

# MEMO

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Subject:

October PFAS Investigation Sample Results  
RACER Buick City Site Flint, Michigan

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This memo summarizes the results of additional per- and poly-fluoroalkyl substances (PFAS) Sampling conducted in October 2019 at the RACER Buick City Site (Site) located in Flint, Michigan (**Figure 1**). Twenty-one samples were collected in accordance with the PFAS Continuing Investigation Work Plan dated October 9, 2019 (Work Plan) as part of continued investigation activities to assess areas of potential impacts at the Site (Figure 1).

Samples from the following events are discussed in this memo:

- October 29, 2019 – Dry weather storm sewer investigation samples were collected from manholes at Outfall 003 (MH 3-6 and MH 3-6 North Lateral) and Outfall 010 (Outfall, MH 10-1, MH 10-1A, MH 10-1A NE Lateral, MH 10-2, MH 10-2NE Lateral, MH 10-4, MH 10-4 NE lateral, MH 10-4 NW Lateral, MH 10-5, MH 10-5 Bulkhead, and MH 10-5 NW Lateral).
- October 30, 2019 – Wet weather storm sewer investigation samples were collected from Outfall 013 (MH 13-2, MH 13-6, MH 13-10, MH 13-11, MH 13-11-11, MH 13-14, MH 4-26).

Please note that while all samples were analyzed for 24 PFAS compounds only the PFOA and PFOS results (which have established EGLE Part 201 criteria) are discussed herein.

## PFAS INVESTIGATION SAMPLE SUMMARY

### Outfall Drainage Area 003

During a recent review of historic files a previously unknown storm sewer line along the eastern property boundary was identified which appeared to discharge to manhole MH 3-6 (**Figure 2**). The northern lateral was identified in the manhole MH 3-6 structure. The northern lateral is a 30-inch pipe which was estimated to be discharging approximately 0.1 gallons per minute into the Outfall 003 main. Samples were collected from both the northern lateral and the main at manhole MH 3-6 and submitted for PFAS analysis. The table below presents the PFOA and PFOS analytical results:

Analyte	MH 3-6 N Lateral	MH 3-6
	(ng/L) 10/29/19	(ng/L) 10/29/19
PFOA	12	16
PFOS	73	47

The previously estimated dry weather PFOS mass being discharged at Outfall 003 was 65 to 75 milligrams/day (mg/day). The contribution from the northern lateral at MH 3-6 is estimated to contribute 0.04 mg/day to Outfall 003.

### Outfall Drainage Area 010

In order to refine the understanding of PFAS impacts along the Outfall 010 storm sewer, samples were collected from each lateral and main along Outfall 010 and submitted for PFAS analysis (**Figure 3**). A sample was also collected from water leaking from the bulkhead installed at MH10-5 (referred to as sample MH 10-5-Bulkhead below). The results are summarized below starting at the outfall and proceeding upstream. The flow of the laterals and main were measured or estimated, where possible.

Analyte	Outfall 010
	(ng/L) 10/29/19
PFOA	150
PFOS	2300
Flow (gpm)	10

Analyte	MH 10-1
	(ng/L) 10/29/19
PFOA	150
PFOS	5000
Flow (gpm)	5-10

Analyte	MH 10-1A	MH 10-1A-NE
	(ng/L) 10/29/19	(ng/L) 10/29/19
PFOA	190	53
PFOS	4100	750
Flow (gpm)	5-10	0.1

Analyte	MH 10-2	MH 10-2-NE
	(ng/L) 10/29/19	(ng/L) 10/29/19
PFOA	240	22
PFOS	6200	110
Flow (gpm)	5-10	0.5

Analyte	MH 10-4	MH 10-4-NE	MH-10-4-NW
	(ng/L) 10/29/19	(ng/L) 10/29/19	(ng/L) 10/29/19
PFOA	460	35	19
PFOS	11,000	1,200	860
Flow (gpm)	5-10	NA	0.1

