GW	3	3							X	
.03	7/1/20	950	Field Blank - 070120	QC	1	1							X	
.04	↓	—	DUP-1	GW	3	3							X	
.05		1022	OBG MW-5S	GW	3	3							X	

KBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE	TIME
		7/1/20	1321
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/1/20	1321
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/1/20	14:10
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/1/2020	1410

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S15381.01(01)
Generated on 07/24/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@obg.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S15381.01-S15381.02
Project: RACER Hemphill Road Industrial Land
Collected Date(s): 07/02/2020
Submitted Date/Time: 07/02/2020 11:57
Sampled by: Kevin Schneider
P.O. #: PO

Table of Contents

Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S15381.01	Field Blank-070220	Water	07/02/20 09:11
S15381.02	OBG MW-10	Groundwater	07/02/20 09:13

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S15381.01
Sample Tag: Field Blank-070220
Collected Date/Time: 07/02/2020 09:11
Matrix: Water
COC Reference: 125022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.43/6.87/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 09:12, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	16	9.9	9.9	ng/L	1.98	375-22-4	
PFPeA*	Not detected	4.0	0.99	ng/L	1.98	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.98	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.98	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.98	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.98	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.98	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.98	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.98	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.98	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.98	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.98	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.98	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.98	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.98	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.98	2991-50-6	
PFOS*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.98	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.98	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.98	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.98	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.98	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.98	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.98	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.98	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.98	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.98	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.98	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S15381.02
Sample Tag: OBG MW-10
Collected Date/Time: 07/02/2020 09:13
Matrix: Groundwater
COC Reference: 125022

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.47/6.82/11	ASTMD7979-19M	07/10/20 10:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 07/11/20 09:32, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	26	9.8	9.8	ng/L	1.95	375-22-4	
PFPeA*	Not detected	3.9	0.98	ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.95	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.95	307-24-4	
PFBS*	1.4	2.0	1.4	ng/L	1.95	375-73-5	J
PFHpA*	Not detected	2.0	1.4	ng/L	1.95	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.95	27619-97-2	
PFOA*	9.6	2.0	1.6	ng/L	1.95	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.95	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.95	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.95	2355-31-9	
EtFOSAA*	5.6	3.9	2.0	ng/L	1.95	2991-50-6	
PFOS*	16	2.0	1.9	ng/L	1.95	1763-23-1	
PFOS-LN*	7.2	2.0	1.9	ng/L	1.95	1763-23-1-LN	
PFOS-BR*	8.5	2.0	1.9	ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.95	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.95	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.95	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.95	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.95	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.95	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.95	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.95	13252-13-6	

J-Estimated value less than reporting limit, but greater than MDL

Merit Laboratories Login Checklist

Lab Set ID: S15381
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Hemphill Road Industrial Land
Submitted: 07/02/2020 11:57 Login User: SRS

Attention: Clifford Yantz
Address: O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@obg.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.5
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[ ] Yes	[ ] No	[X] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

125022

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere, A Ramboll Company
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Hemphill Road Industrial Land
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM 7968)	Special Instructions
153871.01	7/2/20	911	Field Blank-070220	QC	1	1							X	Low level Reporting
.02	7/2/20	913	OBG MW-10	GW	3	3							X	limit with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	X Sampler	7/2/20	1105
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/2/20	1105
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/2/20	1157
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/2/20	1157

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS

NOTES: TEMP. ON ARRIVAL 2.5

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Quality Control Report

Report ID: QC-S15381-01
Generated on 07/24/2020

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S15381.01-S15381.02
Project: RACER Hemphill Road Industrial Land
Submitted Date/Time: 07/02/2020 11:57
Sampled by: Kevin Schneider
P.O. #: PO

QC Report Sections

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S15381.01

Sample Tag: Field Blank-070220

Collected Date/Time: 07/02/2020 09:11

Matrix: Water

COC Reference: 125022

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 09:12	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

Lab Sample ID: S15381.02
Sample Tag: OBG MW-10
Collected Date/Time: 07/02/2020 09:13
Matrix: Groundwater
COC Reference: 125022

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	07/11/20 09:32	AK200710B	PF200710W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF200710W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S15381.01	28 PFAs	ASTMD7979-19M	07/11/20 09:12	AK200710B
S15381.02	28 PFAs	ASTMD7979-19M	07/11/20 09:32	AK200710B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15381.01

Sample Tag: Field Blank-070220

Collected Date/Time: 07/02/2020 09:11

Matrix: Water

COC Reference: 125022

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 09:12, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**90.5**	50.0	150.0
M2-6:2FTSA		**90.1**	50.0	150.0
M2-8:2FTSA		**80.2**	50.0	150.0
M2PFTeDA		**140.6**	12.0	218.0
M3PFBS		**114.7**	50.0	150.0
M3PFHxS		**115.5**	50.0	150.0
M4PFHpA		**119.2**	50.0	150.0
M5PFHxA		**115.6**	50.0	150.0
M5PFPeA		**123.8**	50.0	150.0
M6PFDA		**113.2**	50.0	150.0
M7PFUnDA		**122.1**	50.0	150.0
M8FOSA		**129.8**	50.0	150.0
M8PFOA		**118.4**	50.0	150.0
M8PFOS		**119.6**	50.0	150.0
M9-PFNA		**122.1**	50.0	150.0
MPFBA		**123.1**	50.0	150.0
MPFDoDA		**114.4**	50.0	150.0
d3N-MeFOSAA		**108.9**	50.0	150.0
d5EtFOSAA		**103.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S15381.02

Sample Tag: OBG MW-10

Collected Date/Time: 07/02/2020 09:13

Matrix: Groundwater

COC Reference: 125022

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK200710B, Run Date: 07/11/2020 09:32, Matrix: WW, Dilution: 1.95

