Responsiveness Summary to Public Comments

for

The Issuance of an Underground Injection Control (UIC) Area Permit

for

Hampton Roads Sanitation District

On June 7, 2022, EPA previously issued a draft permit for this proposed project, and the public comment period closed July 8, 2022 ("first comment period"). During the first comment period, EPA received comments from 7 parties, including Hampton Roads Sanitation District ("HRSD"), who sent written public comments to EPA Region 3. As the result of EPA's release of new health advisory levels on June 15, 2022 and publication of a proposed National Primary Drinking Water Regulation ("Proposed NPDWR") on March 14, 2023, EPA considered how to address per- and polyfluoroalkyl substances ("PFAS") parameters, among the other issues raised in public comments. On March 21, 2023, the U.S. Environmental Protection Agency ("EPA") Region 3 issued a public notice requesting comment and offering the opportunity for a public hearing for the proposed issuance of an Underground Injection Control ("UIC") area permit, VAS5B170028617, to HRSD. This public comment period closed April 24, 2023 ("second comment period"). EPA received one comment but no requests to hold a hearing.

The responsiveness summary which follows is organized into relevant subject matter topics which combines comments and provides answers to the comments raised in response to both public comment periods. All commenters expressed support for the aquifer recharge injection well project and EPA issuance of the UIC area permit. EPA wishes to thank the commenters for their informative and thoughtful comments.

1. Per- and Polyfluoroalkyl Substances ("PFAS") Parameters

During the first comment period, commenters raised concerns relating to EPA's release of interim health advisory levels ("HALs") for two PFAS chemicals, perfluorooctanoic acid ("PFOA") and/or perfluorooctane sulfonic acid ("PFOS") on June 21, 2022, shortly after EPA published the public notice for the first draft permit, superseding the 2016 HAL for PFOA and PFOS of 70 ng/L. Commenters also noted that the release of HALs for hexafluoropropylene oxide ("HFPO") dimer acid and its ammonium salt ("Gen-X chemicals"), and perfluorobutane sulfonic acid and its potassium salt ("PFBS") (the "June 2022 HALs"). Commenters noted that the 2016 HALs for PFOA and PFOS of 70 ng/L referenced in the first draft permit and associated documents had thus been rendered obsolete.

RESPONSE:

PFOA and PFOS

PFAS are widely used, long lasting chemicals, and some PFAS persist in the environment. EPA recognizes the pressing need to research, restrict, and remediate PFAS

contamination.[1] To that end, EPA has taken a number of steps regarding PFAS in drinking water, including: (1) releasing HALs for PFOA and PFOS in May 2016 and in 2022, replacing those values with interim updated HALs for PFOA and PFOS, as well as releasing HALs for Gen-X chemicals and PFBS; and (2) in a proposed National Primary Drinking Water Regulation (NPDWR), issuing proposed maximum contaminant levels ("MCLs") for PFOA and PFOS at 4 ng/L (ppt) each and a proposed hazard index[2] for perfluorohexanesulfonic acid ("PFHxS"), HFPO-DA ("Gen-X chemicals"), perfluorononanoic acid ("PFNA"), and Perfluorobutane sulfonate ("PFBS").

A HAL provides information on a contaminant, not subject to a National Primary Drinking Water Regulation, that can cause negative human health effects and is known or anticipated to occur in drinking water. Health Advisories identify the concentration of a contaminant in drinking water at which adverse health effects and/or aesthetic effects are not anticipated to occur over specific exposure durations (e.g., 1 day, 10 days, a lifetime). EPA's health advisories are non-enforceable and non-regulatory.[3] The proposed PFAS NPDWR is a proposed rule, and it does not require any actions for drinking water systems until the rule is finalized. As proposed, should the rule be finalized, drinking water systems would have three years to come into compliance with the proposed NPDWR under SDWA Section 1412(b)(10), 42 U.S.C. 300g-1(b)(1). 88 Fed. Reg. 18638, 18683 (March 29, 2023).[4]

