UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
Laboratory Services and Applied Science Division
980 College Station Road
Athens, Georgia 30605-2720

March 7, 2024

MEMORANDUM

SUBJECT: PFAS and VOC Analytical Sampling Results
Flash Cleaners
LSASD Project #: 24-0006

FROM: Paula A. Whiting, Environmental Engineer
Hazardous Waste Section
Field Services Branch

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THRU: Greg White, Acting Branch Chief
Field Services Branch

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TO: Craig VanTrees
Remedial Project Manager
Restoration and Site Evaluation Branch
Superfund and Emergency Management Division (SEMD)

Please find attached the PFAS and VOC sampling results for Flash Cleaners located in Pompano Beach, Florida. A total of 5 wells were sampled.

The Florida Department of Environmental Protection (FDEP) has calculated provisional GCTLs for PFOA and PFOS. The calculations were completed in accordance with Chapter 62-777, Florida Administrative Code (F.A.C.), equations and methodology. The provisional GCTLs for PFOA and PFOS concentrations are 70 nanograms per liter (ng/l), and 70 ng/l for the sum of PFOA and PFOS concentrations. The results revealed PFOA concentrations more than 70 ng/L at two locations (FCMW03 and FCMW06). In addition, volatile organics were detected above Regional Screening Levels at one location (FCMW06).

The investigation followed the procedures listed in the LSASD Project No. 24-0006 Sample and Analysis Plan (SAP). SEMD requested that the results be referenced against the Regional Screening Levels (RSL) Tapwater (Drinking Water) May 2023 THQ=0.1 instead of the RSL Maximum Contaminant Level (MCL) May 2023 THQ=0.1 which is used to compare the natural environment instead of industrial and/or residential. The results revealed PFOA concentrations exceeded 0.04 µg/L at two locations (FCMW03 and FCMW06).

In addition, the analytical results for the volatile organic compounds (VOCs) in the FCMW06 well were higher than the March 2023 sampling event. This could potentially be due to surging and purging of the well and the removal of the debris and sediment allowing increased water flow through the well screen, and any contaminates within. Also, the depth of well FCMW06 needs to be considered since no VOCs were detected in other wells. So, there is potential that the VOCs have not moved lower than 25 feet in depth but may have spread out in a wider plume. Note: besides well FCMW03, the background well on the side of the building, FCMW06, is closest to the former dry cleaners building.

Additional information concerning the wells and the sampling are attached as: Flash Cleaners Monitoring Well Information (**Table 1**), Flash Cleaners Data Summary – PFAS (**Table 2**), Flash Cleaners Data Summary – Volatile Organics (**Table 3**), Flash Cleaners Well Locations map (**Figure 1**), Sampling Calibration and Field Logbooks (**Attachment 1**) which contain the monitoring well purge data and sampling notes, the Chains of Custody (**Attachment 2**), and the final PFAS and VOC Analytical Data Sheets (**Attachment 3**).

In March 2023, LSASD noted the following well conditions and recommendations:

- Wells FCMW10 and FCMW23 needed to have the organic material cleaned out of the bottom of the wells. The well cap was completely missing from FCMW10, and the March 2023 purge cleaned out an ½ inch of black organic matter. In addition, the top of the casing for FCMW10 was flush with the well vault allowing rainwater and sediment to flow into the well.

- All the wells needed new well covers with bolts and new well caps that could be tightened to prevent rainwater and sediment from entering the wells.

- Previously, none of the well covers are secured, and the bolt holes in the well covers allowed rainwater and sediment to enter the wells. In addition, some of the bolts in the well vaults were missing, which prevented the well covers from being secured to the well vault.

SEMD requested re-sampling of the Flash Cleaners wells after the above changes were made to the wells.

During the week of January 8th – 11th, the five monitoring wells were first redeveloped by surging the screen intervals with an appropriately sized swab attached to pipe. The swabbing action loosened any sediment obstructing the screen and sand pack. After the entire length of the screen has been sufficiently swabbed, a Waterra Hydrolift 2 pump with surge block pumped and surged the screen interval starting from the bottom and gradually adjusted at regular intervals until the entire well screen had been surged and pumped. For the deeper wells, a Grundfos Rediflo II was used to pump and surge the well, forcing water in and out through the sand pack and screen to clear any remaining sediment from the screen and well.

Depths to water were recorded prior to starting well redevelopment. During redevelopment a turbidity meter was used to measure the turbidity as a gauge for progress of redevelopment. Water volume was recorded for wells FCMW03, FCMW06, and FCMW23 with well depths of 15, 45, and 25 feet respectively. Wells FCMW07 and FCMW10 were 68 and 100 feet, respectively and the volume measurements was not recorded. The purg~~ed~~ water was pumped directly into the 55-gallon drums due

to the high volume and fast collection of the water. All five wells were purged to a turbidity of less 10 NTU.

