



PHIL-27870

November 30, 2023

Project Number 08005-WE04

Mr. Thomas Magge
Clean Water Environmental Program Manager
Pennsylvania Department of Environmental Protection
Southeast Regional Office
2 East Main Street
Norristown, Pennsylvania 19401

Reference: Contract No. N6247016D9008
Contract Task Order No. WE04

Subject: Temporary Discharge Monitoring Report - October 1 to October 31, 2023
Hangar 680 Per- and Polyfluoroalkyl Substances Pilot Test System
Former Naval Air Station Joint Reserve Base Willow Grove
Horsham Township, Pennsylvania

Dear Mr. Magge:

On behalf of the United States (U.S.) Navy, Tetra Tech is pleased to submit the Temporary Discharge Monitoring Report (DMR) for the Hangar 680 per- and polyfluoroalkyl substances (PFAS) pilot test system at the Former Naval Air Station Joint Reserve Base Willow Grove in Horsham Township, Pennsylvania. This DMR includes available influent, effluent, and field quality assurance/quality control (QA/QC) results for sampling from October 1 to October 31, 2023.

The temporary discharge was first approved by the Pennsylvania Department of Environmental Protection (PADEP) on February 10, 2020, as requested by the U.S. Navy under a Federal Facility Agreement permit equivalency. PADEP approved subsequent modifications to the permit equivalency in letters dated September 5, 2020, January 27, 2021, July 23, 2021, January 13, 2022, July 1, 2022 (modified on September 12, 2022), and December 28, 2022. PADEP approved a request to extend the permit equivalency duration for 180 more days on June 14, 2023. In addition to previous sampled parameters, the Navy began sampling for perfluorobutanoic acid (PFBA) on June 26, 2023.

Full-time operation of the Hangar 680 PFAS pilot test system was initiated on March 2, 2020. A total of 33,415,743 gallons of water have been treated and discharged to Outfall 8 as of October 30, 2023. The discharge for the reporting period complied with the effluent limitations and monitoring requirements as summarized in the following bullets:

- Influent samples were collected on October 16 and October 25, 2023. These samples were collected from shallow extraction well HA-EW-1S, the first intermediate extraction well HA-EW-1I, the second intermediate extraction well HA-EW-2I, and the combined influent of these extraction wells. These samples were analyzed for PFAS, specifically PFOA and PFOS, and the results are provided in Table 1. During this reporting period, the first shallow extraction well HA-EW-1S was operated at approximately 8.9 gallons per minute (gpm), the first intermediate extraction well HA-EW-1I was operated at approximately 7.0 gpm, and the second intermediate extraction well HA-EW-2I was operated at approximately 9.1 gpm.

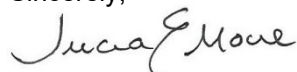
- Effluent samples were collected on October 16 and October 25, 2023, and analyzed for PFAS, specifically PFOA and PFOS. Effluent samples for tetrachloroethene (PCE), trichloroethene (TCE), carbon tetrachloride (CTC), 1,2-dichloroethane (1,2-DCA), and total lead also were collected on October 16, 2023. All effluent analytical sample results for this reporting period are provided in Table 2. An anomalous PFOS value was observed in the effluent duplicate sample during this reporting period which was not supported by its parent sample. Other effluent samples taken after this period also shows concentrations of PFOS lower than the PADEP PSL values, confirming that it was an erroneous data point. The laboratory will re-extract and re-analyze the sample if there is a sufficient volume of sample remaining. The results will be reported in the November 2023 DMR if the sample was re-analyzed. In addition, the effluent data on November 6, 2023 showed PFOS concentration was again detected below 0.018 µg/L. Field blank QA/QC samples were collected on October 16 and October 25, 2023. During this reporting period, the system was operated at approximately 18.2 gpm.
- Trip blank QA/QC samples were collected on October 16, 2023. These samples were analyzed for PCE, TCE, CTC, and 1,2-DCA. The results are provided in Table 2.
- Per the June 14, 2023 permit equivalency extension, biweekly monitoring of PFOA and PFOS shall be conducted at discharge sampling port HA-Mid2IX to determine if maintenance actions are needed. During this reporting period, all PFOA and PFOS sampling results at HA-Mid2IX were below the Pennsylvania Department of Environmental Protection maximum contaminant levels described in the permit equivalency modification (0.014 µg/L PFOA and 0.018 µg/L PFOS). Therefore, no maintenance actions based on this requirement were deemed necessary before the next reporting period.

The aqueous IDW treatment system was not operated during this reporting period; therefore, there are no discharge results to report.

Lastly, analytical results from samples collected since the start of the Hangar 680 PFAS pilot test system and intermittent operation of the aqueous IDW treatment system have demonstrated that both systems continue to effectively reduce the compounds identified in the permit equivalency to below the established limits.

Please do not hesitate to contact me if you have any questions.

Sincerely,



Tricia E. Moore, PG
Senior Project Manager

TEM/nfs

Attachments:

Table 1 – NPDES Permit Equivalency Influent Sample Results from October 1, 2023 through October 31, 2023

Table 2 – NPDES Permit Equivalency Effluent Sample Results from October 1, 2023 through October 31, 2023

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TABLES

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**Table 1: NPDES Permit Equivalency Influent Sample Results from October 1, 2023 through October 31, 2023
Hangar 680 PFAS Pilot Test
Former Naval Air Station Joint Reserve Base Willow Grove**

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample			
		Shallow Influent	Intermediate Influent	Intermediate Influent 2	Combined Influent
Operation Week		189			
Sample ID		HA-EW-1S-20231016	HA-EW-1I-20231016	HA-EW-2I-20231016	HA-CombinedINF-20231016
Sample Date		10/16/2023	10/16/2023	10/16/2023	10/16/2023
Units	µg/L	µg/L	µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	0.681 D	2.560 D	2.910 D	2.340 D
Perfluorooctanesulfonic acid (PFOS)	NA	50.300 D	12.600 D	66.200 D	35.400 D
PFOA + PFOS	0.07	50.981	15.160	69.110	37.740

Notes:

⁽¹⁾: Maximum effluent limits per PADEP Temporary Discharge Request - Extension (June 14, 2023).

