



PHIL-27939

April 18, 2024

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 - March 1 to March 31, 2024
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 March 1 to March 31, 2024.

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), December 28, 2022, June 14, 2023, and December 22, 2023. In addition to previous sampled parameters, the Navy began sampling for perfluorobutanoic acid (PFBA) on June 26, 2023, although this is not a permit equivalency requirement.

Full-time operation of the Hangar 680 PFAS pilot test system was initiated on March 2, 2020. A total of 36,157,082 gallons of water have been treated and discharged to Outfall 8 as of March 25, 2024. 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 March 4, 2024. These samples were collected from the combined influent of the extraction wells HA-EW-1S, HA-EW-1I, and HA-EW-2I. 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 4.1 gallons per minute (gpm), the first intermediate extraction well HA-EW1I was operated at approximately 4.9 gpm, and the second intermediate extraction well HA-EW-2I was operated at approximately 6.3 gpm. It was observed that during the reporting period, the flow rate at extraction well EW-2I was lower than expected, and after troubleshooting it was determined to be due to a faulty pressure sensor. Upon replacement of the sensor on March 30, 2024, the well EW-2I flow rate increased to approximately 10 gpm, which is the optimal level.

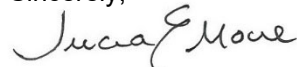
- Effluent, effluent duplicate, trip blank and field blank samples were collected on March 4, 2024, and analyzed for the permitted analytes: PFAS (specifically PFOA and PFOS), tetrachloroethene (PCE), trichloroethene (TCE), carbon tetrachloride (CTC), 1,2-dichloroethane (1,2-DCA), and total lead. All effluent analytical sample results for this reporting period are provided in Table 2. During this reporting period, the system discharge was approximately 15.9 gpm. As noted in the previous bullet, the well EW-2I flow rate has increased back to optimal level as of March 30, 2024. Therefore, the system's total discharge flow rate is also expected to increase during the upcoming April 2024 reporting period.
- Trip blank QA/QC samples were collected on March 4, 2024. These samples were analyzed for PCE, TCE, CTC, and 1,2-DCA. The results are provided in Table 2.
- Per the December 22, 2023 permit equivalency extension, monthly monitoring of PFOA and PFOS shall be conducted at discharge sampling port HA-Mid2IX, the third ion-exchange resin vessel, to determine if maintenance actions are needed. The samples taken from this port did not exceed the PA MCL for PFOA/PFOS this reporting month, but the Navy is currently planning to change out the treatment system media. This may also increase the effluent flow rate. Media changeout will be scheduled when the media are procured.

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 March 1, 2024 through March 31, 2024

Table 2 – NPDES Permit Equivalency Effluent Sample Results from March 1, 2024 through March 31, 2024

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TABLES

**Table 1: NPDES Permit Equivalency Influent Sample Results from March 1, 2024 through March 31, 2024
Hangar 680 PFAS Pilot Test
Former Naval Air Station Joint Reserve Base Willow Grove**

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample	
		Combined Influent	
Operation Week		210	
Sample ID		HA-CombinedINF-20240304	
Sample Date		3/4/2024	
Units	µg/L	µg/L	
Perfluorooctanoic acid (PFOA)	NA	2.830	D
Perfluorooctanesulfonic acid (PFOS)	NA	24.400	D
PFOA + PFOS	0.07	27.230	

Notes:

⁽¹⁾: Maximum effluent limits per PADEP Temporary Discharge Request - Extension (December 22, 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]).

--: Not sampled.

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

**Table 2: NPDES Permit Equivalency Effluent Sample Results from March 1, 2024 through March 31, 2024
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		210		
Sample ID		HA-GEFF-20240304	HA-DUP-192-20240304	HA-FB-20240304
Sample Date		3/4/2024	3/4/2024	3/4/2024
Units		µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	0.00042 J	0.00036 J	0.00057 U
Perfluorooctanesulfonic acid (PFOS)	NA	0.00783	0.00712	0.00049 U
PFOA + PFOS	0.07	0.00825 J	0.00748 J	ND

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample		
		Effluent	Effluent Field Duplicate	Trip Blank
Operation Week		210		
Sample ID		HA-GEFF-20240304	HA-DUP-192-20240304	HA-TB-20240304
Sample Date		3/4/2024	3/4/2024	3/4/2024
Units		µg/L	µg/L	µg/L
Tetrachloroethylene (PCE)	0.69	0.20 U	0.20 U	0.20 U
Trichloroethylene (TCE)	2.5	0.20 U J1	0.20 U	0.20 U
Carbon Tetrachloride	0.23	0.20 U	0.20 U	0.20 U
1,2-Dichloroethane	0.38	0.20 U	0.20 U	0.20 U
Lead (total)	3.2	0.70 U	0.70 U	--

Notes:

⁽¹⁾: Maximum effluent limits per PADEP Temporary Discharge Request - Extension (December 22, 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/J1: Estimated (lab qualifier). The analyte was positively identified; the quantitation is an estimation.

--: Not sampled.