

Technical Memorandum

February 23, 2023

To	Daniel Beck	Contact No.	+1 248-893-3400
Copy to	Project File	Email	lauren.kaltz@ghd.com
From	Lauren Kaltz/kg/2	Project No.	12602792-2023.T31
Project Name	RACER Willow Run 2023		
Subject	February PFAS Sampling Event Former Willow Run Powertrain Plant Ypsilanti, Michigan		

1. Purpose

This memorandum presents a summary of the scope of work for groundwater sampling at former Willow Run Powertrain facility (Site). Additional sampling is required to better understand the PFAS concentration trends surrounding the historic tank farm and along the airport sewer and drainage areas. Groundwater samples will be collected from seven wells and will be sampled for PFAS. A table with well names and locations can be found in Table 1. A figure is also provided with an aerial view of the well locations. All wells are located on Wayne County Airport Authority (WCAA) property.

Key Information:

- Scope: Groundwater sampling for PFAS analysis of seven wells
- When: February 23, 2023. Two days expected.
- Where: Former Willow Run Powertrain Site, Ypsilanti, Michigan (now the American Center for Mobility and Yankee Air Museum Properties)

2. Health and Safety

The Site-Specific Health and Safety Plan for the Willow Run Powertrain Site (dated February 2023) will be reviewed. It is provided as a separate document. Additional onsite review and completion of job safety analysis (JSA) sheets will be completed as needed.

3. Groundwater Sampling Protocol

Prior to sampling each well, GHD will measure the static water level to the nearest 0.01 foot using an electronic water level indicator and record the measurements. Each well will be purged using low flow sampling procedures (LFP). Standard GHD PFAS sampling protocols should be followed at all monitoring well locations.

During LFP, field parameters including pH, temperature, specific conductance, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity will be monitored. The measurement of these field parameters will be used to evaluate if stabilization of the purged groundwater has occurred prior to the collection of groundwater samples. The field measurements will be taken and recorded at approximate 5-minute intervals. Groundwater stabilization will be considered achieved when three consecutive readings for each of the field parameters are within the following limits:

pH	±0.1 pH units of the average value of the three readings
Temperature	±3 percent of the average value of the three readings
Conductivity	±0.005 milliSiemen per centimeter (mS/cm) of the average value of the three readings for conductivity <1 mS/cm or ±0.01 mS/cm of the average value of the three readings for conductivity >1 mS/cm
ORP	±10 millivolts (mV) of the average value of the three readings
DO	±10 percent of the average value of the three readings
Turbidity	±10 percent of the average value of the three readings, or a final value of less than 5 NTU If final turbidity is ≤ 5 NTU collect total metals only. If turbidity > 5 NTU collect total and dissolved (field filtered) metals samples

If stabilization is not reached, please call Daniel Beck (906-367-6376) to determine how to proceed. Document this in field notes.

4. Well Sampling Details

The seven sampling wells are included in Table 1 below. The five RACER installed wells have been sampled previously in 2022. These wells are to be resampled to verify the previous data, as well as compare the concentrations with that of the two airport wells, which have never been sampled for PFAS.

Table 1. Well location IDs

Well Locations	GW Analysis	General Well Information
GHD-1243M	PFAS	WCAA Property-RACER installed- 2022
GHD-1244M	PFAS	WCAA Property-RACER installed- 2022
MW-6	PFAS	WCAA Property-RACER installed- 2017
MW-9	PFAS	WCAA Property-RACER installed- 2017
MW-103	PFAS	WCAA Property-RACER installed- 2017
WCAA-MW09-2017	PFAS	WCAA Property-WCAA owned
WCAA-MW14-2017	PFAS	WCAA Property-WCAA owned

Notes:

Complete the PFAS sampling protocol checklist daily
SSOW number: 12602792-2023.T31-001 (a copy is attached)
Collect one duplicate sample
Collect a PFAS field blank daily

5. Field Notes/Other

Field notes are to be completed daily and sent to Lauren Kaltz (Lauren.Kaltz@ghd.com) for review. Please include general field notes, completed low flow purge sheets, and completed PFAS sampling checklist.

Please reach out to Daniel Beck with any other questions regarding the Site or the SOW.

