



**Summary and Update of Site Investigation
Buick City
Report to EGLE
September 28, 2020**

INTRODUCTION

As discussed on September 17, 2020 the investigation work has continued at the Buick City Site from June through August 2020. This work included conducting PFAS sampling in soil and groundwater at the Northend and Southend of the Site and further delineating lead impacts in soil at the Northend. This memo summarizes the most recent investigation data received as of September 10, 2020. Please note the following global changes were made to the Site figures: 1) given the recent adoption of a Maximum Contaminant Level of 51 ng/l for PFHxS, it has been included in the data boxes to evaluate the relationship between PFOS and PFHxS and 2), the color scale has changed from previous presentations to better illustrate the various concentrations of PFOS detected across the Site.

The information provided below addresses primarily PFOS and PFHxS sample results. While PFOA concentrations are presented in the data boxes, PFOA concentrations in soil and groundwater, with very few exceptions were less than applicable cleanup criteria.

The most significant results are from the Southend near Hamilton Avenue in a location that is likely a source area with the highest recorded results in our investigation to date. Understanding this area better and finding the best solution to remedy that area is our most important task. We first summarize the recent work in the Northend and follow that with a summary of the area near Hamilton Avenue in the Southend.

The attached PFAS figures highlight results for PFOS, PFHxS, and PFOA which are key substances for the investigation. A full set of PFAS data is being assembled and will be provided as soon as it is available.

LEAD SAMPLING – NORTHEND

Groundwater samples were collected from 15 monitoring wells in and downgradient of Soil Impact Areas #10, #11, and #13 (near Leith Street) to evaluate groundwater for the presence of lead (see **Figure 1**). Thirteen of the samples did not detect lead in the unfiltered or filtered samples. The samples collected from RFI-83/84-29 and RFI-83/84-20 detected lead in the unfiltered samples at concentrations of 5 ug/L and 3 ug/L, respectively (although the drinking water standard is 4 ug/l; none of the groundwater sampled can be or is used as drinking water and no evidence exists that any lead has reached or is entering the Flint River). However, lead was not detected in the filtered samples, indicating that the lead is associated with sediment in the sample. A further review of the groundwater data surrounding these areas shows that no lead has migrated or is migrating from these areas in

groundwater. The lead is present in soils but not groundwater and these areas are and will remain capped to contain the lead in soils.

Additional lead soil sampling was also conducted in July 2020. Soil samples were collected from 23 soil borings completed at Soil Impact Areas #10, #11, and #13 (see **Figure 2**). Delineation of soil impacts (based on the Part 201 non-residential direct contact criterion of 900 mg/kg) is completed at Soil Impact Area #11 and #13. Additional delineation sampling at Soil Impact Area #10 will be completed in September 2020.

PFAS SAMPLING – NORTHEAST

Groundwater samples were collected from eight monitoring wells at the **Factory 36 Area** (north of Stewart Avenue) for PFAS analysis (see **Figure 3**). Samples from six of the wells detected PFOS at concentrations exceeding the GSI criterion of 12 nanograms per liter (ng/L). The maximum detected concentration of PFOS was 100 ng/L; however, PFOS concentrations in the most downgradient wells sampled did not exceed GSI criteria.

At the **Former Firefighting Training Area (FTA)** (south of Stewart Avenue) two soil borings were completed and temporary wells were installed at each location. Groundwater samples were collected from the temporary wells and one existing monitoring well (see **Figures 4 and 5**) to further evaluate impacts in the vicinity of RFI-10-26 (location being further delineated), where the highest concentration of PFOS in groundwater has been detected (**Figure 5**). A total of three soil samples and three groundwater samples were analyzed for PFAS. Analysis of soil samples detected PFOS, with a high of 350 ng/kg (**Figure 4**). The delineation groundwater samples detected a high of 21 ng/L upgradient of RFI-10-26. These borings complete the upgradient delineation of the FTA. Additional investigation is not planned in this area.