Bold value indicates result is above applicable maximum effluent limit.

PADEP: Pennsylvania Department of Environmental Protection.

µg/L: Micrograms per liter (also referred to as parts per billion [ppb]).

D: Dilution Run. Initial run outside the initial calibration range of the instrument.

**Table 1: NPDES Permit Equivalency Influent Sample Results from October 1, 2023 through October 31, 2023
Hangar 680 PFAS Pilot Test
Former Naval Air Station Joint Reserve Base Willow Grove**

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample			
		Shallow Influent	Intermediate Influent	Intermediate Influent 2	Combined Influent
Operation Week		190			
Sample ID		HA-EW-1S-20231025	HA-EW-1I-20231025	HA-EW-2I-20231025	HA-CombinedINF-20231025
Sample Date		10/25/2023	10/25/2023	10/25/2023	10/25/2023
Units	µg/L	µg/L	µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	1.130 D	2.460 D	3.160 D	1.990 D
Perfluorooctanesulfonic acid (PFOS)	NA	74.400 D	14.300 D	86.600 D	55.500 D
PFOA + PFOS	0.07	75.530	16.760	89.760	57.490

Notes:

⁽¹⁾: Maximum effluent limits per PADEP Temporary Discharge Request - Extension (June 14, 2023).

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PADEP: Pennsylvania Department of Environmental Protection.

µg/L: Micrograms per liter (also referred to as parts per billion [ppb]).

D: Dilution Run. Initial run outside the initial calibration range of the instrument.

**Table 2: NPDES Permit Equivalency Effluent Sample Results from October 1, 2023 through October 31, 2023
Hangar 680 PFAS Pilot Test
Former Naval Air Station Joint Reserve Base Willow Grove**

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample		
		Effluent	Effluent Field Duplicate	Field Blank
Operation Week		189		
Sample ID		HA-GEFF-20231016	HA-DUP-185-20231016	HA-FB-20231016
Sample Date		10/16/2023	10/16/2023	10/16/2023
Units		µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	0.00225 U	0.00215 U	0.00255 U
Perfluorooctanesulfonic acid (PFOS)	NA	0.00383 J	0.05200	0.00255 U
PFOA + PFOS	0.07	0.00383 J	0.05200	ND

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample		
		Effluent	Effluent Field Duplicate	Trip Blank
Operation Week		189		
Sample ID		HA-GEFF-20231016	HA-DUP-185-20231016	HA-TB-20231016
Sample Date		10/16/2023	10/16/2023	10/16/2023
Units		µg/L	µg/L	µg/L
Tetrachloroethylene (PCE)	0.69	0.2 U	0.2 U	0.2 U
Trichloroethylene (TCE)	2.5	0.2 U	0.2 U	0.2 U
Carbon Tetrachloride	0.23	0.1 J	0.12 J	0.2 U
1,2-Dichloroethane	0.38	0.2 U	0.2 U	0.2 U
Lead (total)	3.2	0.70 U	0.70 U	--

Notes:

⁽¹⁾: Maximum effluent limits per PADEP Temporary Discharge Request - Extension (June 14, 2023).

Effluent and effluent field duplicate results have not yet been validated.

Bold value indicates result is above applicable maximum effluent limit.

Quality assurance/quality control sample (field blank and trip blank) results are not validated.

PADEP: Pennsylvania Department of Environmental Protection

µg/L: Micrograms per liter (also referred to parts per billion [ppb]).

NA: Not applicable.

U: Analyte not detected (lab qualifier). Value reported to limit of detection.

ND: Not detected.

J: Estimated (lab qualifier). The analyte was positively identified; the quantitation is an estimation.

--: Not sampled.

**Table 2: NPDES Permit Equivalency Effluent Sample Results from October 1, 2023 through October 31, 2023
Hangar 680 PFAS Pilot Test
Former Naval Air Station Joint Reserve Base Willow Grove**

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample		
		Effluent	Effluent Field Duplicate	Field Blank
Operation Week		190		
Sample ID		HA-GEFF-20231025	HA-DUP-186-20231025	HA-FB-20231025
Sample Date		10/25/2023	10/25/2023	10/25/2023
Units		µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	0.00227 U	0.00222 U	0.00245 U
Perfluorooctanesulfonic acid (PFOS)	NA	0.01510	0.01130	0.00245 U
PFOA + PFOS	0.07	0.01510	0.01130	ND

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample		
		Effluent	Effluent Field Duplicate	Trip Blank
Operation Week		190		
Sample ID		HA-GEFF-20231025	HA-DUP-186-20231025	--
Sample Date		10/25/2023	10/25/2023	10/25/2023
Units		µg/L	µg/L	µg/L
Tetrachloroethylene (PCE)	0.69	--	--	--
Trichloroethylene (TCE)	2.5	--	--	--
Carbon Tetrachloride	0.23	--	--	--
1,2-Dichloroethane	0.38	--	--	--
Lead (total)	3.2	--	--	--

Notes:

⁽¹⁾: Maximum effluent limits per PADEP Temporary Discharge Request - Extension (June 14, 2023).

Effluent and effluent field duplicate results have not yet been validated.

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