Analyte	MH 10-5	MH 10-5-NE	MH 10-5-Bulkhead
	(ng/L) 10/29/19	(ng/L) 10/29/19	(ng/L) 10/29/19
PFOA	580	2,000	35
PFOS	8,900	42,000	440
Flow (gpm)	2	1	1

The previously estimated dry weather PFOS mass being discharged at Outfall 010 was 110 to 210 mg/day. The approximate contribution from the laterals are summarized below:

Analyte	Outfall 010 Lateral Mass Contributions				
	MH 10-1A-NE (ng/L)	MH 10-2-NE (ng/L)	MH 10-4-NW (ng/L)	MH 10-5-NE (ng/L)	MH 10-5-Bulkhead (ng/L)
Flow (gpm)	0.1	0.5	0.1	1	1
PFOS (ng/L)	750	110	860	42,000	440
PFOS (mg/day)	0.2	0.3	0.6	228	2.4

The majority of the PFOS impacts along the Outfall 010 storm sewer are associated with manhole MH 10-5.

### Outfall Drainage Area 013

In order to refine the understanding of PFAS impacts along the Outfall 013 storm sewer, wet weather samples were collected from along the main as well as the MH 13-11 lateral and submitted for PFAS analysis. The results are summarized below starting at the MH 13-2 and proceeding upstream.

Analyte	Outfall 013			
	MH 13-2 (ng/L)	MH 13-6 (ng/L)	MH 13-10 (ng/L)	MH 13-11 (ng/L)
PFOA	1 J	1 J	4 J	5
PFOS	9	7	13	17