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**115.1**	50.0	150.0
M2-6:2FTSA		**103.6**	50.0	150.0
M2-8:2FTSA		**91.0**	50.0	150.0
M2PFTeDA		**144.5**	12.0	218.0
M3PFBS		**117.4**	50.0	150.0
M3PFHxS		**116.2**	50.0	150.0
M4PFHpA		**124.1**	50.0	150.0
M5PFHxA		**120.6**	50.0	150.0
M5PFPeA		**126.3**	50.0	150.0
M6PFDA		**124.5**	50.0	150.0
M7PFUnDA		**119.3**	50.0	150.0
M8FOSA		**131.6**	50.0	150.0
M8PFOA		**121.0**	50.0	150.0
M8PFOS		**115.0**	50.0	150.0
M9-PFNA		**120.8**	50.0	150.0
MPFBA		**129.9**	50.0	150.0
MPFDoDA		**121.8**	50.0	150.0
d3N-MeFOSAA		**111.0**	50.0	150.0
d5EtFOSAA		**116.1**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF200710W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK200710B.BLK200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 05:18, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.6**	50.0	150.0
M2-6:2FTSA		**83.4**	50.0	150.0
M2-8:2FTSA		**77.1**	50.0	150.0
M2PFTeDA		**125.2**	12.0	218.0
M3PFBS		**115.3**	50.0	150.0
M3PFHxS		**111.8**	50.0	150.0
M4PFHpA		**120.8**	50.0	150.0
M5PFHxA		**114.2**	50.0	150.0
M5PFPeA		**115.9**	50.0	150.0
M6PFDA		**108.6**	50.0	150.0
M7PFUnDA		**98.3**	50.0	150.0
M8FOSA		**129.8**	50.0	150.0
M8PFOA		**120.2**	50.0	150.0
M8PFOS		**117.7**	50.0	150.0
M9-PFNA		**111.4**	50.0	150.0
MPFBA		**120.1**	50.0	150.0
MPFDoDA		**112.3**	50.0	150.0
d3N-MeFOSAA		**115.4**	50.0	150.0
d5EtFOSAA		**117.7**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**76.9**	50.0	150.0
M2-6:2FTSA		**77.1**	50.0	150.0
M2-8:2FTSA		**73.1**	50.0	150.0
M2PFTeDA		**119.8**	12.0	218.0
M3PFBS		**100.7**	50.0	150.0
M3PFHxS		**108.2**	50.0	150.0
M4PFHpA		**103.5**	50.0	150.0
M5PFHxA		**105.3**	50.0	150.0
M5PFPeA		**107.1**	50.0	150.0
M6PFDA		**103.6**	50.0	150.0
M7PFUnDA		**100.7**	50.0	150.0
M8FOSA		**118.2**	50.0	150.0
M8PFOA		**103.1**	50.0	150.0
M8PFOS		**103.3**	50.0	150.0
M9-PFNA		**102.8**	50.0	150.0
MPFBA		**110.5**	50.0	150.0
MPFDoDA		**97.9**	50.0	150.0
d3N-MeFOSAA		**95.4**	50.0	150.0
d5EtFOSAA		**114.8**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**78.3**	50.0	150.0
M2-6:2FTSA		**78.6**	50.0	150.0
M2-8:2FTSA		**72.0**	50.0	150.0
M2PFTeDA		**136.7**	12.0	218.0
M3PFBS		**109.2**	50.0	150.0
M3PFHxS		**111.6**	50.0	150.0
M4PFHpA		**110.9**	50.0	150.0
M5PFHxA		**110.5**	50.0	150.0
M5PFPeA		**113.8**	50.0	150.0
M6PFDA		**100.5**	50.0	150.0
M7PFUnDA		**104.9**	50.0	150.0
M8FOSA		**125.9**	50.0	150.0
M8PFOA		**108.6**	50.0	150.0
M8PFOS		**108.6**	50.0	150.0
M9-PFNA		**109.0**	50.0	150.0
MPFBA		**115.8**	50.0	150.0
MPFDoDA		**111.5**	50.0	150.0
d3N-MeFOSAA		**102.0**	50.0	150.0
d5EtFOSAA		**107.5**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK200710B.1540203M, Parent Sample ID: S15402.02

Run in Batch: AK200710B, Run Date: 07/11/2020 10:30, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**92.8**	50.0	150.0
M2-6:2FTSA		**94.1**	50.0	150.0
M2-8:2FTSA		**87.7**	50.0	150.0
M2PFTeDA		**115.7**	12.0	218.0
M3PFBS		**117.8**	50.0	150.0
M3PFHxS		**118.6**	50.0	150.0
M4PFHpA		**121.3**	50.0	150.0
M5PFHxA		**116.4**	50.0	150.0
M5PFPeA		**123.7**	50.0	150.0
M6PFDA		**109.7**	50.0	150.0
M7PFUnDA		**113.6**	50.0	150.0
M8FOSA		**137.4**	50.0	150.0
M8PFOA		**118.7**	50.0	150.0
M8PFOS		**118.4**	50.0	150.0
M9-PFNA		**120.5**	50.0	150.0
MPFBA		**128.6**	50.0	150.0
MPFDoDA		**109.6**	50.0	150.0
d3N-MeFOSAA		**111.5**	50.0	150.0
d5EtFOSAA		**113.9**	50.0	150.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.2**	50.0	150.0
M2-6:2FTSA		**89.5**	50.0	150.0
M2-8:2FTSA		**96.6**	50.0	150.0
M2PFTeDA		**117.7**	12.0	218.0
M3PFBS		**115.2**	50.0	150.0
M3PFHxS		**116.8**	50.0	150.0
M4PFHpA		**123.5**	50.0	150.0
M5PFHxA		**121.5**	50.0	150.0
M5PFPeA		**124.8**	50.0	150.0
M6PFDA		**119.5**	50.0	150.0
M7PFUnDA		**113.7**	50.0	150.0
M8FOSA		**141.2**	50.0	150.0
M8PFOA		**119.8**	50.0	150.0
M8PFOS		**124.8**	50.0	150.0
M9-PFNA		**115.1**	50.0	150.0
MPFBA		**129.7**	50.0	150.0
MPFDoDA		**101.1**	50.0	150.0
d3N-MeFOSAA		**112.5**	50.0	150.0
d5EtFOSAA		**117.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF200710W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK200710B.BLK200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 05:18, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	20.0	ng/l
PFPeA		ND	10.0	ng/l
4:2 FTSA		ND	10.0	ng/l
PFHxA		ND	10.0	ng/l
PFBS		ND	10.0	ng/l
PFHpA		ND	10.0	ng/l
PFPeS		ND	10.0	ng/l
6:2 FTSA		ND	10.0	ng/l
PFOA		ND	10.0	ng/l
PFHxS		ND	10.0	ng/l
PFHxS-LN		ND	10.0	ng/l
PFHxS-BR		ND	10.0	ng/l
PFNA		ND	10.0	ng/l
8:2 FTSA		ND	10.0	ng/l
PFHpS		ND	10.0	ng/l
PFDA		ND	10.0	ng/l
N-MeFOSAA		ND	10.0	ng/l
EtFOSAA		ND	10.0	ng/l
PFOS		ND	10.0	ng/l
PFOS-LN		ND	10.0	ng/l
PFOS-BR		ND	10.0	ng/l
PFUnDA		ND	10.0	ng/l
PFNS		ND	10.0	ng/l
PFDoDA		ND	10.0	ng/l
PFDS		ND	10.0	ng/l
PFTrDA		ND	10.0	ng/l
FOSA		ND	10.0	ng/l
PFTeDA		ND	10.0	ng/l
11CL-PF3OUdS		ND	1	ng/l
9CL-PF3ONS		ND	1	ng/l
ADONA		ND	1	ng/l
HFPO-DA		ND	1	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		118.0	70.0	130.0
PFPeA		117.0	70.0	130.0
4:2 FTSA		113.0	70.0	130.0
PFHxA		111.0	70.0	130.0
PFBS		117.0	70.0	130.0
HFPO-DA		112.0	70.0	130.0
PFHpA		113.0	70.0	130.0
PFPeS		128.0	70.0	130.0
ADONA		113.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:39, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		118.0	70.0	130.0
PFOA		127.0	70.0	130.0
PFHxS		99.6	70.0	130.0
PFNA		114.0	70.0	130.0
8:2 FTSA		112.0	70.0	130.0
PFHpS		104.0	70.0	130.0
N-MeFOSAA		128.0	70.0	130.0
PFDA		116.0	70.0	130.0
EtFOSAA		99.5	70.0	130.0
PFOS		119.0	70.0	130.0
PFUnDA		120.0	70.0	130.0
9CL-PF3ONS		123.0	70.0	130.0
PFNS		124.0	70.0	130.0
PFDoDA		129.0	70.0	130.0
PFDS		129.0	70.0	130.0
PFTrDA		119.0	70.0	130.0
FOSA		129.0	70.0	130.0
11CL-PF3OUdS		124.0	70.0	130.0
PFTeDA		124.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		115.0	70.0	130.0	2.6	30.0
PFPeA		111.0	70.0	130.0	5.3	30.0
4:2 FTSA		118.0	70.0	130.0	4.3	30.0
PFHxA		113.0	70.0	130.0	1.8	30.0
PFBS		112.0	70.0	130.0	4.4	30.0
HFPO-DA		114.0	70.0	130.0	1.8	30.0
PFHpA		111.0	70.0	130.0	1.8	30.0
PFPeS		116.0	70.0	130.0	9.8	30.0
ADONA		112.0	70.0	130.0	0.9	30.0
6:2 FTSA		127.0	70.0	130.0	7.3	30.0
PFOA		116.0	70.0	130.0	9.1	30.0
PFHxS		106.0	70.0	130.0	6.2	30.0
PFNA		119.0	70.0	130.0	4.3	30.0
8:2 FTSA		110.0	70.0	130.0	1.8	30.0
PFHpS		104.0	70.0	130.0	0.0	30.0
N-MeFOSAA		118.0	70.0	130.0	8.1	30.0
PFDA		118.0	70.0	130.0	1.7	30.0
EtFOSAA		105.0	70.0	130.0	5.4	30.0
PFOS		110.0	70.0	130.0	7.9	30.0
PFUnDA		109.0	70.0	130.0	9.6	30.0
9CL-PF3ONS		108.0	70.0	130.0	13.0	30.0
PFNS		109.0	70.0	130.0	12.9	30.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK200710B.LCSD200710B, Parent Sample ID: AK200710B.LCS200710B