At the location of the former **Wastewater Treatment Plant (WWTP)** (near Stewart Avenue and Selby) one soil boring was completed (see **Figures 4 and 5**) to further evaluate impacts in the vicinity of monitoring well 55-4 (location being further delineated). PFOS was not detected in either of the soil samples collected. The delineation groundwater sample detected PFOS at a concentration of 38 ng/L downgradient of 55-4. This boring completes the delineation of the WWTP area. Additional investigation is not planned in this area.

In the vicinity of the **Former Painting Area (FPA)** (north of Lieth Street) four soil borings were completed and temporary wells were installed at each location. Groundwater samples were collected from the temporary wells and five existing monitoring wells (see **Figures 4 and 5**) to further evaluate impacts in the vicinity of RFI-81-09 (location being further delineated). PFOS was detected in soil at a high concentrations of 200 ng/kg in. The delineation groundwater samples detected a high of 110 ng/L upgradient of RFI-81-09 and 66 ng/L downgradient. Additional investigation is not planned in this area, at this time.

PFAS SAMPLING - SOUTHEAST

At the **Building 12 Area** (near and south of Leith Street) additional investigation activities were completed to further delineate impacts identified at RFI-12-27 and RFI-12-34 (see **Figures 6 and 7**). Three soil borings were completed and temporary wells were installed at each location. Groundwater samples were collected from the temporary wells and 10 existing monitoring wells. Soil samples

detected PFOS at with a high concentration of 2,900 ng/kg. The delineation groundwater samples detected a high of 1,100 ng/L downgradient of RFI-12-27. Impacts at RFI-12-34 are delineated; however additional delineation is planned to delineate the impacts at RFI-12-27.

Additional investigation activities were completed in the **Building 16 Area** (south of Building 12 area) to further delineate impacts identified at RFI-16-25 (location being further delineated) (see **Figures 6 and 7**). Two soil borings were completed and temporary wells were installed at each location. Groundwater samples were collected from each temporary well and four existing monitoring wells. Soil samples detected PFOS at a high concentration of 2,300 ng/kg. The groundwater samples detected PFOS at a high of 11,000 ng/L upgradient of RFI-16-25. Additional delineation work was completed in this area in August 2020. Results are pending.

At the **Building 84 Area** (near Hamilton Avenue and James P Cole) additional investigation activities were completed to further delineate impacts identified at RFI-84-07S (location being further delineated) (see **Figures 8 and 9**). Nine soil borings were completed and temporary wells were installed at eight of the locations. Groundwater samples were collected from the temporary wells and 13 existing monitoring wells. Soil samples detected PFOS at a high concentration of 88,000 ng/kg. The delineation groundwater samples detected a high of 110,000 ng/L upgradient of RFI-84-07S. Additional delineation work was completed in this area in August 2020. Results are pending.

The **Building 44 Area** has been divided into three areas (Bldg 44 East, Bldg 44 Central, and Bldg 44 West) to make it easier to see the sample locations and read the data boxes as shown on **Figure 10**. Due to lab delays not all data from the sampling in this area has been received. This summary includes data received as of September 10, 2020. The reported results include 30 borings, 106 soil samples and 62 groundwater samples (see **Figures 11 through 16**). Soil samples detected PFOS at concentrations with a high of 11,000,000 ng/kg at boring SB-04-64 (**Figure 13**). The groundwater samples detected PFOS at a high concentration of 3,400,000 ng/L at SB-04-47 (**Figure 14**). PFOA was detected in groundwater at a high concentration of 54,000 ng/L in the Building 44 Area (**Figure 12**). In addition, 11 soil samples were submitted for leaching using three methods. The results from the leaching tests and related analysis will be reported in our next summary. Additional delineation work is planned to be completed at the Bldg 44 Area in September/October time frame.

As the larger scale figures (**Figures 17 and 18**) illustrate a high concentration of PFAS in soils and groundwater is located in the Building 44 area near Hamilton Avenue. A preliminary historical review has identified several locations where former GM operations would have created this source of PFAS including a former "Foam Pit", a former "Underground Storage Tank Farm", a Sludge Pit/Paint Wastewater Treatment Plant", a "Truck Dock" and a "Waste Management Unit" (see **Figure 10**). This area will require focused work to better define the impacted soils and groundwater with enough detail to develop an effective remediation plan. It is expected that removing/containing this area will make a major difference in reducing all of the PFAS impacts along Hamilton Avenue in both the sanitary sewer and Outfall areas 10 and 11.