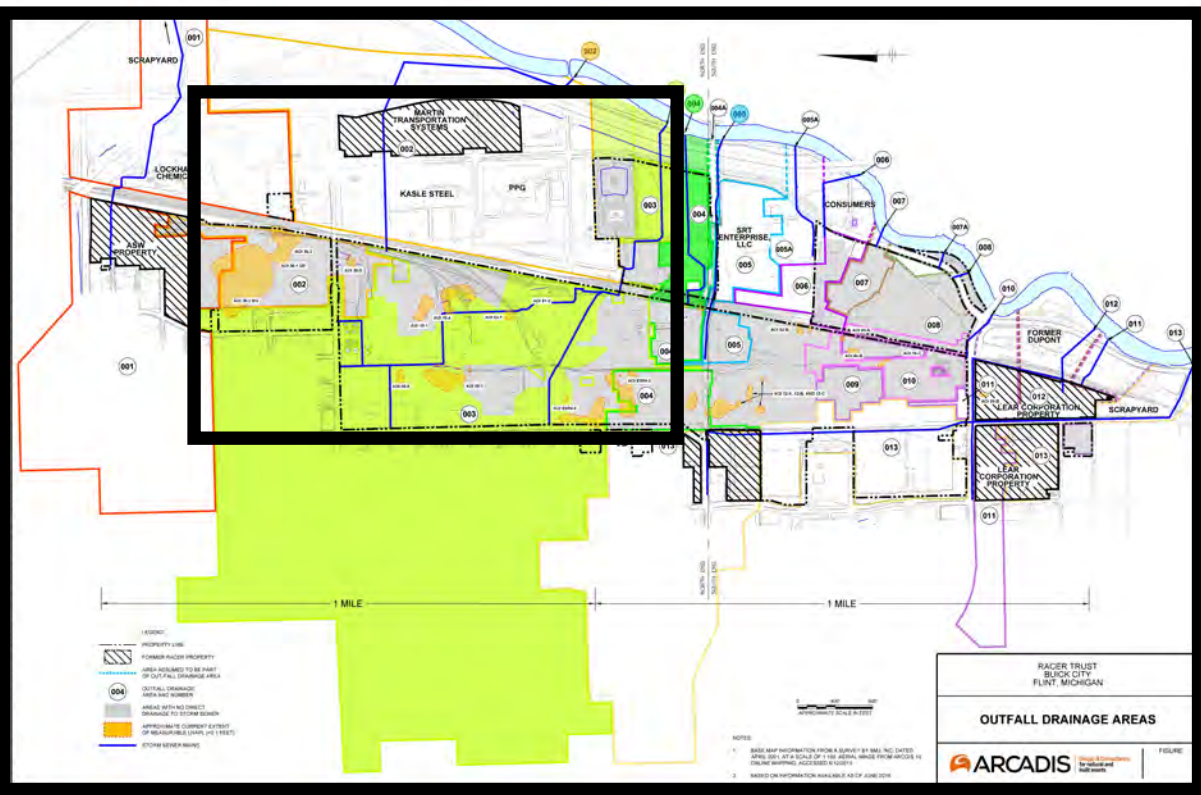
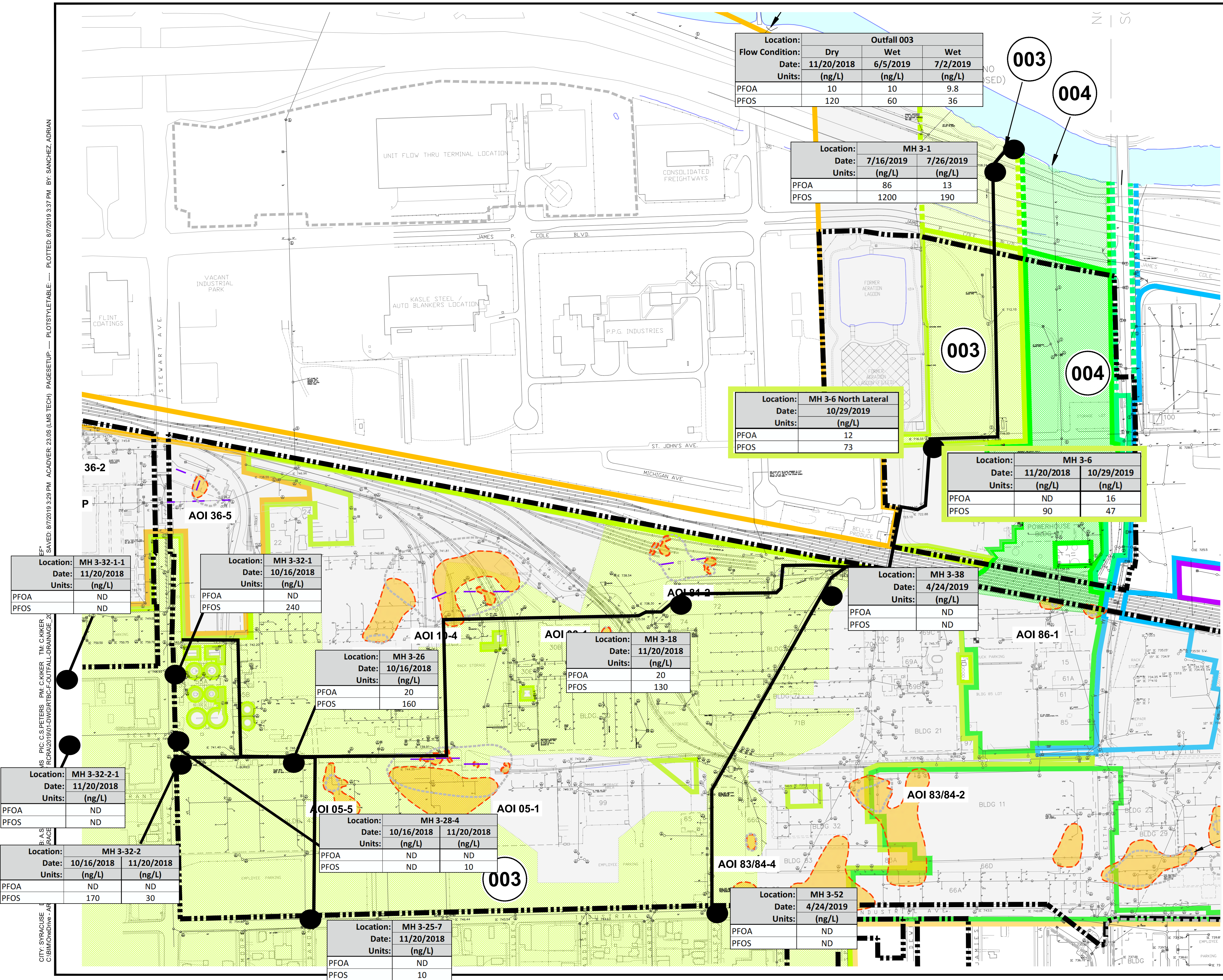
Analyte	Outfall 013		
	MH 13-11-11 (ng/L)	MH 13- 14 (ng/L)	MH 4-26 (ng/L)
PFOA	42	2 J	2 J
PFOS	341	10	20