Because HALs are nonregulatory and the proposed PFAS NPDWR is not final, EPA currently has not imposed limits for PFAS chemicals in the permit based on them. Instead, EPA has chosen operational adjustments upon exceeding threshold value of 4 ng/L for PFOA and PFOS in two consecutive quarters. More specifically, as set forth in the draft permit, if the Running Annual Average concentration of PFOA or PFOS exceeds the 4 ng/L threshold in two consecutive quarters, HRSD must make operational adjustments to the granular activated carbon contactors to increase removal efficiency and achieve the < 4 ng/L threshold. If the operational adjustments cannot be made within one day of notification that PFOA or PFOS is > 4 ng/L, HRSD must cease recharge until the adjustment is complete. HRSD must resample within one week following the completion of the adjustment to verify that the PFOA and PFOS concentrations are < 4 ng/L (hereinafter, the foregoing requirements will be referred to as the "PFOA/PFOS Operational Requirements"). Granular activated carbon ("GAC") is one of the most studied treatment options for PFAS removal and has been proven to be effective in

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[1] *See* EPA, "PFAS Strategic Roadmap," https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024

[2] The Hazard Index is a tool used to evaluate potential health risks from exposure to chemical mixtures. For the Proposed NPDWR, the Hazard Index considers the combined toxicity of PFNA, GenX Chemicals, PFHxS, and PFBS in drinking water. 88 Fed. Reg. 18638, 18663 (March 29, 2023).

[3] *See* EPA, "Health Advisories Explained," https://www.epa.gov/sdwa/drinking-water-health-advisories-has

[4] *See* EPA, "Proposed PFAS National Primary Drinking Water Regulation FAQs for Drinking Water Primacy Agencies," https://www.epa.gov/system/files/documents/2023-03/FAQs_PFAS_States_NPDWR_Final_3.14.23_0.pdf ("Proposed NPDWR FAQs").

removing a number of PFAS chemicals, not only PFOA and PFOS.[5] It has been demonstrated to reliably remove PFOA and PFOS to concentrations below 4 ng/L.

The public comment period for the proposed NPDWR ended May 30, 2023. EPA is endeavoring to publish the final NPDWR by the end of 2023. During the term of this permit, should EPA issue a final MCL for PFOA/PFOS, EPA will modify the permit, as appropriate, to reflect the MCL for PFOA and PFOS as well as any future MCL pursuant to paragraph I.D. of the permit and in conformance with the UIC's non-endangerment standard set forth in 40 C.F.R. 144.12.

EPA chose the threshold value of 4 ng/L for PFOA and PFOS because it reflects the Minimum Reporting Level ("MRL"). Under EPA's fifth Unregulated Contaminant Monitoring Rule 5[6] ("UCMR 5"), the MRL established for PFOA is 4 ng/L and for PFOS is 4 ng/L. The MRL is the minimum quantitation level that, with 95 percent confidence, can be achieved by capable analysts at 75 percent or more of the laboratories using a specified analytical method (recognizing that individual laboratories may be able to measure at lower levels).

Gen-X chemicals, PFBS, PFHxS, and PFNA

PFOA and PFOS are two of the most widely used and studied chemicals in the PFAS group. But there are thousands of different PFAS in addition to PFOA and PFOS, some of which have been more widely used and studied than others. EPA and the Commonwealth of Virginia have begun to take steps with respect to several other PFAS in drinking water.

In the proposed NPDWR, EPA is also proposing that water systems monitor for four other PFAS known to occur in drinking water: PFNA, PFHxS, PFBS, and GenX Chemicals. For these PFAS, water systems would use a hazard index (HI) calculation to determine if the combined levels of these PFAS pose a potential risk to human health. In this permit, EPA is requiring monitoring for those additional PFAS chemicals.

During the first comment period, two commenters requested that limits be imposed in the permit to reflect the June 2022 HALs and also requested that the permit contain robust re-opener language for modification of the permit to incorporate new permit limits and monitoring requirements when EPA establishes drinking water standards or HALs for any PFAS, not just PFOA and PFOS.

Since EPA published the public notice for the first draft permit on June 7, 2022, there have been a number of developments concerning PFAS. As described above, on March 14, 2023, EPA published the proposed NPDWR and is endeavoring to publish the final NPDWR by the end of 2023.