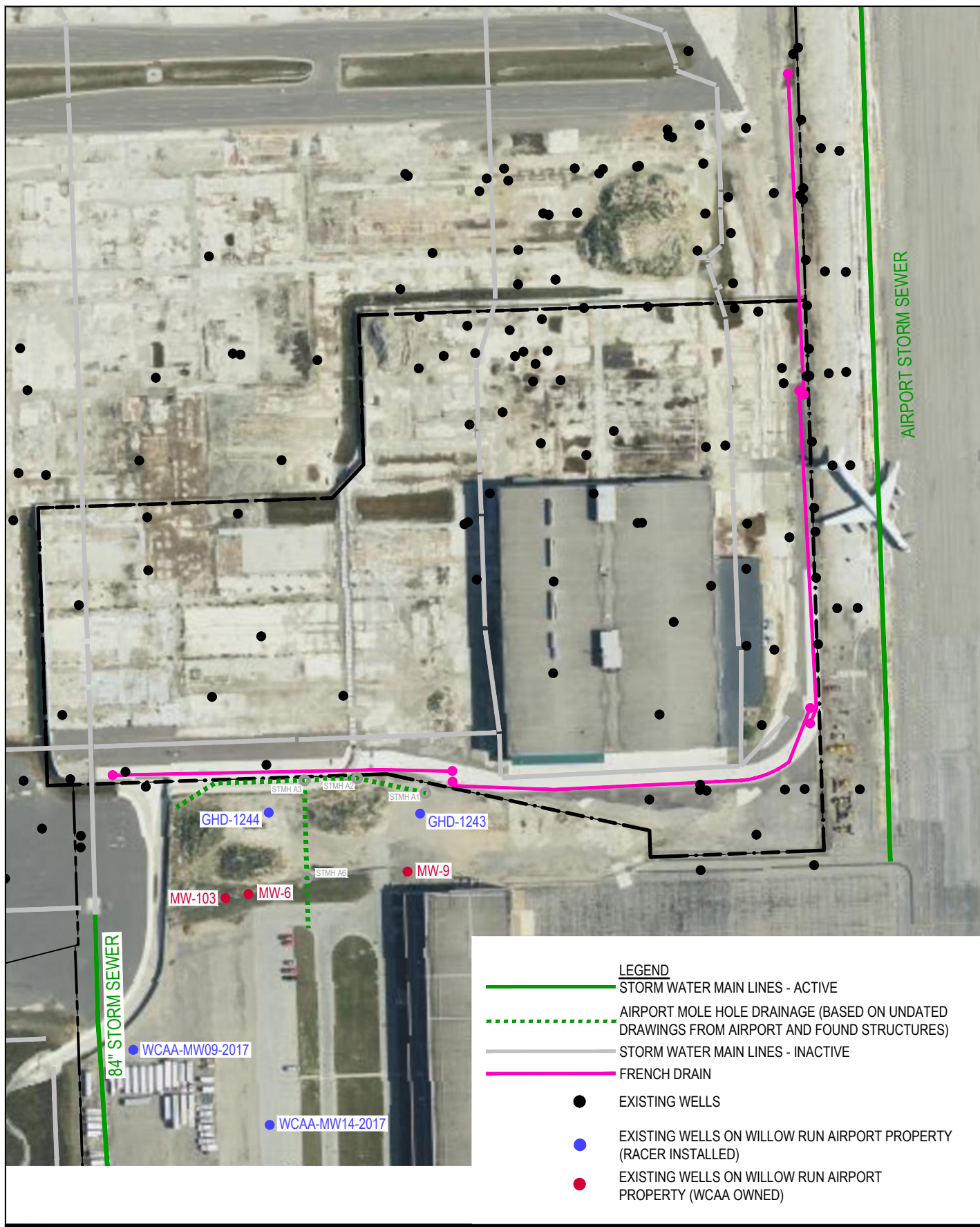
Regards,



Lauren Kaltz
Graduate Environmental Engineer



Daniel Beck
Project Engineer



Attachment 1

**Laboratory Services / GHD Simplified
Scope of Work (SSOW)**



Please contact Project Chemist to implement document

Project summary				Database summary	
Project name	Willow Run Powertrain			Database maintained	☒ Yes ☐ No
Project no.	12602792			Database facility code	GM-E-Willow Run
Task	2023.T31	Task Org Code	5062	FOR INTERNAL USE ONLY - CODING	
Project location	Ypsilanti, MI			Is there more than one laboratory for this event?	
Client name	RACER Trust			SSOW	of
QAPP title	NA				
Events summary					
Phase/study title	Airport Existing Well Sampling Event	Rush TAT		Sample batching	sample event
Event description	Airport Existing Well Sampling Event	Final report and EDD TAT	10 bus day	Date bottle required	February 20, 2023
Start date	February 22, 2023	Bottle shipping address	26850 Haggerty Road, Farmington Hills, MI 48331	Attention	Daniel Beck
Sampling duration		Phone number	248-893-3400		
Sampling frequency		Sample pick-up required			
Contacts					
	Name	Address	Phone	Cell	Email
Client Project Manager	GHD (Formerly CRA)				
Consulting Firm	Beth Landale	26850 Haggerty Road, Farmington Hills, Michigan 48331	248-893-3400		beth.landale@ghd.com
Project Manager	Daniel Beck	26850 Haggerty Road, Farmington Hills, Michigan 48331	248-893-3400		daniel.beck@ghd.com
Project Coordinator	Lauren Kaltz	26850 Haggerty Road, Farmington Hills, Michigan 48331	248-893-3400		lauren.kaltz@ghd.com
Field Leader					
Laboratory (Vendor)	Eurofins North Central				
Lab Project Manager	Denise Heckler	180 S. Van Buren Ave., Barberton, OH 44203			denise.heckler@et.eurofinsus.com
Chemistry/data mgt. firm	GHD (Formerly CRA)				
Chemist	Abston, James	26850 Haggerty Rd, Farmington Hills, MI 48331	248-893-3381		James.Abston@ghd.com
Database Analyst	Cameron, Mary	26850 Haggerty Road, Farmington Hills, Michigan, 48331	248-893-3400		mary.cameron@ghd.com
Lab deliverables			Additional reporting requirements		
EDD format	☐ GHD EQUIS EZEDD ☒ GHD EQUIS 4-file ☐ Other (Please Specify)		Form 1s include	☒ MDLs ☒ PQLs ☒ J Values	
Report level requested	☒ Level II ☐ Level IV ☐ Other (Please Specify)		TICs	☐ Yes ☒ No	
