



PHIL-27953

May 17, 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 - April 1 to April 30, 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 April 1 to April 30, 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. The next permit equivalency extension is being prepared and will be submitted to PADEP before the permit expires on June 30, 2024. In addition to previously 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 36,821,144 gallons of water have been treated and discharged to Outfall 8 as of April 29, 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 April 1, 2024. 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 4.3 gallons per minute (gpm), the first intermediate extraction well HA-EW-1I was operated at approximately 5.1 gpm, and the second intermediate extraction well HA-EW-2I was operated at approximately 7.3 gpm. On April 23, 2024, the system was down for less than 24 hours following a malfunction of the system's modem which froze operational controls. As a safety precaution, the extraction wells were turned off during this time. This malfunction also led to the flow rates for extraction wells decreasing during the

event, leading to lower than optimal flow rates which were corrected when the malfunction was resolved.

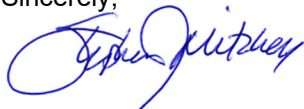
- Effluent, effluent duplicate, trip blank and field blank samples were collected on April 1, 2024, and analyzed for the permitted analytes: PFAS (specifically PFOA and PFOS), tetrachloroethene (PCE), trichloroethene (TCE), carbon tetrachloride (CTC), 1,2-dichloroethane (1,2-DCA), and total lead. All effluent analytical sample results for this reporting period are provided in Table 2. During this reporting period, the system discharge was approximately 16.9 gpm. As a result of the malfunction described above, the overall system flowrate was also lower than optimal levels. Following the resolution of the malfunction, the system flowrate has returned to optimal levels.
- Trip blank QA/QC samples were collected on April 1, 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. Treatment system media (i.e., granular activated carbon and resin) procurement and acquisition strategy that will be used for the change out is currently being evaluated by the Navy's contracting representatives. The planned media change out will be performed following completion of this review.

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,



Stephen J. Mitchell, P.G.
Senior Project Manager

SM/nfs

Attachments:

Table 1 – NPDES Permit Equivalency Influent Sample Results from April 1, 2024 through April 30, 2024
Table 2 – NPDES Permit Equivalency Effluent Sample Results from April 1, 2024 through April 30, 2024

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TABLES

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**Table 1: NPDES Permit Equivalency Influent Sample Results from April 1, 2024 through April 30, 2024
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		214			
Sample ID		HA-EW-1S-20240401	HA-EW-1I-20240401	HA-EW-2I-20240401	HA-CombinedINF-20240401
Sample Date		4/1/2024	4/1/2024	4/1/2024	4/1/2024
Units		µg/L	µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	0.521	3.680 D	3.540 D	3.070 D
Perfluorooctanesulfonic acid (PFOS)	NA	16.900 D	11.400 D	30.800 D	21.200 D
PFOA + PFOS	0.07	17.421	15.080	34.340	24.270

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 April 1, 2024 through April 30, 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		214		
Sample ID		HA-GEFF-20240401	HA-DUP-193-20240401	HA-FB-20240401
Sample Date		4/1/2024	4/1/2024	4/1/2024
Units		µg/L	µg/L	µg/L
Perfluorooctanoic acid (PFOA)	NA	0.00043 J	0.00031 J	0.00057 U
Perfluorooctanesulfonic acid (PFOS)	NA	0.01200	0.01050	0.00048 U
PFOA + PFOS	0.07	0.01243 J	0.01081 J	ND

Parameter	Maximum Effluent Limit ⁽¹⁾	Sample		
		Effluent	Effluent Field Duplicate	Trip Blank
Operation Week		214		
Sample ID		HA-GEFF-20240401	HA-DUP-193-20240401	HA-FB-20240401
Sample Date		4/1/2024	4/1/2024	4/1/2024
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	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.