Run in Batch: AK200710B, Run Date: 07/11/2020 04:59, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		114.0	70.0	130.0	12.3	30.0
PFDS		119.0	70.0	130.0	8.1	30.0
PFTrDA		112.0	70.0	130.0	6.1	30.0
FOSA		117.0	70.0	130.0	9.8	30.0
11CL-PF3OUdS		123.0	70.0	130.0	0.8	30.0
PFTeDA		112.0	70.0	130.0	10.2	30.0

Matrix Spike (MS)

Lab Sample ID: AK200710B.1540203M, Parent Sample ID: S15402.02

Run in Batch: AK200710B, Run Date: 07/11/2020 10:30, Prep Date: 07/10/2020, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFBA		103.6	70.0	130.0
PFPeA		116.8	70.0	130.0
4:2 FTSA		111.7	70.0	130.0
PFHxA		119.8	70.0	130.0
PFBS		106.6	70.0	130.0
PFHpA		113.7	70.0	130.0
PFPeS	*	133.0	70.0	130.0
6:2 FTSA		101.5	70.0	130.0
PFOA	*	136.0	70.0	130.0
PFHxS		101.5	70.0	130.0
PFNA		111.7	70.0	130.0
8:2 FTSA		85.3	70.0	130.0
PFHpS		99.5	70.0	130.0
PFDA		121.8	70.0	130.0
N-MeFOSAA		121.8	70.0	130.0
EtFOSAA		101.5	70.0	130.0
PFOS		101.5	70.0	130.0
PFUnDA		101.5	70.0	130.0
PFNS		111.7	70.0	130.0
PFDoDA		111.7	70.0	130.0
PFDS		111.7	70.0	130.0
PFTrDA		101.5	70.0	130.0
FOSA		111.7	70.0	130.0
PFTeDA		111.7	70.0	130.0
11CL-PF3OUdS		111.7	70.0	130.0
9CL-PF3ONS		111.7	70.0	130.0
ADONA		101.5	70.0	130.0
HFPO-DA		111.7	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		129.4	70.0	130.0	18.2	30.0
PFPeA		112.7	70.0	130.0	0.0	30.0

Organics - Volatiles, Prep Batch ID: PF200710W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: AK200710B.1540204N, Parent Sample ID: AK200710B.1540203M

Run in Batch: AK200710B, Run Date: 07/11/2020 10:50, Prep Date: 07/10/2020, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
4:2 FTSA		117.6	70.0	130.0	8.7	30.0
PFHxA		105.9	70.0	130.0	6.1	30.0
PFBS		112.7	70.0	130.0	6.9	30.0
PFHpA		100.0	70.0	130.0	6.5	30.0
PFPeS		118.6	70.0	130.0	6.5	30.0
6:2 FTSA		117.6	70.0	130.0	18.2	30.0
PFOA		111.8	70.0	130.0	11.8	30.0
PFHxS		107.8	70.0	130.0	3.2	30.0
PFNA		107.8	70.0	130.0	0.0	30.0
8:2 FTSA		87.3	70.0	130.0	5.8	30.0
PFHpS		107.8	70.0	130.0	11.5	30.0
PFDA		98.0	70.0	130.0	18.2	30.0
N-MeFOSAA		107.8	70.0	130.0	8.7	30.0
EtFOSAA		91.2	70.0	130.0	7.3	30.0
PFOS		88.2	70.0	130.0	3.8	30.0
PFUnDA		107.8	70.0	130.0	9.5	30.0
PFNS		98.0	70.0	130.0	9.5	30.0
PFDoDA		117.6	70.0	130.0	8.7	30.0
PFDS		107.8	70.0	130.0	0.0	30.0
PFTrDA		117.6	70.0	130.0	18.2	30.0
FOSA		107.8	70.0	130.0	0.0	30.0
PFTeDA		117.6	70.0	130.0	8.7	30.0
11CL-PF3OUdS		98.0	70.0	130.0	9.5	30.0
9CL-PF3ONS		107.8	70.0	130.0	0.0	30.0
ADONA		107.8	70.0	130.0	9.5	30.0
HFPO-DA		107.8	70.0	130.0	0.0	30.0

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

125022

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere, A Ramboll Company
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com QUOTE NO.:

INVOICE TO

CONTACT NAME: X SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Hemphill Road Industrial Land
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM 7968)	Special Instructions
153871.01	7/2/20	911	Field Blank-070220	QC	1	1							X	Low level Reporting
.02	7/2/20	913	OBG MW-10	GW	3	3							X	limit with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	X Sampler	7/2/20	1105
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/2/20	1105
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/2/20	1157
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		7/2/20	1157