The highest PFOS detection along the Outfall 013 storm sewer during this wet weather sampling event as well as previously completed dry weather sampling event, was located at manhole MH 13-11-11. Manhole MH 13-11-11 is located along a lateral which drains a small portion of the Site north of Hamilton Avenue and east of Industrial Ave (see **Figure 4**).

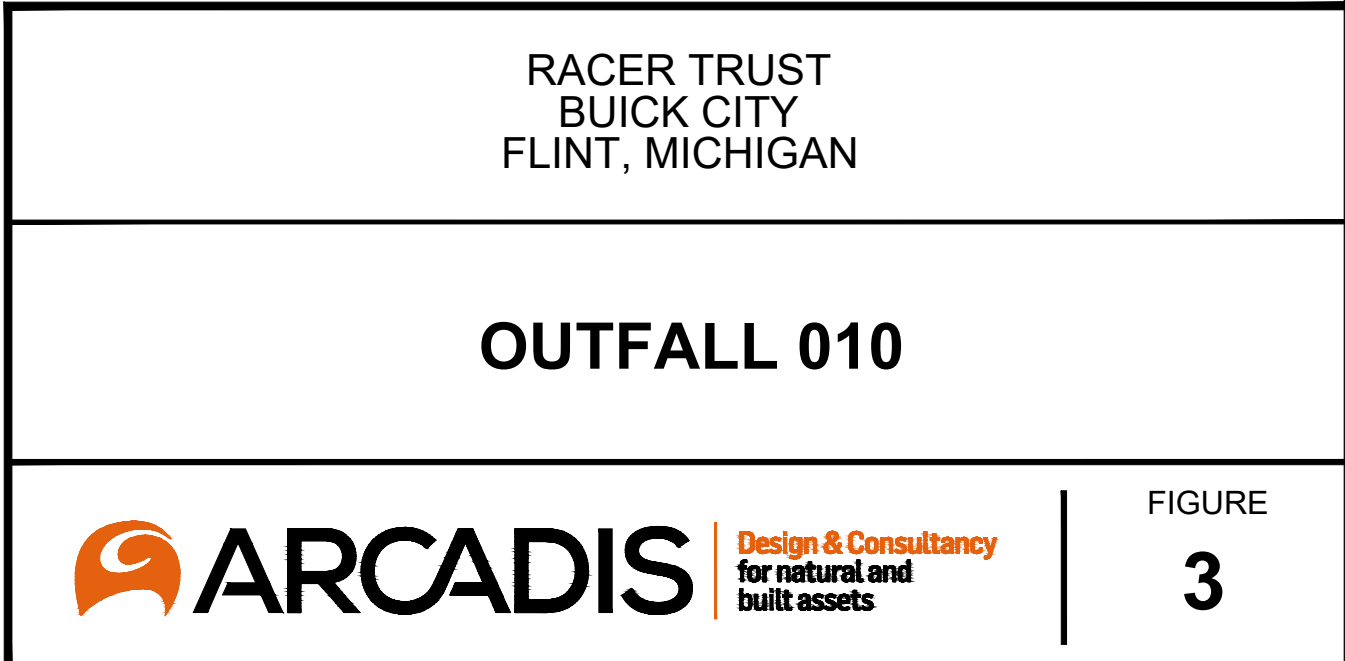




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