

River Raisin Surface Water
PFAS Follow-up Investigation
September 2019

SUMMARY

In 2018, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Water Resources Division (WRD) conducted a PFAS source investigation in the River Raisin watershed. Following three separate sampling events, PFOS concentrations exceeding the Rule 57 Human Non-Cancer Value (HNV) for PFOS (11 ng/L for those surface waters used as a drinking water source) were observed at four locations in the River Raisin, one location in the South Branch of the River Raisin, and one location in the Saline River (Table 1).

Table 1. 2019 River Raisin and Ottawa-Stony Creek watershed surface water PFAS results.

Sample ID	Location Description	Lat	Long	PFOS (ng/L)	Date of Collection
RR-0270	River Raisin d/s of Tecumseh WWTP	42.001	-83.931	460.0	June 2018
SB-0010	South Branch River Raisin u/s confluence	41.924	-83.977	26.0	June 2018
RR-0130	River Raisin @ East. Gorman Rd	41.829	-83.880	15.0	August 2018
RR-0100	River Raisin @ Witts End	41.882	-83.786	160.0	June 2018
SR-0210	Saline River @ Crestwood Circle	41.158	-83.781	130.0	June 2018
RR-0060	River Riain @ Plank Road	41.975	-83.601	230.0	August 2018

In July 2019, a raw River Raisin water sample collected at the Village of Deerfield Water Treatment Plant had a reported PFOS concentration of 1,600 ng/L. Following the receipt of this result in August 2019, staff from EGLE and Michigan Department of Health and Human Services met to determine the next steps in finding the source of the PFOS contamination. Following this sampling effort, it was determined that a laboratory error resulted in the high concentration in the raw water intake sample.

Additionally, two other PFAS sites downstream of Deerfield were discussed for surface water sampling. Groundwater samples collected on the Ford River Raisin Warehouse exceeded the Part 201 cleanup criteria for groundwater used as drinking water, which is 70 parts per trillion for PFOS + PFOA. The facility is located near the mouth of the River Raisin and adjacent to a wetland pond.

In addition, samples were collected from the Ottawa-Stony Creek watershed. Little Swan Creek drains a cold war era missile site in Monroe County in the watershed. It is unknown if fire-fighting foam containing PFAS was used at the site.

Grab samples of ambient surface water from the main flow of the water body were collected by EGLE, WRD-SWAS at 22 locations (Table 2, Figure 1). Additionally, two opportunistic samples were collected from a stormwater outfall and a drain near Deerfield.

Main findings:

- PFOA was detected at all sampling locations, ranging from 0.7 ng/L to 6.0 ng/L. However, no PFOA concentration exceeded the Water Quality Value for drinking water sources (420 ng/L)
- PFOS was detected at all sampling locations, ranging from 0.8 ng/L to 9.9 ng/L. However, no PFOS concentration exceeded the Water Quality Value for drinking water sources (11 ng/L) during this sampling event.
- PFOS and PFOA were at or below 1.0 ng/L in all samples collected from Black Creek, upstream and downstream of the Silbond Facility.
- RR-0130, upstream of the Blissfield drinking water intake, had a PFOS concentration of 1.7 ng/L. Surface water samples collected from this location in June and August 2018 were 15.0 and 4.7 ng/L, respectively.
- RR-0100, upstream of the Deerfield drinking water intake, had a PFOS concentration of 1.8 ng/L. Surface water samples collected from this location in June and August 2018 were 16.0 and 5.1 ng/L, respectively.
- PFOS ranged from 2.1 ng/L to 4.8 ng/L in samples collected from Little Swan Creek and Stony Creek; two potential drains of the NIKE Missile Site.
- PFOS was 5.8 and 2.9 ng/L upstream and downstream of the wetland ponds adjacent to the Ford Motor Monroe site. Caution should be taken when interpreting the downstream sample as the River Raisin was flowing into the pond at the time of sample collection.
- The highest PFOS concentration (9.9 ng/L) was measured in Swan Creek at SC-0100. Further investigation of PFAS sources in Swan Creek may be warranted.

Table 2. 2019 River Raisin and Ottawa-Stony Creek watershed surface water PFAS results.

Sample #	Sample ID	Location Description	Lat	Long	PFOS (ng/L)	PFOA (ng/L)
1	RR-0210	River Raisin @ N. Wilmoth Hwy	41.935637	-83.964400	1.4	1.4
2	SB-0060	South Branch River Raisin @ Merrick St	41.894587	-84.047052	1.6	1.3
3	SB-0050	South Branch River Raisin @ College Ave	41.897902	-84.042088	1.7	1.2
4	RR-0200	River Raisin @ Laberdee Rd	41.919528	-83.974300	3.8	1.5
5	RR-0190	River Raisin @ Deerfield Rd	41.884922	-83.970719	1.7	1.4
6	RR-0185	River Raisin @ Palmyra Twp Cemetery	41.863301	-83.945677	1.6	1.3
7	RR-0180	River Raisin @ US-223	41.859836	-83.938987	1.2	1.2
8	BK-0120	Black Creek @ Terry Hwy	41.773756	-84.117852	0.6	0.7
9	BK-0110	Black Creek @ Sand Creek Hwy	41.773407	-84.098147	0.9	0.7
10	BK-0100	Black Creek @ Lions Hwy	41.779836	-84.079221	1.0	1.0
11	BK-0010	Black Creek @ Crockett Hwy	41.816158	-83.922851	0.8	0.8
12	RR-0130	River Raisin Near E. Gorman Rd	41.828526	-83.879853	1.7	1.4
13	SO-0010	Sherman St Stormwater Outfall	41.833838	-83.859624	3.2	1.2
14	RR-0110	River Raisin Near Iffland Rd	41.854663	-83.850000	1.4	1.3
15	SH-0010	Drain near Sibelhorn Hwy	41.826564	-83.845174	2.4	1.7
16	RR-0100	River Raisin Near Witts End	41.881945	-83.785800	1.8	1.3
17	SC-0100	Swan Creek @ Dixie Hwy	41.994909	-83.285864	9.9	6.0
18	LS-0200	Little Swan Creek @ Grafton Rd	42.000645	-83.378732	<i>No Sample: Dry</i>	
19	LS-0100	Little Swan Creek @ Telegraph Rd	41.994119	-83.362898	2.1	1.0
20	LS-0010	Little Swan Creek @ Dixie Hwy	41.987088	-83.289091	2.6	2.1
21	ST-0150	Stony Creek @ La Duke Rd Train Tracks	41.995980	-83.387008	3.3	2.3
22	ST-0100	Stony Creek @ Telegraph Rd	41.981596	-83.371445	3.7	2.4
23	ST-0010	Stony Creek @ N. Dixie Hwy	41.948700	-83.309600	4.8	3.5
24	FM-0100	Unnamed Tributary to River Raisin @ Detroit Ave	41.913801	-83.372994	5.8	2.7
25	FM-0010*	Unnamed Tributary to River Raisin @ E. Elm Ave	41.902959	-83.358463	2.9	1.7

* River Raisin water was flowing into the wetland area at the time of sample collection