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS

NOTES: TEMP. ON ARRIVAL 2.5

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

RAMBOLL

ENVIRONMENT
& HEALTH

ATTACHMENT B
PRIVATE WELL LOGS

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID: 25077729002

Tax No:	Permit No:	County: Genesee	Township: Burton

Well ID: 25000002286

Elevation: 787 ft.
Latitude: 42.9808883757
Longitude: -83.6613828348
Method of Collection: Interpolation-Map

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29			

Distance and Direction from Road Intersection:
Aquifer: SAGINAW Well #: 250032902

Well Owner:

Well Address:
3307 GLENGARRY
MI

Owner Address:

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 5/29/1985

Casing Type: Unknown **Height:**
Casing Joint: Unknown
Casing Fitting: None

Diameter: 5.00 in. to 160.00 ft. depth

Borehole:

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: **HP:**
Manufacturer: Other **Pump Type:** Submersible
Model Number: **Pump Capacity:** 0 GPM
Drop Pipe Length: 0.00 ft. **Pump Voltage:**
Drop Pipe Diameter: **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Relief Valve Installed: No

Static Water Level: 45.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Unknown
Pumping level 220.00 ft. after 1.00 hrs. at 30 GPM

Screen Installed: No **Intake:** Unknown

Formation Description	Thickness	Depth to Bottom
Sand	14.00	14.00
Clay	44.00	58.00
Gravel & Clay	23.00	81.00
Clay	75.00	156.00
Sandstone	64.00	220.00

Well Grouted: Yes **Grouting Method:** Unknown

Grouting Material	Bags	Additives	Depth
Other	0.00	None	0.00 ft. to 0.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter

Nearest Source of Possible Contamination:

Type	Distance	Direction
None		

Drilling Machine Operator Name:
Employment: Unknown

Contractor Type: Unknown **Reg No:**
Business Name:
Business Address:

Abandoned Well Plugged: No
Reason Not Plugged:

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks: Grouting Material 1:Listed as other in Wellkey, Pump Manufacturer:Pump Manufacturer unknown

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 6663	County: Genesee	Township: Burton

Well ID: 25000007447

Elevation: 787 ft.
Latitude: 42.98032793
Longitude: -83.66184115
Method of Collection: Address Matching-House Number

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Distance and Direction from Road Intersection:
1/10th mile south of hemphill on the west side of redarrow

Well Owner: Scott Richardson

Well Address:	Owner Address:
2216 Redarrow Burton, MI 48529	2216 Redarrow Burton, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 5/8/2002

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 180.00 ft. depth

Borehole: 8.00 in. to 180.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 5/8/2002 **HP:** 0.50
Manufacturer: Goulds **Pump Type:** Submersible
Model Number: 10SB05421 **Pump Capacity:** 10 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:**
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Goulds
Model Number: V-100 **Tank Capacity:** 32.0 Gallons
Pressure Relief Valve Installed: No

Static Water Level: 35.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 55.00 ft. after 0.50 hrs. at 30 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Brown Sand Sandy Brown	15.00	15.00
Gray Clay Clayey Gray	15.00	30.00
Brown Sand Sandy Brown	5.00	35.00
Gray Clay Clayey Gray	65.00	100.00
Brown Sand & Gravel Fine To Coarse Brown	10.00	110.00
Gray Clay Sticky Gray	30.00	140.00
Black Shale Firm Black	35.00	175.00
Gray Limestone Broken Gray	5.00	180.00
Gray Sandstone Firm Water Bearing	40.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	8.00	None	0.00 ft. to 200.00 ft.

Geology Remarks:

Wellhead Completion: 12 inches above grade

Drilling Machine Operator Name: Matt Sckelsky
Employment: Subcontractor

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	15 ft.	North-Northeast
Sewer line	18 ft.	South

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-2203
Business Name: Snider Well Drilling, Inc.
Business Address: 3274 Alpena St

Abandoned Well Plugged: Yes

Casing Removed:

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks: The pressure tank was 1 year old installed previously
Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 25077724003	County: Genesee	Township: Burton

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Inactive	2047925	001

Well ID: 25000008395

Elevation: 784 ft.
Latitude: 42.97995
Longitude: -83.66713
Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
2/10 mi E of Saginaw St, one block S of Hemphill Rd

Well Owner: Ed Kropiewnicki

Well Address:
3333 Associates
Flint, MI 48529

Owner Address:
3333 Associates
Flint, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Type II public
Well Type: Replacement **Date Completed:** 3/8/1994

Casing Type: PVC plastic **Height:**
Casing Joint: Unknown
Casing Fitting: Unknown

Diameter: 5.00 in. to 170.00 ft. depth

Borehole: 7.88 in. to 170.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: **HP:** 0.50
Manufacturer: Aermotor **Pump Type:** Submersible
Model Number: **Pump Capacity:** 12 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:**
Drop Pipe Diameter: **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Unknown
Manufacturer: Well-X-Trol
Model Number: 203 **Tank Capacity:** 12.0 Gallons
Pressure Relief Valve Installed: No

Static Water Level: 40.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Unknown
Pumping level 50.00 ft. after 0.50 hrs. at 30 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Brown Clay	12.00	12.00
Gray Clay	20.00	32.00
Clay & Sand	40.00	72.00
Gravel Fine	7.00	79.00
Gray Clay Sticky	63.00	142.00
Gray Shale	10.00	152.00
Stones	12.00	164.00
White Sandstone	40.00	204.00
Gray Shale	5.00	209.00
White Sandstone	11.00	220.00

Well Grouted: Yes **Grouting Method:** Unknown

Grouting Material	Bags	Additives	Depth
Bentonite slurry	0.00	None	0.00 ft. to 140.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	100 ft.	West

Drilling Machine Operator Name: David D Coon
Employment: Employee

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-2152
Business Name: Coon Well Drilling
Business Address: 2265 Rollins St Grand, Blanc, MI

Abandoned Well Plugged: Yes

Casing Removed:

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks:
Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 07995	County: Genesee	Township: Burton

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Well ID: 25000010256

Elevation:

Latitude: 42.98036719

Longitude: -83.66102913

Method of Collection: Address Matching-House Number

Distance and Direction from Road Intersection:
SOUTH OF HEMPHILL RD BETWEEN SAGINAW ST & DORT HWY

Well Owner: GAYLE TALHELM

Well Address:
3312 OGEMA
BURTON, MI

Owner Address:
3389 LUCE ROAD
FLUSHING, MI 48433

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 12/9/2002

Casing Type: PVC plastic **Height:**
Casing Joint: Unknown
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 157.00 ft. depth

Borehole: 7.88 in. to 157.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: **HP:** 0.50
Manufacturer: Sta-Rite **Pump Type:** Submersible
Model Number: 10SP4C01J **Pump Capacity:** 10 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:**
Drop Pipe Diameter: **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Unknown
Manufacturer: Sta-Rite Signature
Model Number: SR-35 **Tank Capacity:** 80.0 Gallons
Pressure Relief Valve Installed: No

Static Water Level: 50.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 100.00 ft. after 1.00 hrs. at 33 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	30.00	30.00
Clay	107.00	137.00
Shale	17.00	154.00
Sandstone	66.00	220.00