			Soil reporting	☒ Dry ☐ Wet	
Lab deliverables distribution					
Rush TAT data (email deliverable only)	chemdet@ghd.com; beth.landale@ghd.com; dan.beck@ghd.com; James.abston@ghd.com; lauren.kaltz@ghd.com				
Final EDD and result summary (PDF)	chemdet@ghd.com; beth.landale@ghd.com; dan.beck@ghd.com; James.abston@ghd.com				
Final lab report					
GHD data review level					
	☒ Stage 1 ☐ Stage 2a ☐ Stage 2b ☐ Stage 4 ☐ Stage 4/2b ☐ Other (Please Specify)				
Data management deliverables			Data management deliverables distribution		
	☐ EQUIS Database ☐ Cross Tab Table ☐ Flat File ☐ Databox ☐ Other (please specify)	Distribution list			
		Database exports - reporting down to MDL ☐ Yes ☐ No			
Comments					
* additional Final Lab Report copy (in PDF format) is available in the GHD Project File folder. Please contact Project Chemist.					
SSOW email distribution list		beth.landale@ghd.com; daniel.beck@ghd.com; lauren.kaltz@ghd.com; denise.heckler@et.eurofinsus.com; James.Abston@ghd.com; mary.cameron@ghd.com; Jennifer.Devonshire@ghd.com			
Prepared by	James Abston	Date	April 27, 2022	Revision number	
				Revision date	



Q1240

Laboratory Services / GHD Simplified Scope of Work (SSOW)

SSOW Ref. Code

12602792-T31-004

Project name	Willow Run Powertrain			Phase/study title	Airport Existing Well Sampling Event
Project no.	12602792			Event description	Airport Existing Well Sampling Event
Task	2023.T31	Task Org Code	5062		
Project location	Ypsilanti, MI				

								Field QC samples										
								MS	MSD	Lab Dup	Trip Blk	RBK	Fld Dup	Other				
Item	Sample Matrix	Analytical Parameters	Analytical Methods	Unit Prices	Applicable Surcharge Multiplier ⁽¹⁾	Extended Prices	Estimated Sample Qty/Event								Total Sample Qty.	Billable Samples	Estimated Cost/Event	
		PFAS	537	\$ 250.00	1.00	\$ 250.00	7	1	1				1	1	11	11	\$2,750.00	
		PFAS Free Water		\$ 20.00	1.00	\$ 20.00	1								1	1	\$20.00	
																</		

⁽¹⁾ Explanation of Surcharges:

Estimated Event Subtotal:	\$2,770.00
Laboratory Surcharge(s):	
Estimated Event Total Costs:	\$2,770.00

Lab Contracting Summary

Governing terms and conditions

- ☒ Master Agreement Number:
☐ Exhibit "A" Terms and Conditions
☐ Client Contract

Party issuing the Purchase Order ("GHD")