Next each well pad concrete was broken up initially with a jackhammer, and the debris was removed manually. The concrete was removed down to the depth of the well vault and then the existing well vault was removed. The area of the well pad was chiseled to 24 inches long by 24 inches wide, if needed. The new well vault was placed inside and leveled to parking lot surface before concrete mix was added. The new well vaults and concrete pads were allowed to set for 24 hours before final sampling was conducted.

Prior to groundwater sample collection, pH, conductivity, temperature, and turbidity were measured and recorded until the following conditions were met for three successive readings: conductivity within 5%, and pH within 0.1 standard units. Each well was also purged until turbidity measurements were below 10 NTU or as low as reasonably achievable. Dissolved oxygen (DO) was also measured using an overtopping cell to contain the instrument probes and minimize oxygenation of the purge water during measurement. Oxidation reduction potential (ORP) was recorded to obtain the ORP measurement of record for the sampling event. Field measurement results, and exceptions or other conditions are noted are in the Field Measurement and Groundwater Sampling logbook in **Attachment 1.**

All investigation derived waste (IDW) water was containerized in 55-gallon drums and disposed at the Broward County Septage Receiving Facility located at 3100 North Powerline Road in Pompano Beach, Florida. Most of the concrete debris was disposed of in Broward County. The remaining concrete and solid waste was collected and returned for disposal at the LSASD Field Equipment Center.

If you have any questions or comments, please contact me by phone at (706) 818-5926 or email at whiting.paula@epa.gov.

Attachments

cc: Cathy Amorosa, SEMD
Derek Matory, SEMD
Sandra Aker, LSASD

LSASD Project ID: 24-0006

Final Data Report

Florida Dry Cleaners

Location: **Flash Cleaners**
4131 North Federal Highway
Pompano Beach, Florida

Project Dates: **January 7-13, 2024**

Final Report Approval Date: **March 7, 2024**

Project Leader: Paula A Whiting
Hazardous Waste Section
Field Services Branch
Laboratory Services & Applied Science Division
USEPA – Region 4
980 College Station Road
Athens, Georgia 30605-2720

The ANSI National Accreditation Board attests that U.S. EPA Region 4 Laboratory Services and Applied Science Division fulfills the requirements of ISO/IEC 17025:2017 ANAB Forensic Testing & Calibration AR 3125:2019 in the field of Forensic Testing. The activities contained in this report fall within the scope of accreditation, Certificate Number: AT-2628. Expires 08 June 2024.

Project Requestor:

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Kevin Simmons, Technical Reviewer
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Field Services Branch

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Greg White, Acting Branch Chief
Field Services Branch

Table 1: Flash Cleaners Monitoring Well Information

Well	Latitude	Longitude	Total Depth (feet bgs*)	Well Diameter (inches)	Notes
FCMW03	26.28240623	-80.09693237	15	1	PFAS
FCMW06	26.28240002	-80.09668674	25	2	PFAS/VOC
FCMW07	26.28239869	-80.09666939	100	2	PFAS
FCMW10	26.28241860	-80.09666880	68	2	PFAS
FCMW23	26.2824139	-80.09669352	45	1	PFAS/VOC

Bgs*: below ground surface

Table 2: Flash Cleaners Data Summary – Volatile Organics

Data Summary - Volatile Organics SELECTED COMPARISON STANDARD: RSL Tapwater May 2023 THQ=0.1				
	Station ID		FCMW06	FCMW06
	Sample ID		FCMW06-0124	FCMW06D-0124
	Matrix		Groundwater	Groundwater
	Sample Date		1/12/2024 11:40 AM	1/12/2024 11:45 AM
Analyte	**Units**	**Comparison Standard**	Sample	Split
1,1-Dichloroethene (1,1-Dichloroethylene)	µg/L	280 ug/L	15 J,O	12 J,O
Tetrachloroethene (Tetrachloroethylene)	µg/L	11 µg/L	2800 ^	2500 ^
Trichloroethene (Trichloroethylene)	µg/L	0.49 µg/L	2800 ^	2500 ^
Vinyl chloride	µg/L	0.019 µg/L	3600 ^	3500 ^
cis-1,2-Dichloroethene	µg/L	25 µg/L	5100 ^	4800 ^
trans-1,2-Dichloroethene	µg/L	68 µg/L	14 J,O	12 J,O

DATA QUALIFIER DEFINITIONS

- O Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the export files.
- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- ^ Denotes exceedance of Comparison Standard