A national primary drinking water regulation imposing maximum contaminant levels or other mandatory requirements for any PFAS chemicals has not been finalized. Public water

[5] *See* EPA, "Reducing PFAS in Drinking Water with Treatment Technologies," https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies

[6] Revisions to the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems and Announcement of Public Meetings, 86 Fed. Reg. 73131 (Dec. 27, 2021).

systems will have three years to come into compliance with the PFAS NPDWR once finalized, and it should be noted this Facility is not a "public water system" within the meaning of the SDWA Section 1401, 42 U.S.C. § 300f. At the same time EPA recognizes the pressing public health concern of PFAS contamination. For that reason, the permit includes the PFOA/PFOS Operational Requirements. During the term of this permit, should EPA issue a final MCL for PFOA/PFOS, EPA will modify the permit, as appropriate, to reflect the MCL for PFOA and PFOS as well as any future MCL pursuant to paragraph I.D. of the permit. EPA is endeavoring to finalize the PFAS NPDWR by end of 2023. The Permittee anticipates that the Facility will not begin injection until after the construction is complete in approximately late 2025.[7]

During the first comment period, one commenter requested the inclusion of monitoring requirements for PFAS that can be detected using EPA drinking water method 537.1, draft Clean Water Act ("CWA") wastewater method 1633, and draft Adsorbable Organic Fluorine CWA wastewater method 1621 ("EPA Methods").

RESPONSE: Drinking water analytical methods are procedures used to measure the amount of particular contaminants in water samples. EPA developed drinking water method 537.1 for analysis of 18 PFAS chemicals, all of which are unregulated contaminants. With respect to the Clean Water Act wastewater methods, currently, there are no EPA-approved methods in 40 CFR Part 136 for analyzing PFAS. Methods 1633 and 1621 are currently still in draft form, and it is unknown when these methods will become finalized. Analytical methods approved by EPA and draft analytical methods do not themselves contain mandatory requirements for monitoring of contaminants.

In this permit, EPA is requiring monitoring for eight PFAS chemicals, including all those included in the proposed NPDWR and two others, perfluorobutanoic acid ("PFBA"), and perfluoroheptanoic acid ("PFHpA"), that are under investigation by the Virginia Department of Health pursuant to House Bill 586, 2020 Acts of Assembly Chapter 611[8]. Given this, EPA has chosen to impose a monitoring requirement for Gen-X chemicals, PFBS, PFHxS, PFNA, PFBA, and PFHpA in the final permit. As more research and information regarding other PFAS chemicals in drinking becomes available, EPA may re-open the permit to add requirements for monitoring, as appropriate.

During the second public comment period, EPA received only one comment, which was related to the changes from the first draft permit to the second draft permit relating to PFAS. The commenter noted that the compliance determination for PFAS has been updated to "Monitoring Only", with a footnote that states that Running Annual Averages for PFOA or PFOS must exceed the limit for 2 consecutive quarters to trigger actions by HRSD. Furthermore, injection of water that exceeds PFAS limits is no longer prohibited, HRSD must only make operational adjustments. The commenter considered the requirement in the second draft permit

[7] Hampton Roads Sanitation District, "James River Treatment Plant-SWIFT Facility Virtual Presentation (December 2020)," https://www.hrsd.com/James-River-TP-Virtual-Presentation-Dec2020#

[8] House Bill 586, 2020 Acts of Assembly Chapter 611, requires, among other things, the Virginia State Health Commissioner to convene a workgroup to study the occurrence of six specific PFAS, PFOA, PFOS, PFBA, PFHpA, PFHxS, PFNA, and other PFAS, as deemed necessary, in the Commonwealth's public drinking water.

to be excessively lenient and could result in injection of non-compliant water for a period of over 6 months before operational adjustments are made. The commenter noted that it recognized that the proposed NPDWR had been published and requested that when the proposed NPDWR was finalized that the UIC permit be updated and compliance with the MCLs be determined on a running annual average basis.