GHD Company Name :	GHD Services Inc. - 340
GHD Company Code :	340
GHD Invoice Routing Mailbox :	Invoicing-US@ghd.com
GHD Invoice Recipient :	Keshia Lucas

GHD Purchase Order Number: 340-005428

Name of Client: RACER Trust

Other Additional Insureds:

Governing Law: MI

Currency: USD

Address Invoice to: GHD Services Inc. - 340

2055 Niagara Falls Blvd.

Niagara Falls, New York 14304 USA

Electronic Invoice to: Invoicing-US@ghd.com

James Abston	4/27/2022
(authorized GHD signature)	(date signed)

Denise Heckler	4/29/2022
(authorized Vendor signature)	(date signed)

Typed name constitutes authorized signature.

Eurofins North Central
Vendor's Full Legal Name

Vendor to provide and deliver all items or services set out or otherwise described below subject to the Governing Terms and Conditions checked above. This Purchase Order ("PO") expressly limits acceptance to such terms and conditions. Any additional or different terms proposed by Vendor are rejected unless expressly agreed to in writing by GHD. To accept this Purchase Order, Vendor must sign, date, and return one copy of this page to issuer before starting any work. Signature of this PO may be sent by facsimile (with confirmation by transmitting machine) and/or transmitted by portable document file (pdf) which shall be treated as an original signature, and any such signature, facsimile, pdf file, or copy of this signed PO shall be valid as an original and shall be binding as if it were the original. Show Purchase order no. on all correspondence, insurance certificates, invoices, and delivery papers.

GHD | Q1240 Purchase order - Laboratory Services (SSOW)

Attachment 2

PFAS Checklist



PFCs Sampling Checklist

Date: _____

Weather (temp./precipitation): _____ Site Name: _____

Field Clothing and PPE:

- ☐ No clothing or boots containing Gore-Tex™
- ☐ All safety boots made from polyurethane and PVC
- ☐ No materials containing Tyvek®
- ☐ Field crew has not used fabric softener on clothing
- ☐ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☐ Field crew has not applied unauthorized sunscreen or insect repellent

Field Equipment:

- ☐ No Teflon® or LDPE containing materials on-site
- ☐ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☐ No waterproof field books on-site
- ☐ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☐ No adhesives (Post-It Notes) on-site

- ☐ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

Sample Containers:

- ☐ All sample containers made of HDPE or polypropylene
- ☐ Caps are unlined and made of HDPE or polypropylene

Wet Weather (as applicable):

- ☐ Wet weather gear made of polyurethane and PVC only

Equipment Decontamination:

- ☐ "PFC-free" water on-site for decontamination of sample equipment. No other water sources to be used.
- ☐ Alconox and Liquinox to be used as decontamination materials

Food Considerations:

- ☐ No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

Field Lead Name: _____

Field Lead Signature: _____ Time: _____

PFC Sampling – Prohibited and Acceptable Items

Prohibited	Acceptable
Field Equipment	
Teflon® containing materials	High-density polyethylene (HDPE) materials
Low density polyethylene (LDPE) materials	Acetate Liners
	Silicon Tubing
Waterproof field books	Loose paper (non-waterproof)
Plastic clipboards, binders, or spiral hard cover notebooks	Aluminum field clipboards or with Masonite
	Sharpies®, pens
Post-It Notes®	
Chemical (blue) ice packs	Regular ice
Field Clothing and PPE	
New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™	Well-laundered clothing made of natural fibers (preferable cotton)
Clothing laundered using fabric softener	No fabric softener
Boots containing Gore-Tex™	Boots made with polyurethane and PVC
Tyvek®	Cotton clothing
No cosmetics, moisturizers, hand cream, or other related products as part of personal cleaning/showering routine on the morning of sampling	Sunscreens - Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss my face, Baby sunscreens that are “free” or “natural” Insect Repellents - Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellent, Herbal Armor, California Baby Natural Bug Spray, BabyGanics Sunscreen and insect repellent - Avon Skin So Soft Bug Guard Plus – SPF 30 Lotion
Sample Containers	
LDPE or glass containers	HDPE or polypropylene
Teflon-lined caps	Unlined polypropylene caps
Rain Events	
Waterproof or resistant rain gear	Gazebo tent that is only touched or moved prior to and following sampling activities
Equipment Decontamination	
Decon 90®	Alconox® and/or Liquinox®
Water from an on-site well	Potable water from municipal drinking water supply
Food Considerations	
All food and drink, with exceptions noted on right	Bottled water and hydration fluids (i.e, Gatorade® and Powerade®) to be brought and consumed only in the staging areas