Well Grouted: Yes **Grouting Method:** Unknown

Grouting Material	Bags	Additives	Depth
Bentonite slurry	6.00	None	0.00 ft. to 157.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	25 ft.	South

Drilling Machine Operator Name: EDDIE EATON
Employment: Employee

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-1947
Business Name: BURNS WELL DRLG
Business Address:

Abandoned Well Plugged: Yes

Casing Removed:

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks: WEIGHT: SDR17 & SDR 21

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No:	County: Genesee	Township: Burton

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Well ID: 25000012776

Elevation:

Latitude: 42.97991531

Longitude: -83.661472

Method of Collection: Address Matching-House Number

Distance and Direction from Road Intersection:

Well Owner:

Well Address:
2242 ARROW
BURTON, MI 48529

Owner Address:
2242 ARROW
BURTON, MI 48529

Drilling Method: Rotary
Well Depth: 200.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 6/20/1990

Casing Type: PVC plastic **Height:**
Casing Joint: Unknown
Casing Fitting: Drive shoe

Diameter: 5.00 in. to 163.00 ft. depth

Borehole: 7.88 in. to 163.00 ft. depth

Pump Installed: No
Pressure Tank Installed: No
Pressure Relief Valve Installed: No

Static Water Level: 40.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Unknown
Pumping level 100.00 ft. after 2.00 hrs. at 20 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	10.00	10.00
Yellow Clay	5.00	15.00
Blue Clay	110.00	125.00
Clay Sandy	15.00	140.00
Gravel	12.00	152.00
Shale	8.00	160.00
Sandstone	40.00	200.00

Well Grouted: Yes **Grouting Method:** Unknown

Grouting Material	Bags	Additives	Depth
Bentonite slurry	0.00	None	0.00 ft. to 163.00 ft.

Geology Remarks:

Wellhead Completion: 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line		

Drilling Machine Operator Name: BRIAN SUNDE
Employment: Employee

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-1710
Business Name: GIL SUNDE WELL DRLG
Business Address:

Abandoned Well Plugged: No
Reason Not Plugged: Unknown

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: W11985	County: Genesee	Township: Burton

Well ID: 25000015887

Elevation:
Latitude: 42.974842
Longitude: -83.679872
Method of Collection: Address Matching-House Number

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	30	Active		

Distance and Direction from Road Intersection:
North of Bristol, West of Greenley St.

Well Owner: Davvid Carrill

Well Address:	Owner Address:
1346 Connell St Burton, MI 48529	1346 Connell St Burton, MI 48529-2216

Drilling Method: Rotary
Well Depth: 180.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 6/16/2006

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 159.00 ft. depth

Borehole: 8.50 in. to 159.00 ft. depth
4.50 in. to 195.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 6/16/2006 **HP:** 0.50
Manufacturer: Other **Pump Type:** Submersible
Model Number: T5L4Y12P7 **Pump Capacity:** 10 GPM
Drop Pipe Length: 60.00 ft. **Pump Voltage:**
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Perma-Air
Model Number: pad20 **Tank Capacity:** 20.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 25.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 20.00 ft. after 2.00 hrs. at 30 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	10.00	10.00
Clay	30.00	40.00
Clay Gravely	40.00	80.00
Clay W/Shale Hard	60.00	140.00
Sandstone	40.00	180.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite dry granular	10.00	None	0.00 ft. to 140.00 ft.

Geology Remarks:

Wellhead Completion: 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	20 ft.	East

Drilling Machine Operator Name: Carl Kirklin
Employment: Employee
Pump Installer: Derrec Coulter

Contractor Type: Water Well Drilling Contractor **Reg No:** 44-2047
Business Name: Tim Kirklin Well Drilling
Business Address: 4718 Davison Rd, Lapeer, MI, 48446

Abandoned Well Plugged: No
Reason Not Plugged: Other

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks: Pump Manufacturer:Schaefer Pump installed, Not Plugged Reason:Dug up old well, already abandoned. , Coordinate Source:Google well address geocoding

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 10801	County: Genesee	Township: Burton

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Well ID: 25000017428

Elevation:

Latitude: 42.98014

Longitude: -83.66761

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
Between Saginaw and Dort Hwy. South off Hemphill Rd.

Well Owner: Recovery Services

Well Address:	Owner Address:
3323 Associates Dr. Burton, MI 48529	3323 Associates Dr. Burton, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Type III public
Well Type: Replacement **Date Completed:** 6/6/2008

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 175.00 ft. depth

Borehole: 8.00 in. to 175.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 6/10/2008 **HP:** 0.50
Manufacturer: AquaDuty **Pump Type:** Submersible
Model Number: T5M4C12P71 **Pump Capacity:** 12 GPM
Drop Pipe Length: 60.00 ft. **Pump Voltage:**
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Challenger
Model Number: 122 **Tank Capacity:** 32.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 25.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 200.00 ft. after 2.00 hrs. at 45 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Clay	50.00	50.00
Gravel	38.00	88.00
Clay	57.00	145.00
Gravel	15.00	160.00
Clay & Gravel	11.00	171.00
Sandstone	49.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	8.00	None	0.00 ft. to 175.00 ft.

Wellhead Completion: Pitless adapter

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	12 ft.	South
None		

Abandoned Well Plugged: Yes

Casing Diameter: 2 in. **Casing Removed:** No
Plugging Material: Bentonite chips/pellets
No. of Bags: 4.00 **Well Depth:** 93 ft.

Geology Remarks:

Drilling Machine Operator Name: Mike Munsell
Employment: Employee
Pump Installer: Percy Buck

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-1886
Business Name: Lyons Well Drilling
Business Address: 8107 N Dort Hwy, Mt Morris, MI, 48458

Water Well Contractor's Certification

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Signature of Registered Contractor **Date**

General Remarks: Old well coordinates N42.98013 W083.66774

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 15939	County: Genesee	Township: Burton

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Well ID: 25000018861

Elevation:

Latitude: 42.980606

Longitude: -83.66114

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
SOUTH OF HEMPHILL ROAD BETWEEN SAGINAW STREET & DORT BAY

Well Owner: KATHI BENSON

Well Address:	Owner Address:
3306 OGEMA BURTON, MI 48529	3410 NOBE HILL DRIVE HUDSONVILLE, MI 49426

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 11/4/2009

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Unknown
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 130.00 ft. depth SDR: 21.00
5.00 in. to 25.00 ft. depth SDR: 17.00

Borehole: 7.88 in. to 155.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 11/4/2009 **HP:** 0.50
Manufacturer: AquaDuty **Pump Type:** Submersible
Model Number: T5M4C12P7-S1 **Pump Capacity:** 12 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Goulds
Model Number: V-100 **Tank Capacity:** 32.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 50.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 200.00 ft. after 1.00 hrs. at 33 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	20.00	20.00
Clay	40.00	60.00
Gravel	7.00	67.00
Clay	73.00	140.00
Shale	10.00	150.00
Sandstone	70.00	220.00

Well Grouted: Yes **Grouting Method:** Unknown

Grouting Material	Bags	Additives	Depth
Bentonite slurry	5.50	None	0.00 ft. to 155.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	12 ft.	North