RESPONSE: As stated above, PFAS chemicals, including PFOA and PFOS, are currently unregulated under the SDWA and its implementing regulations, but the rulemaking process is proceeding for the proposed NPDWR. During the term of this permit, should EPA issue a final MCL for PFOA/PFOS, EPA will modify the permit, as appropriate, to reflect the MCL for PFOA and PFOS as well as any future MCL pursuant to paragraph I.D. of the permit. Until regulatory requirements are finalized, the permit includes the PFOA/PFOS Operational Requirements. Under the permit, the actions to increase removal efficiency are triggered at 4 ng/L for PFOA or PFOS, the proposed MCLs. As mentioned above, granular activated carbon (GAC) is one of the treatment techniques proven to be effective in removing PFOA and PFOS as well as other PFAS chemicals.

EPA has chosen exceedance of a threshold for two consecutive quarters before actions are triggered due to fluctuations in the levels of PFOA and PFOS during one given quarter.

2. JR SWIFT Recharge Water/Injection Fluid

During the first comment period, EPA received comments that the definition of JR SWIFT Recharge Water and reference to the outdated 2016 HALs was confusing and redundant, particularly in light of the definition of Permit Limits.

EPA agrees with this comment and modified the definition of JR SWIFT Recharge Water in paragraph I.D.15 of the second draft permit to be consistent with the definition of Permit Limits and the PFOA and PFOS requirements in this permit. Paragraph II.B.2 has been revised to remove reference to the PFOA/PFOS limit based on the 2016 HALs in the first draft permit, which has replaced by the PFOA/PFOS Operational Requirements in the second draft permit.

In the first comment period, one commenter requested clarification regarding whether the log removal values ("LRVs") as well as whether the monitoring location and frequency for Cryptosporidium*,* Giardia lamblia*, and male specific and somatic coliphages are requirements in the permit.*

HRSD must monitor for *Cryptosporidium*, *Giardia lamblia*, and male specific and somatic coliphages in the JR SWIFT Recharge Water prior to injection, as specified in Attachment 1 of the permit. HRSD will use Critical Control Points ("CCPs") to monitor compliance with the targeted LRVs, but as explained below, the locations and frequency of monitoring at CCPs are not requirements of the permit.

HRSD will design and operate JR SWIFT to achieve at least 12 LRV for viruses and 10 LRV for *Cryptosporidium* and *Giardia lamblia* based on the current AWT design, among other factors. In order to ensure changes to the AWT process do not alter the log value credits, the

permit requires EPA approval of any such changes. Pursuant to paragraph III.D.6 of the permit, the Permittee must provide immediate written notice to the Director regarding any planned physical alterations or additions to the permitted Facility. The Permittee may not implement such planned physical alterations or additions to the permitted Facility unless and until it obtains written approval from EPA. The permit requires that CCPs be established to verify that treatment goals are being met throughout the AWT process. In addition, the Permittee must provide written notice to the Director of any changes to the CCPs. The second draft permit and Statement of Basis were modified to clarify the requirements relating to *Cryptosporidium*, *Giardia lamblia*, and male specific and somatic coliphages.

In the first comment period, one commenter requested clarification regarding which parameters are subject to a monitoring frequency of "Daily" and also subject to a Running Annual Average ("RAA") compliance determination as further specified in paragraph III.C.3.b. in the permit and requested clarification regarding how the total coliform compliance determination was phrased in the Statement of Basis.

As set forth in Attachment 1 of the permit, chloramines and chlorine are continuously monitored and must be confirmed daily with a grab sample. The compliance determination is made on a Running Annual Average basis for chloramines and chlorine. Paragraph III.C.3.b. provides further details on RAA calculation during the first year of injection operations. Total Nitrogen, Total Carbon, Total Coliform, E. Coli and Nitrate/Nitrite have monitoring frequencies of several times per week, but for those constituents, the compliance determination is not made on a Running Annual Average basis but are instead made based on determinations such as monthly averages, daily maximums, and individual sample results, among others, as applicable.

As for how the total coliform compliance determination was phrased, the Statement of Basis published with the second draft permit was modified to mirror exactly the Permit Limit in Attachment 1 of the permit.

In the first comment period, one commenter noted that there were no time restrictions set forth in paragraph III.C.8 on when an investigation must start and be completed when there is an exceedance of RAA of water quality/chemistry sampling result(s) set forth in Attachment 2.