OUTFALLS

As of September 2020, the status of the work related to each outfall is as follows (see **Figure 19** for outfall locations and drainage areas):

Outfall 001 - sampling to date has not shown a PFAS contribution from the site. Some PFAS is found at the outfall, however, it is likely from a source off-site. Confirmatory sampling is planned for this fall or spring.

Outfall 002 – the site connection to this outfall was bulkheaded in 2018; however, the bulkhead was found to be leaking. As part of the Outfall 003 reroute, that bulkhead and a section of associated pipe was removed in June to allow a new storm sewer pipe to be reconnected at this location. This new storm sewer pipe originates where the current Outfall 003 storm sewer enters the site at the north property boundary. The 002 sewer was resampled just downstream from this reconnection in July and no PFAS was detected at the closest location. Once the reroute is completed this fall this section will be resampled to confirm the site is no longer contributing PFAS to the Outfall 002 storm sewer.

Outfall 003 – most of the new storm sewer has been installed; however, the work has been temporarily delayed. Consumers Energy must relocate a gas supply line that is over 100 years old before this work can be completed. It is hoped that the relocation will be completed before the end of October and the reroute will be completed in November. This is expected to significantly reduce if not effectively eliminate the site's contribution to the Outfall 003 storm sewer. Resampling will be conducted in early spring to confirm the performance of the reroute.

Outfall 004 – This storm sewer was bulkheaded at the CSX railroad tracks, which effectively eliminated the base flow component. The remaining active portion of Outfall 004 is above the water table, and subsequently Outfall 004 was dry during the dry weather sampling event. The wet weather sample detected PFOS at a concentration of 1.8 ng/L.

Outfall 004A – Outfall 004A was dry during the dry weather sampling event. The wet weather sample detected PFOS at a concentration of 46 ng/L. A second wet weather sample will be collected when the discharge point is accessible – it is currently submerged and cannot be sampled during wet weather events.

Outfall 005 – A flow study designed to quantify the flow of groundwater entering the Outfall 005 storm sewer is scheduled this fall. That information will be used to assess remedial alternatives.

Outfall 005A – Outfall 005A was dry during the dry weather sampling event. The wet weather sample did not detect PFOS; however, PFOA was detected at a concentration of 0.86 ng/L. No further investigation is planned at Outfall 005A.

Outfall 006 – PFOS was detected at Outfall 006 in the dry weather sample at a concentration of 96 ng/L and in the wet weather samples at concentrations of 11 ng/L and 106 ng/L. The data are currently being evaluated.

Outfall 007, 007A, and 008– Outfalls 007, 007A and 008 are likely above the water table as no flow was observed during a dry weather sampling event. The discharge locations for 007, 007A, and 008 are currently submerged and as such cannot be sampled during wet weather events. Outfalls 007 and 008 were bulkheaded at upgradient manholes MH 7-1 and MH 8-1, respectively. There are currently no accessible points to sample these outfalls during a wet weather event.

Outfall 012 - Outfall 012 is likely above the water table as no flow was observed during a dry weather sampling event. The discharge location for 012 is currently submerged and as such cannot be sampled

during wet weather events. The last downgradient manhole at the Site is unable to be located and upgradient manholes are dry. There are currently no accessible points to sample this outfall during a wet weather event.

Outfall 010, 011, 013 - laterals in the Outfall 010 (five), 011 (two), and 013 (one) storm sewers were bulkheaded in 2020 to eliminate known sources of PFAS from RACER property contributing to PFAS concentrations in these storm sewers. Following bulkheading activities, the Outfall 010 and 013 storm sewers were sampled at a location downgradient of the bulkheads to evaluate their effectiveness. Samples collected from Outfalls 010 and 013 exhibit exceedances of the Rule 57 surface water criterion of 12 ng/L for PFOS. Options for further actions to address these exceedances are currently being considered. Additional sampling at Outfall 010, 011, and 013 is planned to be completed in October.