Drilling Machine Operator Name: CLINTON BURNS
Employment: Unknown

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-1947
Business Name: BURNS WELL DRILLING
Business Address:

Abandoned Well Plugged: No
Reason Not Plugged: Other

Water Well Contractor's Certification

This well/pump was constructed under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

General Remarks: WELL IS UNDER DRIVEWAY. WE CEMENTED THE WATER LINES UNDER HOUSE

Other Remarks: Not Plugged Reason:SEE GENERAL REMARKS

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	**Permit No:** 17776	**County:** Genesee		**Township:** Burton
Town/Range: 07N 07E	**Section:** 29	**Well Status:** Active	**WSSN:**	**Source ID/Well No:**

Well ID: 25000019460

Elevation:

Latitude: 42.97935

Longitude: -83.668543

Method of Collection: Interpolation-Map

Distance and Direction from Road Intersection:
South of Hemphill, on the east side of Associates Drive

Well Owner: Emerald Landscaping

Well Address:	**Owner Address:**
3364 Associates Drive Burton, MI 48529	3364 Associates Drive Burton, MI 48529

Drilling Method: Rotary
Well Depth: 150.00 ft. **Well Use:** Irrigation
Well Type: Replacement **Date Completed:** 1/5/2012

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: None

Diameter: 5.00 in. to 140.00 ft. depth SDR: 21.00

Borehole: 8.75 in. to 150.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 1/10/2012 **HP:** 0.50
Manufacturer: Franklin Electric **Pump Type:** Submersible
Model Number: T5L4Y10P9 **Pump Capacity:** 10 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 220
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: No
Pressure Relief Valve Installed: Yes

Static Water Level: 40.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 150.00 ft. after 1.00 hrs. at 75 GPM

Formation Description	Thickness	Depth to Bottom
Clay	102.00	102.00
Gravel	48.00	150.00

Screen Installed: Yes **Filter Packed:** Yes
Screen Diameter: 5.00 in. **Blank:**
Screen Material Type: PVC-slotted
Screen Installation Type: Attached

Slot	Length	Set Between
15.00	10.00 ft.	140.00 ft. and 150.00 ft.

Fittings: None

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	10.00	None	0.00 ft. to 135.00 ft.

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Storm sewer	70 ft.	East-Northeast

Abandoned Well Plugged: Yes

Casing Diameter: 2 in. **Casing Removed:** No
Plugging Material: Bentonite chips/pellets
No. of Bags: 2.50 **Well Depth:** 130 ft.

Geology Remarks:

Drilling Machine Operator Name: Paul Wenlding
Employment: Employee
Pump Installer: Andy Birchmeier

Contractor Type: Water Well Drilling Contractor **Reg No:** 78-1607
Business Name: Ed Birkmeier Well Drilling
Business Address: 9471 Genesee Street, New Lothrop, MI, 48460

Water Well Contractor's Certification

This well/pump was constructed under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

General Remarks: USED OWNERS EXISTING BLADDER TANK
Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID: WM6242

Tax No:	Permit No: w-17935	County: Genesee	Township: Burton

Well ID: 25000019736

Elevation:
Latitude: 42.98118
Longitude: -83.66328
Method of Collection: GPS Std Positioning Svc SA Off

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Distance and Direction from Road Intersection:
E. OF SAGINAW RD; S. OFF HAMPHILL RD.

Well Owner: Judith Belote

Well Address:	Owner Address:
2192 Red Arrow Dr. Burton, MI 48529	2192 Red Arrow Dr. Burton, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 7/15/2012

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 172.00 ft. depth SDR: 21.00

Borehole: 8.50 in. to 172.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 7/16/2012 **HP:** 0.50
Manufacturer: Franklin Electric **Pump Type:** Submersible
Model Number: 12FV05-2W1 **Pump Capacity:** 12 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Goulds
Model Number: V100 **Tank Capacity:** 10.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 30.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 70.00 ft. after 0.50 hrs. at 15 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	15.00	15.00
Gray Clay	70.00	85.00
Clay & Gravel	60.00	145.00
Gray Clay	20.00	165.00
Sandstone	55.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	9.00	None	0.00 ft. to 170.00 ft.

Geology Remarks:

Wellhead Completion: 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	14 ft.	South

Drilling Machine Operator Name: Matt Sekelsky
Employment: Employee
Pump Installer: Perry Jones

Abandoned Well Plugged: Yes

Latitude: 42.98118 **Longitude:** -83.66328
Casing Diameter: 2 in. **Casing Removed:** No
Plugging Material: Neat cement
No. of Bags: 12.00 **Well Depth:** 215 ft.

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-2152
Business Name: COON WELL DRILLING, INC.
Business Address: 2265 Rollins St., Grand Blanc, MI, 48439

Water Well Contractor's Certification

This well/pump was constructed under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

General Remarks:
Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No: 59-29-551-024	**Permit No:** 19665	**County:** Genesee		**Township:** Burton
		Town/Range: 07N 07E	**Section:** 29	**Well Status:** Active	**WSSN:**	**Source ID/Well No:**

Well ID: 25000021167

Elevation:

Latitude: 42.980196

Longitude: -83.668023

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
East of Saginaw Street, south of Hemphill Road, ont eh west side of Associates Drive

Well Owner: Scott Larson Auto Group, LLC

Well Address:	**Owner Address:**
3234 Associates Drive Burton, MI 48429	3234 Associates Drive Burton, MI 48429

Drilling Method: Rotary
Well Depth: 90.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 3/30/2015

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: None

Diameter: 5.00 in. to 80.00 ft. depth SDR: 21.00

Borehole: 8.75 in. to 80.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: **HP:** 0.50
Manufacturer: Franklin Electric **Pump Type:** Submersible
Model Number: 10FV05P4-2W115 **Pump Capacity:** 10 GPM
Drop Pipe Length: 40.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Challenger
Model Number: PC 122 **Tank Capacity:** 10.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 20.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 90.00 ft. after 1.00 hrs. at 50 GPM

Formation Description	Thickness	Depth to Bottom
Brown Clay	20.00	20.00
Gray Clay	30.00	50.00
Gray Sand	15.00	65.00
Gray Gravel	25.00	90.00

Screen Installed: Yes **Filter Packed:** Yes
Screen Diameter: 5.00 in. **Blank:**
Screen Material Type: PVC-slotted
Screen Installation Type: Attached

Slot	Length	Set Between
15.00	10.00 ft.	80.00 ft. and 90.00 ft.

Fittings: None

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	8.00	None	0.00 ft. to 80.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	15 ft.	South

Drilling Machine Operator Name: Matt Trnka
Employment: Employee
Pump Installer: Andy Birchmeier

Abandoned Well Plugged: Yes

Casing Diameter: 2 in. **Casing Removed:** No
Plugging Material: Bentonite chips/pellets
No. of Bags: 2.00 **Well Depth:** 90 ft.