EPA modified the second draft permit to specify the requested time restrictions. If the RAA of water quality/chemistry sampling result(s) exceed the threshold values set forth in Attachment 2, the Permittee must notify EPA in writing within 7 days of the exceedance. Within 30 days after notifying EPA, the Permittee must conduct an investigation on the cause of the exceedance and report to EPA in writing the findings of such investigation. If the investigation has not been completed by the time of such report, the Permittee must provide written progress reports on the investigation every 30 days thereafter until the investigation is completed.

3. Potomac Aquifer System

During the first comment period, a commenter suggested that naming convention used for the Potomac Aquifer System (PAS) be consistent with the latest USGS revision of the Virginia

Coastal Plain Hydrogeologic Frames work (McFarland and Bruce, 2006), which identifies the Potomac Aquifer as a single aquifer throughout Virginia rather than by its sub-zones (Upper Potomac, Middle Potomac, and Lower Potomac).

EPA agrees with this comment and modified the second draft permit and Statement of Basis to incorporate this latest interpretation. The Upper, Middle and Lower Zones of the Potomac Aquifer constitute the Potomac Aquifer System. The inclusion of the zones allows for a more precise definition of the very thick, highly interbedded PAS as a single aquifer.

4. Groundwater Monitoring Wells

During the first comment period, EPA received a comment regarding the clarification of the placement of injection well screens relative to ground water monitoring wells. Given the variability in the depth, thickness and occurrence of the individual sand lenses within the Potomac Aquifer, it is likely that the screen depths, thicknesses and possibly number of screens for the monitoring wells may vary from the closest injection well, but the screens in the monitoring wells would be placed in the same permeable units that the screens in the injection wells are placed in. One commenter noted based on the observed relationship between total and dissolved metal fractions, it may not be necessary to analyze each of the dissolved metals for the full ten years of the permit.

EPA modified the second draft permit and Statement of Basis to make clear that monitoring well screens must be placed in the same permeable units as the injection well screens.

EPA also modified the second draft permit to indicate in Attachment 3 that dissolved metals analysis will be completed as needed based on the observed relationship between the dissolved and total metal fractions in light of the fact that these are non-regulatory parameters.

5. Monitoring Requirements

During the first comment period, EPA received comments regarding the appropriateness of specifying Critical Control Point ("CCP") monitoring locations and associated threshold values given that both are interim (prior to injection) operational components of the Advanced Wastewater Treatment ("AWT") and both may need to be adjusted to optimize effectiveness of the CCPs.

EPA acknowledges that CCPs are an important tool to verify that treatment goals are being met throughout the AWT process, and the Permittee must establish, maintain, and monitor multiple CCPs throughout the AWT process. However, EPA agrees with these comments and modified the second draft permit, including the removal of the previous Attachment 3 in the second draft permit, to remove the specification of CCP monitoring locations and threshold values because they are interim points within the treatment train prior to injection, where compliance of the Injection Fluid with Permit Limits is determined. CCPs may need to be adjusted based on lessons learned during operation. Pursuant to paragraph III.D.6 of the permit, the Permittee must provide immediate written notice to the Director regarding any planned

physical alterations or additions to the permitted Facility. The Permittee may not implement such planned physical alterations or additions to the permitted Facility unless and until it obtains written approval from EPA. In addition, the permittee will notify EPA quarterly of any revisions to CCPs, including location, monitoring parameters, and threshold values, and summarize such changes in an annual report.

During the first comment period, one commenter suggested that parameters monitoring JR SWIFT Recharge Water's aquifer compatibility should be required as non-regulatory monitoring parameters.

Attachment 2.1 was modified in the second draft permit to include non-regulatory aquifer compatibility indicator parameters.

6. Reporting Requirements

During the first comment period, EPA received a comment regarding the appropriateness of reporting the results of ongoing CCP monitoring on a quarterly and annual basis. CCP monitoring data are captured continuously in real time. CCPs are interim points within the Advanced Wastewater Treatment process prior to injection, and triggering a CCP results in diversion of SWIFT Water away from the recharge well back into the wastewater facility where it can be discharged through the permittee's Virginia Pollutant Discharge Elimination System-permitted outfall.