Table 3: Flash Cleaners Data Summary – PFAS

Data Summary - PFAS SELECTED COMPARISON STANDARD: RSL Tapwater May 2023 THQ=0.1 FDEP Provisional Groundwater Cleanup Target Level (PGCTL) for PFOA and PFOS (sum of PFOA and PFOS should be compared to the PGCTL) = 70 ng/L								
-	**Station ID**	-	FCMW03	FCMW06	FCMW06	FCMW07	FCMW10	FCMW23
-	**Sample ID**	-	FCMW03-0124	FCMW06-0124	FCMW06D-0124	FCMW07-0124	FCMW10-0124	FCMW23-0124
-	**Matrix**	-	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
-	**Sample Date**	-	1/12/2024 9:55	1/12/2024 11:40	1/12/2024 11:45	1/12/2024 12:40	1/12/2024 11:35	1/12/2024 10:10
Analyte	**Units**	**Comparison Standard**						
ADONA	ng/L		< 14.8 U,H-6	< 14.9 U,H-6	< 15.8 U,H-6	17.8 H-6	< 25.4 U,H-6	< 15.1 U,H-6
FOSA	ng/L		15.9 H-6	4.31 H-6	< 4.17 U,J,Q-2,H-6	< 4.10 U,H-6	< 6.71 U,H-6	< 4.00 U,H-6
N-EtFOSAA	ng/L		< 3.91 U,H-6	< 3.95 U,J,Q-2,H-6	4.25 H-6	< 4.10 U,H-6	< 6.71 U,H-6	< 4.00 U,H-6
N-MeFOSAA	ng/L		< 3.91 U,H-6	17.6 H-6	14.0 H-6	< 4.10 U,H-6	< 6.71 U,H-6	< 4.00 U,J,Q-2,H-6
PF5OHxA	ng/L		< 7.81 U,H-6	< 7.91 U,H-6	< 8.33 U,H-6	48.1 H-6	< 13.4 U,H-6	< 8.00 U,H-6
PFBA	ng/L		17.0 H-6	< 15.8 U,H-6	< 16.7 U,H-6	37.0 H-6	< 26.8 U,H-6	< 16.0 U,H-6
PFBS	ng/L	6 µg/L	14.4 H-6	23.3 H-6	18.1 H-6	< 3.64 U,J,Q-2,H-6	8.87 H-6	18.7 H-6
PFHpA	ng/L		58.3 H-6	32.1 H-6	30.7 H-6	7.17 H-6	11.4 H-6	< 4.00 U,J,Q-2,H-6
PFHpS	ng/L		18.2 J,QR-1,H-6	9.15 J,QR-1,H-6	9.06 J,QR-1,H-6	< 3.90 U,J,QR-1,H-6	< 6.39 U,J,QR-1,H-6	< 3.81 U,J,QR-1,H-6
PFHxA	ng/L	9.9 µg/L	31.6 H-6	18.2 H-6	17.4 H-6	10.8 H-6	23.2 H-6	6.87 H-6
PFHxS	ng/L	0.39 µg/L	36.4 H-6	39.5 H-6	39.0 H-6	< 3.75 U,H-6	< 6.14 U,J,Q-2,H-6	< 3.66 U,J,Q-2,H-6
PFNA	ng/L	0.059 µg/L	18.0 H-6	8.11 H-6	7.50 H-6	< 4.10 U,H-6	< 6.71 U,J,Q-2,H-6	8.14 H-6
PFOA	ng/L	0.06 µg/L	333 H-6 ^	106 H-6 ^	106 H-6 ^	10.1 H-6	16.9 H-6	9.54 H-6
PFOS	ng/L	0.04 µg/L	1240 H-6 ^	581 H-6 ^	575 H-6 ^	13.3 H-6	26.5 H-6	40.6 H-6 ^
PFPeA	ng/L		22.6 H-6	10.4 H-6	10.4 H-6	48.1 H-6	32.5 H-6	10.8 H-6
PFPeS	ng/L		7.87 H-6	5.54 H-6	6.28 H-6	< 3.85 U,H-6	< 6.31 U,H-6	< 3.76 U,H-6

DATA QUALIFIER DEFINITIONS

- O Other qualifiers have been assigned providing additional information. These explanatory qualifiers are included in the printable pdf report and in other columns in the export files.
- U The analyte was not detected at or above the reporting limit.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- H-6 Sample originally analyzed within holding time; some QC requirements not met. The reported result is from a second analysis performed for confirmation which occurred after the holding time expired.
- ^ denotes exceedance of Comparison Standard

End of Report