Contractor Type: Water Well Drilling Contractor **Reg No:** 78-1607
Business Name: Ed Birkmeier Well Drilling
Business Address: PO Box 324, New Lothrop, MI, 48460

Water Well Contractor's Certification

This well/pump was constructed under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 19896	County: Genesee	Township: Burton

Well ID: 25000021329

Elevation:
Latitude: 42.981018
Longitude: -83.661001
Method of Collection: Interpolation-Map

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Distance and Direction from Road Intersection:
SOUTH OF HEMPHILL ROAD, BETWEEN SAGINAW ROAD AND DORT HIGHWAY

Well Owner: ANTHONY & VALERIE TALHELM

Well Address:	Owner Address:
3318 OGEMA AVENUE BURTON, MI 48529	1054 N. MORRISH ROAD FLINT, MI 48532

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 8/26/2015

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Spline joint/CertaLok
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 130.00 ft. depth SDR: 21.00
5.00 in. to 40.00 ft. depth SDR: 17.00

Borehole: 7.87 in. to 170.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 8/26/2015 **HP:** 0.50
Manufacturer: AquaDuty **Pump Type:** Submersible
Model Number: T5M4C12P7-S **Pump Capacity:** 12 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Goulds
Model Number: V-100 **Tank Capacity:** 32.0 Gallons
Pressure Relief Valve Installed: No

Static Water Level: 50.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 220.00 ft. after 1.00 hrs. at 33 GPM

Screen Installed: No **Intake:** Unknown

Formation Description	Thickness	Depth to Bottom
Sand	23.00	23.00
Clay	27.00	50.00
Gravel	3.00	53.00
Clay	73.00	126.00
Gravel	9.00	135.00
Clay	8.00	143.00
Shale W/Sandstone	23.00	166.00
Sandstone	54.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	6.00	None	0.00 ft. to 170.00 ft.

Geology Remarks:
EZ-MUD

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	20 ft.	North

Drilling Machine Operator Name: CLINTON BURNS
Employment: Employee

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-1947
Business Name: BURNS WELL DRILLING
Business Address: 5370 CORUNNA ROAD, FLINT, MI, 48532

Abandoned Well Plugged: Yes

Latitude: 42.58799 **Longitude:** -83.39663
Casing Diameter: 2 in. **Casing Removed:** No
Plugging Material: Neat cement
No. of Bags: 5.00 **Well Depth:** 220 ft.

Water Well Contractor's Certification

This well/pump was constructed under my supervision and I hereby certify that the work complies with Part 127 Act 368 PA 1978 and the well code.

Signature of Registered Contractor **Date**

General Remarks:
Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	**Permit No:** w-21304	**County:** Genesee		**Township:** Burton
		Town/Range: 07N 07E	**Section:** 29	**Well Status:** Active	**WSSN:**	**Source ID/Well No:**

Well ID: 25000022511

Elevation:

Latitude: 42.98122

Longitude: -83.66348

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
1/2 mile east of saginaw rd, south west side of red arrow

Well Owner: Wray Properties llc

Well Address:	**Owner Address:**
2188 Red Arrow Burton, MI 48429	3136 Redbarn rd Flint, MI 48460

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 8/28/2017

Casing Type: PVC plastic **Height:**
Casing Joint:
Casing Fitting:

Diameter: 5.00 in. to 182.00 ft. depth SDR: 21.00

Borehole: 8.75 in. to 180.00 ft. depth
6.88 in. to 188.00 ft. depth
4.75 in. to 220.00 ft. depth

Pump Installed: No
Pressure Tank Installed: No
Pressure Relief Valve Installed: No

Static Water Level: 50.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 220.00 ft. after 1.00 hrs. at 40 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	10.00	10.00
Clay	113.00	123.00
Sand	4.00	127.00
Sand & Clay	9.00	136.00
Sand & Clay Fine	35.00	171.00
Sandstone	49.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	16.00	None	0.00 ft. to 180.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sanitary sewer	40 ft.	East

Drilling Machine Operator Name: Matt Trnka
Employment: Employee
Pump Installer: Jeff Babinger

Contractor Type: Water Well Drilling Contractor **Reg No:** 78-1607
Business Name: Ed Birkmeier Well Drilling
Business Address: PO Box 324, New Lothrop, MI, 48460

Abandoned Well Plugged: No
Reason Not Plugged: Well being plugged by another driller

Water Well Contractor's Certification

This well and/or pump installation was performed under my registration.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	**Permit No:** 22247	**County:** Genesee		**Township:** Burton
		Town/Range: 07N 07E	**Section:** 29	**Well Status:** Active	**WSSN:**	**Source ID/Well No:**

Well ID: 25000022969

Elevation:

Latitude: 42.98085

Longitude: -83.6627

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
Between E Hemphill Rd and S Dort Hwy on the west side of Red Arrow Rd

Well Owner: James Miller

Well Address:	**Owner Address:**
2212 Red Arrow Rd Burton, MI 48529	2212 Red Arrow Rd Burton, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 7/31/2018

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 178.00 ft. depth

Borehole: 8.00 in. to 178.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 8/1/2018 **HP:** 0.50
Manufacturer: Franklin Electric **Pump Type:** Submersible
Model Number: 10FA05P4-2W115 **Pump Capacity:** 10 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Flex-Lite-Flexcon
Model Number: FL7 **Tank Capacity:** 22.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 37.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 200.00 ft. after 2.00 hrs. at 40 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand	12.00	12.00
Clay	83.00	95.00
Clay & Gravel	20.00	115.00
Clay	25.00	140.00
Clay & Gravel Sandy	20.00	160.00
Clay	8.00	168.00
Sandstone	3.00	171.00
Shale	4.00	175.00
Sandstone	12.00	187.00
Slate W/Sandstone Strips	8.00	195.00
Sandstone	25.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	9.00	None	0.00 ft. to 178.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	12 ft.	North

Drilling Machine Operator Name: Mike Munsell
Employment: Employee
Pump Installer: Coleman Brock

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-2380
Business Name: Lyons Well Drilling
Business Address: 3159 E. Bristol Rd., Burton, MI, 48529

Abandoned Well Plugged: Yes

Latitude: 42.98079 **Longitude:** -83.66285
Casing Diameter: 2 in. **Casing Removed:** Yes
Plugging Material: Bentonite chips/pellets
No. of Bags: 2.00 **Well Depth:** 60 ft.