EPA agrees with this comment and modified the second draft permit to remove CCP monitoring data from quarterly and annual reporting requirements. CCP monitoring is predicated upon an alert system which notifies the AWT operator of any exceedance of certain threshold values for relevant chemical constituents at various points in the AWT process. HRSD is required to maintain CCP monitoring locations, which serve as another conservative barrier of protection for the PAS. The permittee will notify EPA quarterly of any revisions to CCPs, including location, monitoring parameters, and threshold values, and summarize such changes in an annual report.

7. Miscellaneous

During the first comment period, one commenter pointed out that not all JR SWIFT recharge wells will be located at 111 City Farm Road in Newport News, VA. Another commenter provided more precise centroid coordinates for the UIC area permit.

EPA modified the second draft permit and Statement of Basis to acknowledge that some recharge wells will be located on leased property adjacent to the James River treatment plant property. Centroid coordinates for the Area of Review in the permit were updated.

Federal Underground Injection Control Program

Permit Appeals Procedures

The provisions governing procedures for the appeal of an EPA UIC permit are specified at 40 C.F.R. Part 124.19. Any person who commented on the draft Permit can appeal the final Permit by filing a written petition for review with the Clerk of the EPA Environmental Appeals Board (EAB).

A petition for review must be filed within thirty (30) days of the date of the notice announcing EPA's permit decision. This means that the EAB must receive the petition within 30 days. All parties and other interested persons are encouraged to file documents with the Board by using the EAB's Electronic Filing System which is accessible on the Board's website at www.epa.gov/eab. Also, send a copy of the petition for review to EPA Region 3 at the email address listed below. See the EAB website for further information on how to file with the EAB electronically.

For the U.S. Environmental Protection Agency Region 3, Source Water & UIC Section (3WD22), send an email copy of the petition to the following email address: R3_UIC_Mailbox@epa.gov.

Filing documents by U.S. mail or hand delivery or courier (including delivery by a commercial delivery service) is also permissible. Documents sent through the U.S. Postal Service (except by U.S. Express Mail) to the Clerk of the Board are to be addressed to the EAB's mailing address:

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
1200 Pennsylvania Avenue, N.W.
Mail Code 1103M
Washington, D.C. 20460-0001

Documents delivered in person by courier or otherwise (including delivery by U.S. Express Mail or a by commercial delivery service) are to be sent to the EAB's hand-delivery address:

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board
WJC East Building
1201 Constitution Avenue, N.W., Room 3332
Washington, D.C. 20004

Note that pursuant to an order issued by the EAB on September 21, 2020, Revised Order Authorizing Electronic Service of Documents in Permit and Enforcement Appeals, the EAB authorized parties to all newly filed permit and enforcement appeals to utilize email to fulfill

their service obligations under 40 C.F.R. §§ 22.5(b) and 124.19(i)3(ii). Thus, a party need not seek and obtain consent of another party in order to serve that party by email. Parties must promptly file notices informing the Board and the other parties of any changes in their email addresses.

The petition must clearly set forth the petitioner's contentions for why the EAB should review the Permit. The petition must identify the contested permit conditions or the specific challenge the permit decision. The petitioner must demonstrate the issues raised in the petition had been raised previously during the comment period. The petitioner must also state whether, in his or her opinion, the permit decision or the permit's conditions appealed are objectionable because of:

1. Factual or legal error, or
2. The incorporation of a policy consideration which the EAB should, at its discretion, review.

If a petition for review of this Permit is filed, the applicant shall be without a permit pending final agency action.

After review of the Appeals Petition, the EAB will either grant or deny the appeal. The EAB will decide the appeal on the basis of the written briefs and the total administrative record of the permit action. If the EAB denies the petition, EPA will notify the petitioner of the final permit decision. The petitioner may, thereafter, challenge the permit decision in Federal Court. If the EAB grants the appeal, it may direct the Region 3 office to implement its decision by permit issuance, modification or denial. The EAB may order all or part of the permit decision back to the EPA Region 3 office for reconsideration. In either case, if the Permit is appealed, a final agency decision occurs when after appeal the Permit is issued, modified or denied and an Agency decision is announced. After this time, all administrative appeals have been exhausted, and any further challenges to the permit decision must be made to Federal Court.