Water Well Contractor's Certification

This well and/or pump installation was performed under my registration.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	**Permit No:** 21890	**County:** Genesee		**Township:** Burton
		Town/Range: 07N 07E	**Section:** 29	**Well Status:** Active	**WSSN:**	**Source ID/Well No:**

Well ID: 25000023548

Elevation:

Latitude: 42.9797186

Longitude: -83.668233

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
Between S Saginaw St and S Dort Hwy off E Hemphill Rd on the west side of the road

Well Owner: JP Machining

Well Address:	**Owner Address:**
3336 Associates Dr Burton, MI 48529	3336 Associates Dr Burton, MI 48529

Drilling Method: Rotary
Well Depth: 240.00 ft. **Well Use:** Type III public
Well Type: New **Date Completed:** 7/22/2019

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 160.00 ft. depth SDR: 21.00
5.00 in. to 199.00 ft. depth SDR: 17.00

Borehole: 8.50 in. to 199.00 ft. depth
4.50 in. to 240.00 ft. depth

Static Water Level: 26.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 220.00 ft. after 2.00 hrs. at 50 GPM

Screen Installed: No **Intake:** Bedrock Well

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 7/24/2019 **HP:** 0.75
Manufacturer: Franklin Electric **Pump Type:** Submersible
Model Number: 10FB07P4-2W230 **Pump Capacity:** 10 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 230
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Flex-Lite-Flexcon
Model Number: FL12 **Tank Capacity:** 35.0 Gallons
Pressure Relief Valve Installed: Yes

Formation Description	Thickness	Depth to Bottom
Clay	72.00	72.00
Clay & Gravel	13.00	85.00
Gravel	11.00	96.00
Clay & Gravel	12.00	108.00
Clay	12.00	120.00
Sand & Gravel	75.00	195.00
Sandstone	10.00	205.00
Slate	7.00	212.00
Sandstone	28.00	240.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Neat cement	17.00	None	0.00 ft. to 199.00 ft.

Wellhead Completion: Pitless adapter

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	13 ft.	South

Geology Remarks:

Drilling Machine Operator Name: Percy Buck
Employment: Employee
Pump Installer: Coleman Brock

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-2380
Business Name: Lyons Well Drilling
Business Address: 3159 E. Bristol Rd., Burton, MI, 48529

Water Well Contractor's Certification

This well and/or pump installation was performed under my registration.

Signature of Registered Contractor **Date**

General Remarks:

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	**Permit No:** 22790	**County:** Genesee		**Township:** Burton
		Town/Range: 07N 07E	**Section:** 29	**Well Status:** Active	**WSSN:**	**Source ID/Well No:**

Well ID: 25000023573

Elevation:

Latitude: 42.979914

Longitude: -83.66172

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
800' S OF E HEMPHILL RD 30' W OF RED ARROW

Well Owner: BRIAN HOLT

Well Address:	**Owner Address:**
2250 RED ARROW BURTON, MI 48529	2250 RED ARROW BURTON, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 8/7/2019

Casing Type: PVC plastic **Height:** 1.50 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 168.00 ft. depth SDR: 21.00

Borehole: 8.00 in. to 168.00 ft. depth
4.75 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: 8/8/2019 **HP:** 0.50
Manufacturer: Franklin Electric **Pump Type:** Submersible
Model Number: 10FA05P4 **Pump Capacity:** 10 GPM
Drop Pipe Length: 80.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Challenger
Model Number: PC122 **Tank Capacity:** 33.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 25.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 120.00 ft. after 3.00 hrs. at 30 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Sand & Clay	30.00	30.00
Clay	50.00	80.00
Gravel	10.00	90.00
Clay	60.00	150.00
Shale	15.00	165.00
Sandstone	55.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	10.00	None	0.00 ft. to 168.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sanitary sewer	18 ft.	East

Drilling Machine Operator Name: MIKE KUREK
Employment: Employee
Pump Installer: AL WHITNEY

Contractor Type: Water Well Drilling Contractor **Reg No:** 44-2007
Business Name: Metamora Water Services, Inc
Business Address: 3601 W Genesee, Lapeer, MI, 48446

Abandoned Well Plugged: No
Reason Not Plugged: Well inaccessible for plugging

Water Well Contractor's Certification

This well and/or pump installation was performed under my registration.

Signature of Registered Contractor **Date**

General Remarks: CEMENTED LINES IN BASEMENT OLD WELL IS UNDER ASPHALT DRIVEWAY

Other Remarks:

Water Well And Pump Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Import ID:

Tax No:	Permit No: 21036	County: Genesee	Township: Burton

Town/Range:	Section:	Well Status:	WSSN:	Source ID/Well No:
07N 07E	29	Active		

Well ID: 25000023790

Elevation:

Latitude: 42.97962

Longitude: -83.66177

Method of Collection: GPS Std Positioning Svc SA Off

Distance and Direction from Road Intersection:
//2 mile of O, 1/3 mile of Dopt HW

Well Owner:

Well Address:	Owner Address:
2254 Red Arrow Rd. Burton, MI 48529	2254 Red Arrow Rd. Burton, MI 48529

Drilling Method: Rotary
Well Depth: 220.00 ft. **Well Use:** Household
Well Type: Replacement **Date Completed:** 9/21/2017

Casing Type: PVC plastic **Height:** 1.00 ft. above grade
Casing Joint: Solvent welded/glued
Casing Fitting: Shale packer/trap

Diameter: 5.00 in. to 170.00 ft. depth SDR: 21.00

Borehole: 8.50 in. to 170.00 ft. depth
4.50 in. to 220.00 ft. depth

Pump Installed: Yes **Pump Installation Only:** No
Pump Installation Date: **HP:** 0.50
Manufacturer: Berkeley **Pump Type:** Submersible
Model Number: B10K05121-02 **Pump Capacity:** 10 GPM
Drop Pipe Length: 100.00 ft. **Pump Voltage:** 115
Drop Pipe Diameter: 1.00 in. **Drilling Record ID:**
Draw Down Seal Used: No

Pressure Tank Installed: Yes
Pressure Tank Type: Diaphragm/bladder
Manufacturer: Flex-Lite-Flexcon
Model Number: FL12 **Tank Capacity:** 35.0 Gallons
Pressure Relief Valve Installed: Yes

Static Water Level: 50.00 ft. Below Grade
Well Yield Test: **Yield Test Method:** Air
Pumping level 100.00 ft. after 2.00 hrs. at 20 GPM

Screen Installed: No **Intake:** Bedrock Well

Formation Description	Thickness	Depth to Bottom
Clay	160.00	160.00
Sandstone	10.00	170.00
Black Shale	10.00	180.00
Sandstone	40.00	220.00

Well Grouted: Yes **Grouting Method:** Grout pipe outside casing

Grouting Material	Bags	Additives	Depth
Bentonite slurry	8.00	Retarder	0.00 ft. to 170.00 ft.

Geology Remarks:

Wellhead Completion: Pitless adapter, 12 inches above grade

Nearest Source of Possible Contamination:

Type	Distance	Direction
Sewer line	40 ft.	North

Drilling Machine Operator Name: George Dugdale Jr.
Employment: Employee
Pump Installer: Wesley C Snider II

Contractor Type: Water Well Drilling Contractor **Reg No:** 25-2203
Business Name: Wes Snider Pump & Well LLC
Business Address: 3459 E Atherton Road, Burton, MI, 48529

Abandoned Well Plugged: Yes

Latitude: 42.97969 **Longitude:** -83.66171
Casing Diameter: 2 in. **Casing Removed:** No
Plugging Material: Bentonite chips/pellets
No. of Bags: 1.00 **Well Depth:** 168 ft.

Water Well Contractor's Certification

This well and/or pump installation was performed under my registration.

Signature of Registered Contractor **Date**

General Remarks: oct remained stuck in the well

Other Remarks: