GEORGE MASON UNIVERSITY

Purchasing Department
4400 University Drive, MS 3C1, Fairfax, VA 22030
Phone: 703.993.2580; http://fiscal.gmu.edu/purchasing/

**STANDARD CONTRACT**
**GMU-CM0220-25**

This Contract entered on this 30th day of April, 2025 (Effective Date) by Environmental Systems Service, Ltd. hereinafter called "Contractor" (located at 218 North Main Street, Culpeper VA 22701) and George Mason University hereinafter called "Mason," or "University".

**I.** **WITNESSETH** that the Contractor and Mason, in consideration of the mutual covenants, promises and agreement herein contained, agree as follows:

**II.** **SCOPE OF CONTRACT:** The Contractor shall provide daily operation, maintenance, and testing services for the waste water treatment plant at the Point of View Facility located in Lorton for the Facilities group of George Mason University as set forth in the Contract documents.

During the term of this Contract, Contractor may issue Statements of Work ("SOW") to modify the scope of the engagement or otherwise change the work to be performed under this Contract. All SOW's must be on a form approved by Mason prior to the start of this Contract. Any SOW that does not conform to the pre-approved SOW form shall be void even if approved by Mason. Additionally, the SOW shall be limited to modifications to the scope of the engagement or other changes to the work to be performed under this Contract; any other terms contained in a SOW shall be void and have no effect even if approved by Mason. Other than changes to the scope of the engagement or the work to be performed under this Contract, Contractor may not change, modify, add, supersede, or remove any term from this Contract through a SOW.

**III.** **PERIOD OF CONTRACT:** May 1, 2025 through April 30, 2026 with four (4) successive one-year renewal options.

**IV.** **PRICE SCHEDULE:** The pricing specified in this section represents the complete list of charges from the Contractor. Mason shall not be liable for any additional charges.

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| Per Visit Fee – Including Travel Expenses and up to two hours on site. | Per visit | $185.00 |
| Additional Time On Site – Regular Hours (Mon.-Fri.- 7:00 AM – 3:00PM | Hour | $45.00* |
| Additional Time On Site – Overtime Hours (Mon.-Fri.- 3:30 PM – 8:00AM | Hour | $62.00 |
| Additional Time On Site – Emergency Response (Weekends) | Hour | $132.00 |
| Maintenance Fees Outside of Base Contract Fee – Scheduled – Work Day | Hour | $90.00 |
| Maintenance Fees Outside of Base Contract Fee – Emergency Response (afterhours & weekends) | Hour | $132.00 |
| Maintenance Fees Outside of Base Contract Fee – Maintenance Helper | Hour | $50.00 |
| Onsite Laboratory Equipment Rental (per month) | Month | $285.00 |
| Laboratory Services Unit Pricing -- BOD | Each | $46.00 |
| Laboratory Services Unit Pricing – CBOD | Each | $48.00 |
| Laboratory Services Unit Pricing – TSS | Each | $33.00 |
| Laboratory Services Unit Pricing – NO2/NO3 | Each | $58.00 |
| Laboratory Services Unit Pricing – E. Coli (w/Dilutions) | Each | $65.00 ($95.00) |
| Laboratory Services Unit Pricing – Total Phosphorus | Each | $56.00 |
| Laboratory Services Unit Pricing – Ammonia | Each | $47.00 |
| Laboratory Services Unit Pricing – TKN | Each | $58.00 |

| | | |
|---|---|---|
| Process Chemicals or Repair Parts | Each | Cost of Material |
| Fixed Fee for Processing Parts and Chemical Orders | Each Order/Invoice | $68.00 |

*Please note that while the plant is shutdown, we propose keeping costs to a minimum to GMU, as we always have, by billing at a rate of Additional Time On Site – Regular Hours of $45.00/hour. Generally, we have found that around 1.0 hour twice per week is adequate to inspect the system and coordinate pump and haul activities provided flow is minimal. In the event that flow is increased for events, we may need to visit additional times per week to keep up with the flow.

**V. CONTRACT ADMINISTRATION:** Steve Pulis shall serve as Contract Administrator for this Contract and shall use all powers under the Contract to enforce its faithful performance. The Contract Administrator shall determine the amount, quality and acceptability of work and shall decide all other questions in connection with the work. All direction and order from Mason shall be transmitted through the Contract Administrator, however, the Contract Administrator shall have no authority to approve changes which shall alter the concept or scope or change the basis for compensation.

**VI. METHOD OF PAYMENT:** Paymode-X, Net30. Contractor shall submit invoices directly to acctpay@gmu.edu with a copy to the Contract Administrator. Invoices will be paid Net 30 after goods received, services rendered, or receipt in Mason's Accounts Payable email box, acctpay@gmu.edu, whichever is later. Invoices must reference a Purchase Order number to be considered valid.

**VII. THE CONTRACT DOCUMENTS SHALL CONSIST OF (In order of precedence):**

A. This signed Contract;
B. Negotiation Responses dated April 28, 2025 (attached);
C. RFP No. GMU-CM0220-25, in its entirety (attached);
D. Contractor's proposal dated April 8, 2025 (attached).

**VIII. GOVERNING RULES:** This Contract is governed by the provisions of the Restructured Higher Education Financial and Administrative Operations Act, Chapter 10 (§ 23.1-1000 et seq.) of Title 23.1 of the Code of Virginia, and the *"Governing Rules"* and the *Purchasing Manual for Institutions of Higher Education and their Vendors.* Documents may be viewed at: https://vascupp.org.

**IX. CONTRACT PARTICIPATION:** It is the intent of this Contract to allow for cooperative procurement. Accordingly, any public body, public or private health or educational institutions, or affiliated corporations may access this Contract if authorized by the Contractor.

Participation in this Contract is strictly voluntary. If authorized by the Contractor, the contract will be extended to the entities indicated above to purchase goods and services in accordance with contract terms. As a separate contractual relationship, the participating entity will place its own orders directly with the Contractor(s) and shall fully and independently administer its use of the contract(s) to include contractual disputes, invoicing and payments without direct administration from the University. No modification of this Contract or execution of a separate agreement is required to participate; however, the participating entity and the Contractor may modify the terms and conditions of the contract to accommodate specific governing laws, regulations, policies, and business goals required by the participating entity. Any such modification will apply solely between the participating entity and the Contractor.

The University may request the Contractor provide semi-annual usage reports for all entities accessing the Contract. The University shall not be held liable for any costs or damages incurred by any other participating entity as a result of any authorization by the Contractor to extend the Contract. It is understood and agreed that the University is not responsible for the acts or omissions of any entity and will not be considered in default of the contract no matter the circumstances.

Use of this Contract does not preclude any participating entity from using other contracts or competitive processes as needed.

**X. STANDARD TERMS AND CONDITIONS:**

A. APPLICABLE LAW AND CHOICE OF FORUM: This Contract shall be construed, governed, and interpreted pursuant to the laws of the Commonwealth of Virginia. All disputes arising under this Contract shall be brought before an appropriate court in the Commonwealth of Virginia.

B. ANTI-DISCRIMINATION: By entering into this Contract Contractor certifies to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians with Disabilities Act, the Americans with Disabilities Act and §§ 9&10 of the *Governing Rules.* If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the Contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Governing Rules,* § 36).

In every contract over $10,000 the provisions in 1. and 2. below apply:

1. During the performance of this Contract, the Contractor agrees as follows:

   a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

   b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

   c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting these requirements.

2. The Contractor will include the provisions of 1. above in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or Contractor.

C. ANTITRUST: By entering into this Contract, the Contractor conveys, sells, assigns, and transfers to the Commonwealth of Virginia all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the Commonwealth of Virginia under this Contract.

D. ASSIGNMENT: Neither party will assign or otherwise transfer its rights or obligations under this Contract without both parties' prior written consent. Any attempted assignment, transfer, or delegation without such consent is void.

E. AUDIT: The Contractor shall retain all books, records, and other documents relative to this Contract for five (5) years after final payment, or until audited by the Commonwealth of Virginia, whichever is sooner. The University, its authorized agents, and/or state auditors shall have full access to and the right to examine any of said materials during said period.

F. AVAILABILITY OF FUNDS: It is understood and agreed between the parties herein that the University shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this Contract.

G. AUTHORIZED SIGNATURES: The signatory for each Party certifies that he or she is an authorized agent to sign on behalf such Party.

H. BACKGROUND CHECKS: Prior to any of Contractors employees, agents, or subcontractors (collectively "Personnel") performing services on any Mason campus, Contractor shall, at its sole expense, obtain comprehensive background checks on all Personnel. Such background checks shall include, at minimum: a review of the Personnel's records to include social security number search, local and federal criminal records (any misdemeanor convictions and/or felony convictions), the Sex Offender Registry, and the SanctionsBase+ Search or equivalent. In addition, for sensitive financial work or when operating a motor vehicle in the performance of duties for Mason, the background investigation shall include a credit report or motor vehicle check, respectively. Contractor warrants that all such Personnel have successfully passed these background checks and are qualified to perform the contracted services.

Contractor shall maintain records of all background checks and make them available to Mason upon request. Mason reserves the right to deny access to its premises to any Personnel based on the results of these background checks or for any other reason at Mason's sole discretion. Contractor shall immediately remove any Personnel from Mason's premises upon Mason's request. Signature on this Contract confirms your compliance with this requirement.

I. CANCELLATION OF CONTRACT: Mason reserves the right to cancel this Contract, in part or in whole, without penalty, for any reason, upon 60 days written notice to the Contractor. Upon written notice of cancellation from Mason, Mason shall be fully released from any further obligation under the Contract and Contractor agrees to directly refund all payments, for services not already performed, to Mason, including any pre-paid deposits, within 14 days. Any contract cancellation notice shall not relieve the Contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

J. CHANGES TO THE CONTRACT: Changes can be made to this Contract in any of the following ways:

1. The parties may agree in writing to modify the scope of this Contract.

2. Mason may order changes within the general scope of Contract at any time by written notice to Contractor. Changes within the scope of this Contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. Contractor shall comply with the notice upon receipt. Contractor shall be compensated for any additional costs incurred as the result of such order and shall give Mason a credit for any savings. Said compensation shall be determined by one of the following methods:

   a. By mutual agreement between the parties in writing; or

   b. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the Contractor accounts for the number of units of work performed, subject to the Mason's right to audit Contractor's records and/or to determine the correct number of units independently; or

   c. By ordering Contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by Contract. The same markup shall be used for determining a decrease in price as the result of savings realized. Contractor shall present Mason with all vouchers and records of expenses incurred and savings realized. Mason shall have the right to audit the records of Contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to Mason within thirty (30) days from the date of receipt of the written order from Mason. If the Parties fail to agree on an amount of adjustment, the question of an increase or decrease in the Contract price or time for performance shall be resolved in accordance with the procedures for resolving disputes provided by the Disputes Clause of this Contract or, if there is none, in accordance with the disputes provisions of the Commonwealth of Virginia Purchasing Manual for Institutions of Higher Education and Their Contractors. Neither the existence of a claim nor a dispute resolution process, litigation or any other provision of this Contract shall excuse the Contractor from promptly complying with the changes ordered by Mason or with the performance of this Contract generally.

K. CLAIMS: Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after final payment. However, written notice of the Contractor's intention to file a claim shall be given at the time of the occurrence or beginning of the work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pendency of claims shall not delay payment of amounts agreed due in the final payment.

1. The Contractor must submit written claim to:
   Chief Procurement Officer
   George Mason University
   4400 University Drive, MSN 3C5
   Fairfax, VA 22030

2. The Contractor must submit any unresolved claim in writing no later than 60 days after final payment to the Chief Procurement Officer.

3. Upon receiving the written claim, the Chief Procurement Officer will review the written materials relating to the claim and will mail their decision to the Contractor within 60 days after receipt of the claim.

4. The Contractor may appeal the Chief Procurement Officer's decision in accordance with §55 of the *Governing Rules.*

L. COLLECTION AND ATTORNEY'S FEES: The Contractor shall pay to Mason any reasonable attorney's fees or collection fees, at the maximum allowable rate permitted under Virginia law, incurred in enforcing this Contract or pursuing and collecting past-due amounts under this Contract.

M. COMPLIANCE: All goods and services provided to Mason shall be done so in accordance with any and all applicable local, state, federal, and international laws, regulations and/or requirements and any industry standards, including but not limited to: the Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH), Government Data Collection and Dissemination Practices Act, Gramm-Leach-Bliley Financial Modernization Act (GLB), Payment Card Industry Data Security Standards (PCI-DSS), Americans with Disabilities Act (ADA), and Federal Export Administration Regulations. Any Contractor personnel visiting Mason facilities will comply with all applicable Mason policies regarding access to, use of, and conduct within such facilities. Mason's policies can be found at https://universitypolicy.gmu.edu/all-policies/ and any facility specific policies can be obtained from the facility manager.

N. CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION: The Contractor shall ensure that personally identifiable information ("PII") which is defined as any information that by itself or when combined with other information can be connected to a specific person and may include but is not limited to personal identifiers such as name, address, phone, date of birth, Social Security number, student or personal identification numbers, driver's license numbers, state or federal identification numbers, biometric information, religious or political affiliation, non-directory information, and any other information protected by state or federal privacy laws, will be collected and held confidential and in accordance with this agreement, during and following the term of this Contract, and will not be divulged without the individual's and Mason's written consent and only in accordance with federal law or the Code of Virginia.

O. CONFLICT OF INTEREST: Contractor represents to Mason that its entering into this Contract with Mason and its performance through its agents, officers and employees does not and will not involve, contribute to nor create a conflict of interest prohibited by Virginia State and Local Government Conflict of Interests Act (Va. Code 2.2-3100 *et seq*), the Virginia Ethics in Public Contracting Act (§57 of the *Governing Rules)*, the Virginia Governmental Frauds Act (Va. Code 18.2 – 498.1 *et seq*) or any other applicable law or regulation.

P. CONTINUITY OF SERVICES:

1. The Contractor recognizes that the services under this Contract are vital to Mason and must be continued without interruption and that, upon contract expiration, a successor, either Mason or another contractor, may continue them. The Contractor agrees:
   a. To exercise its best efforts and cooperation to affect an orderly and efficient transition to a successor;
   b. To make all Mason owned facilities, equipment, and data available to any successor at an appropriate time prior to the expiration of the contract to facilitate transition to successor; and
   c. That the University Procurement Officer shall have final authority to resolve disputes related to the transition of the contract from the Contractor to its successor.

2. The Contractor shall, upon written notice from the Procurement Officer, furnish phase-in/phase-out services for up to ninety (90) days after this Contract expires and shall negotiate in good faith a plan with the successor to execute the phase-in/phase-out services. This plan shall be subject to the Procurement Officer's approval.

3. The Contractor shall be reimbursed for all reasonable, pre-approved phase-in/phase-out costs (i.e., costs incurred within the agreed period after contract expiration that result from phase-in, phase-out operations). All phase-in/phase-out work fees must be approved by the Procurement Officer in writing prior to commencement of said work.

Q. DEBARMENT STATUS: As of the Effective Date, the Contractor certifies that it is not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of services covered by this Contract, nor is the Contractor an agent of any person or entity that is currently so debarred.

R. DEFAULT: In the case of failure to deliver goods or services in accordance with Contract terms and conditions, Mason, after due oral or written notice, may procure them from other sources and hold Contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies which Mason may have.

S. DRUG-FREE WORKPLACE: Contractor has, and shall have in place during the performance of this Contract, a drug-free workplace policy (DFWP), which it provides in writing to all its employees, vendors, and subcontractors, and which specifically prohibits the following on company premises, during work-related activities, or while conducting company business: the sale, purchase, manufacture, dispensation, distribution possession, or use of any illegal drug under federal law (including marijuana). For purposes of this section, "drug-free workplace" covers all sites at which work is done by Contractor in connection with this Contract.

T. ENTIRE CONTRACT: This Contract constitutes the entire understanding of the Parties with respect to the subject matter herein and supersedes all prior oral or written contracts with respect to the subject matter herein. This Contract can be modified or amended only by a writing signed by all of the Parties.

U. EXPORT CONTROL:

1. **Munitions Items**: If the Contractor is providing any items, data or services under this order that are controlled by the Department of State, Directorate of Defense Trade Controls, International Traffic in Arms Regulations ("ITAR"), or any items, technology or software controlled under the "600 series" classifications of the Bureau of Industry and Security's Commerce Control List ("CCL") (collectively, "Munitions Items"), prior to delivery, Contractor must:

   a. notify Mason (by sending an email to export@gmu.edu), and

   b. receive written authorization for shipment from Mason's Director of Export Controls.

   The notification provided by the Contractor must include the name of the Mason point of contact, identify and describe each ITAR or CCL-controlled commodity, provide the associated U.S. Munitions List (USML) category number(s) or Export Control Classification Number, and indicate whether or not the determination was reached as a result of a commodity jurisdiction determination, or self-classification process. The Contractor promises that if it fails to obtain the required written pre-authorization approval for shipment to Mason of any Munitions Item, it will reimburse Mason for any fines, legal costs and other fees imposed for any violation of export controls regarding the Munition Item that are reasonably related to the Contractor's failure to provide notice or obtain Mason's written pre-authorization.

2. **Dual-Use Items**: If the Contractor is providing any dual-use items, technology or software under this order that are listed on the CCL in a series other than a "600 series", Contractor must (i) include the Export Control Classification Number (ECCN) on the packing or other transmittal documentation traveling with the item(s) and, (ii) send a description of the item, its ECCN, and the name of the Mason point of contact to: export@gmu.edu .

V. FORCE MAJEURE: Mason shall be excused from any and all liability for failure or delay in performance of any obligation under this Contract resulting from any cause not within the reasonable control of Mason, which includes but is not limited to acts of God, fire, flood, explosion, earthquake, or other natural forces, war, civil unrest, accident, any strike or labor disturbance, travel restrictions, acts of government, disease, pandemic, or contagion, whether such cause is similar or dissimilar to any of the foregoing. Upon written notification from Mason that such cause has occurred, Contractor agrees to directly refund all payments to Mason, for services not yet performed, including any pre-paid deposits within 14 days.

W. FUTURE GOODS AND SERVICES: Mason reserves the right to have Contractor provide additional goods and/or services that may be required by Mason during the term of this Contract. Any such goods and/or services will be provided by the Contractor under the same pricing, terms and conditions of this Contract. Such additional goods and/or services may include other products, components, accessories, subsystems or related services that are newly introduced during the term of the contract. Such newly introduced additional goods and/or services will be provided to Mason at Favored Customer pricing, terms and conditions.

X. IMMIGRATION REFORM AND CONTROL ACT OF 1986: By entering into this Contract Contractor certifies that

they do not and will not during the performance of this Contract employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986.

Y. INDEMNIFICATION: Contractor agrees to indemnify, defend and hold harmless George Mason University, the Commonwealth of Virginia, its officers, agents, and employees from any claims, damages and actions of any kind or nature, whether at law or in equity, arising from or caused by the use of any materials, goods, or equipment of any kind or nature furnished by the Contractor/any services of any kind or nature furnished by the Contractor, provided that such liability is not attributable to the sole negligence of Mason or to the failure of Mason to use the materials, goods, or equipment in the manner already and permanently described by the Contractor on the materials, goods or equipment delivered. Contractor understands and acknowledges that Mason has not agreed to provide any indemnification or save harmless agreements running to Contractor.

Z. INDEPENDENT CONTRACTOR: The Contractor is not an employee of Mason, but is engaged as an independent contractor. The Contractor shall indemnify and hold harmless the Commonwealth of Virginia, Mason, and its employees and agents, with respect to all withholding, Social Security, unemployment compensation and all other taxes or amounts of any kind relating to the Contractor's performance of this Contract. Nothing in this Contract shall be construed as authority for the Contractor to make commitments which will bind Mason or to otherwise act on behalf of Mason, except as Mason may expressly authorize in writing.

AA. INFORMATION TECHNOLOGY ACCESS ACT: Computer and network security is of paramount concern at Mason. Mason wants to ensure that computer/network hardware and software does not compromise the security of its IT environment. Contractor agrees to use commercially reasonable measures in connection with any offering your company makes to avoid any known threat to the security of the IT environment at Mason.

All e-learning and information technology developed, purchased, upgraded or renewed by or for the use of Mason shall comply with all applicable University policies, Federal and State laws and regulations including but not limited to Section 508 of the Rehabilitation Act (29 U.S.C. 794d), the Information Technology Access Act, §§2.2-3500 through 2.2-3504 of the Code of Virginia, as amended, and all other regulations promulgated under Title II of The Americans with Disabilities Act which are applicable to all benefits, services, programs, and activities provided by or on behalf of the University. The Contractor shall also comply with the Web Content Accessibility Guidelines (WCAG) 2.0. For more information please visit http://ati.gmu.edu, under Policies and Procedures.

BB. INSURANCE: The Contractor shall maintain all insurance necessary with respect to the services provided to Mason. The Contractor further certifies that they will maintain the insurance coverage during the entire term of the Contract and that all insurance is to be placed with insurers with a current reasonable A.M. Best's rating authorized to sell insurance in the Commonwealth of Virginia by the Virginia State Corporation Commission. The Commonwealth of Virginia and Mason shall be named as an additional insured. By requiring such minimum insurance, Mason shall not be deemed or construed to have assessed the risk that may be applicable to the Contractor. The Contractor shall assess its own risks and, if it deems appropriate and/or prudent, maintain higher limits and/or broader coverage. The Contractor is not relieved of any liability or other obligations assumed or pursuant to this Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

1. Commercial General Liability Insurance in an amount not less than one million dollars ($1,000,000) per occurrence for bodily injury or property damage, personal injury and advertising injury, products and completed operations coverage;

2. Workers Compensation Insurance in an amount not less than that prescribed by statutory limits; and, as applicable;

3. Commercial Automobile Liability Insurance applicable to bodily injury and property damage, covering owned, non-owned, leased, and hired vehicles in an amount not less than one million dollars ($1,000,000) per occurrence; and

4. An umbrella/excess policy in an amount not less than five million dollars ($5,000,000) to apply over and above Commercial General Liability, Employer's Liability, and Commercial Automobile Liability Insurance.

CC. INTELLECTUAL PROPERTY: Contractor warrants and represents that it will not violate or infringe any intellectual property right or any other personal or proprietary right and shall indemnify and hold harmless Mason against any claim of infringement of intellectual property rights which may arise under this Contract.

Unless expressly agreed to the contrary in writing, all goods, products, materials, documents, reports, writings, video images, photographs or papers of any nature including software or computer images prepared or provided by Contractor (or its subcontractors) for Mason will not be disclosed to any other person or entity without the written permission of Mason.

Work Made for Hire. Contractor warrants to Mason that Mason will own all rights, title and interest in any and all intellectual property rights created in the performance or otherwise arising from the Contract and will have full ownership and beneficial use thereof, free and clear of claims of any nature by any third party including, without limitation, copyright or patent infringement claims. Contractor agrees to assign and hereby assigns all rights, title, and interest in any and all intellectual property created in the performance or otherwise arising from the Contract, and will execute any future assignments or other documents needed for Mason to document, register, or otherwise perfect such rights. Notwithstanding the foregoing, for research collaboration pursuant to subcontracts under sponsored research Contracts administered by the University's Office of Sponsored Programs, intellectual property rights will be governed by the terms of the grant or contract to Mason to the extent such grant or contract requires intellectual property terms to apply to subcontractors.

DD. NON-DISCRIMINATION: All parties to this Contract agree to not discriminate on the basis of race, color, religion, national origin, sex, pregnancy, childbirth or related medical conditions, age (except where sex or age is a bona fide occupational qualification, marital status or disability).

EE. NON-EXCLUSIVITY: Nothing herein is intended nor shall be construed as creating any exclusive arrangement with Contractor. This Contract will not restrict or prohibit Mason from acquiring the same or similar goods and/or services from other entities or sources.

FF. PAYMENT TO SUBCONTRACTORS: Contractor shall take the following actions upon receiving payment from Mason: (1) pay the subcontractor within seven days for the proportionate share of the total payment received from Mason attributable to the work performed by the subcontractor under that Contract; or (2) notify Mason and subcontractor within seven days, in writing, of its intention to withhold all or a part of the subcontractor's payment with the reason for non-payment. The Contractor shall collect the appropriate Tax Identification Number (Either SSN# or EIN#) based on the entity type of the subcontractor. The Contractor shall pay interest to subcontractors on all amounts owed by the Contractor that remain unpaid after seven days following receipt by the Contractor of payment from Mason for work performed by the subcontractor under that contract, except for amounts withheld as allowed by prior notification. Unless otherwise provided under the terms of this Contract, interest shall accrue to subcontractors at the rate of one percent per month. The Contractor shall include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower-tier subcontractor. A contractor's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of Mason. A contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

GG. PUBLICITY: Contractor shall not use, in its external advertising, marketing programs, or promotional efforts, any data, name, insignia, trademarks, pictures or other representation of the University or its employees except on the specific written authorization in advance by the University. The University must receive all requests for authorization in writing no later than ten (10) days in advance of the use date.

HH. REMEDIES: If the Contractor breaches this Contract, in addition to any other rights or remedies, Mason may terminate this Contract without prior notice.

II. RENEWAL OF CONTRACT: This Contract may be renewed by Mason for four (4) successive one-year renewal options under the terms and conditions of this Contract except as stated in 1. and 2. below. Price increases may be negotiated only at the time of renewal. Written notice of the University's intention to renew shall be given approximately 90 days prior to the expiration date of each contract period.

1. If the University elects to exercise the option to renew the Contract for an additional one-year period, the Contract price(s) for the additional one year shall not exceed the lesser of the Contract price(s) of the original Contract increased/decreased by more than the percentage increase/decrease of the "other goods and services" category of the CPI-U section of the Consumer Price Index of the United States Bureau of Labor Statistics for the latest twelve months for which statistics are available, or 2%, whichever is lower.

2. If during any subsequent renewal periods, the University elects to exercise the option to renew the Contract,

the Contract price(s) for the subsequent renewal period shall not exceed the lesser of the Contract price(s) of the previous renewal period increased/decreased by more than the percentage increase/decrease of the "other goods and services" category of the CPI-U section of the Consumer Price Index of the United States bureau of Labor Statistics for the latest twelve months for which statistics are available, or 2%, whichever is lower.

JJ. REPORTING OF CRIMES, ACCIDENTS, FIRES AND OTHER EMERGENCIES: Any Mason Employee, including contracted service providers, who is not a staff member in Counseling and Psychological Services (CAPS) or a pastoral counselor, functioning within the scope of that recognition, is considered a "Campus Security Authority (CSA)." CSAs must promptly report all crimes and other emergencies occurring on or near property owned or controlled by Mason to the Department of Police & Public Safety or local police and fire authorities by dialing 9-1-1. At the request of a victim or survivor, identifying information may be excluded from a report (e.g., names, initials, contact information, etc.). Please visit the following website for more information and training: http://police.gmu.edu/clery-act-reporting/campus-security-authority-csa/."

KK. RESPONSE TO LEGAL ORDERS, DEMANDS, OR REQUESTS FOR DATA: Except as otherwise expressly prohibited by law, Contractor will: i) immediately notify Mason of any subpoenas, warrants, or other legal orders, demands or requests received by Contractor seeking University Data; ii) consult with Mason regarding its response; iii) cooperate with Mason's reasonable requests in connection with efforts by Mason to intervene and quash or modify the legal order, demand or request; and iv) upon Mason's request, provide Mason with a copy of its response.

If Mason receives a subpoena, warrant, or other legal order, demand (including request pursuant to the Virginia Freedom of Information Act) or request seeking University Data maintained by Contractor, Mason will promptly provide a copy to Contractor. Contractor will promptly supply Mason with copies of data required for Mason to respond, and will cooperate with Mason's reasonable requests in connection with its response.

LL. SEVERABILITY: Should any portion of this Contract be declared invalid or unenforceable for any reason, such portion is deemed severable from the Contract and the remainder of this Contract shall remain fully valid and enforceable.

MM. SOVEREIGN IMMUNITY: Nothing in this Contract shall be deemed a waiver of the sovereign immunity of the Commonwealth of Virginia and of Mason.

NN. SUBCONTRACTS: No portion of the work shall be subcontracted without prior written consent from Mason. In the event that the Contractor desires to subcontract some part of the work specified herein, the Contractor shall furnish Mason the names, qualifications and experience of their proposed subcontractors. The Contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of this Contract. This paragraph applies to, but is not limited to, subcontractor(s) who process University Data.

OO. SWaM CERTIFICATION: Contractor agrees to fully support the Commonwealth of Virginia and Mason's efforts related to SWaM goals. Upon contract execution, Contractor, if eligible, shall submit all required documents necessary to achieve SWaM certification to the Department of Small Business and Supplier Diversity within 90 days. If Contractor is currently SWaM certified, Contractor agrees to maintain their certification for the duration of this Contract and shall submit all required renewal documentation at least 30 days prior to existing SWaM expiration at https://www.sbsd.virginia.gov/.

PP. UNIVERSITY DATA: University Data includes all Mason owned, controlled, or collected PII and any other information that is not intentionally made available by Mason on public websites, including but not limited to business, administrative and financial data, intellectual property, and patient, student and personnel data. Contractor agrees to the following regarding University Data it may collect or process as part of this contract:

1. Contractor will use University Data only for the purpose of fulfilling its duties under the Contract and will not share such data with or disclose it to any third party without the prior written consent of Mason, except as required by the Contract or as otherwise required by law. University Data will only be processed by Contractor to the extent necessary to fulfill its responsibilities under the Contract or as otherwise directed by Mason.

2. University Data, including any back-ups, will not be accessed, stored, or transferred outside the United States without prior written consent from Mason. Contractor will provide access to University Data only to its employees and subcontractors who need to access the data to fulfill Contractor's obligations under the

Contract. Contractor will ensure that employees who perform work under the Contract have read, understood, and received appropriate instruction as to how to comply with the data protection provisions of the Contract and to maintain the confidentiality of the University Data.

3. The parties agree that as between them, all rights including all intellectual property rights in and to University Data shall remain the exclusive property of Mason, and Contractor has a limited, nonexclusive license to use the University Data as provided in the Contract solely for the purpose of performing its obligations under the Contract. The Contract does not give a party any rights, implied or otherwise, to the other party's data, content, or intellectual property, except as expressly stated in the Contract.

4. Contractor will take reasonable measures, including audit trails, to protect University Data against deterioration or degradation of data quality and authenticity. Contractor shall be responsible for ensuring that University Data, per the Virginia Public Records Act, is preserved, maintained, and accessible throughout their lifecycle, including converting and migrating electronic data as often as necessary so that information is not lost due to hardware, software, or media obsolescence or deterioration.

5. Contractor shall notify Mason within three business days if it receives a request from an individual under any applicable law regarding PII about the individual, including but not limited to a request to view, access, delete, correct, or amend the information. Contractor shall not take any action regarding such a request except as directed by Mason.

6. If Contractor will have access to University Data that includes "education records" as defined under the Family Educational Rights and Privacy Act (FERPA), the Contractor acknowledges that for the purposes of the Contract it will be designated as a "school official" with "legitimate educational interests" in the University education records, as those terms have been defined under FERPA and its implementing regulations, and the Contractor agrees to abide by the limitations and requirements imposed on school officials. Contractor will use the education records only for the purpose of fulfilling its duties under the Contract for Mason's and its end user's benefit, and will not share such data with or disclose it to any third party except as provided for in the Contract, required by law, or authorized in writing by the University.

7. Mason may require that Mason and Contractor complete a Data Processing Addendum ("DPA"). If a DPA is completed, Contractor agrees that the information in the DPA is accurate. Contractor will only collect or process University Data that is identified in the DPA and will only handle that data (e.g., type of processing activities, storage, security, disclosure) as described in the DPA. If Contractor intends to do anything regarding University Data that is not reflected in the DPA, Contractor must request an amendment to the DPA and may not take the intended action until the amendment is approved and documented by Mason.

QQ. UNIVERSITY DATA SECURITY: Data security is of paramount concern to Mason. Contractor will utilize, store and process University Data in a secure environment in accordance with commercial best practices, including appropriate administrative, physical, and technical safeguards, to secure such data from unauthorized access, disclosure, alteration, and use. Such measures will be no less protective than those used to secure Contractor's own data of a similar type, and in no event less than reasonable in view of the type and nature of the data involved. At a minimum, Contractor shall use industry-standard and up-to-date security tools and technologies such as anti-virus protections and intrusion detection methods to protect University Data.

1. Immediately upon becoming aware of circumstances that could have resulted in unauthorized access to or disclosure or use of University Data, Contractor will notify Mason, fully investigate the incident, and cooperate fully with Mason's investigation of and response to and remediation of the incident. Except as otherwise required by law, Contractor will not provide notice of the incident directly to individuals who's PII was involved, regulatory agencies, or other entities, without prior written permission from Mason.

2. Mason reserves the right in its sole discretion to perform audits of Contactor, at Mason's expense, to ensure compliance with all obligations regarding University Data. Contractor shall reasonably cooperate in the performance of such audits. Contractor will make available to Mason all information necessary to demonstrate compliance with its data processing obligations. Failure to adequately protect University Data or comply with the terms of this Contract with regard to University Data may be grounds to terminate this Contract.

RR. UNIVERSITY DATA UPON TERMINATION OR EXPIRATION: Upon termination or expiration of the Contract, Contractor will ensure that all University Data are securely returned or destroyed as directed by Mason in its sole

discretion within 180 days of the request being made. Transfer to Mason or a third party designated by Mason shall occur within a reasonable period of time, and without significant interruption in service. Contractor shall ensure that such transfer/migration uses facilities and methods that are compatible with the relevant systems of Mason or its transferee, and to the extent technologically feasible, that Mason will have reasonable access to University Data during the transition. In the event that Mason requests destruction of its data, Contractor agrees to destroy all data in its possession and in the possession of any subcontractors or agents to which the Contractor might have transferred University Data. Contractor agrees to provide documentation of data destruction to the University.

Contractor will notify the University of any impending cessation of its business and any contingency plans. This includes immediate transfer of any previously escrowed assets and University Data and providing Mason access to Contractor's facilities to remove and destroy Mason-owned assets and University Data. Contractor shall implement its exit plan and take all necessary actions to ensure a smooth transition of service with minimal disruption to Mason. Contractor will also provide a full inventory and configuration of servers, routers, other hardware, and software involved in service delivery along with supporting documentation, indicating which if any of these are owned by or dedicated to Mason. Contractor will work closely with its successor to ensure a successful transition to the new equipment, with minimal downtime and effect on Mason, all such work to be coordinated and performed in advance of the formal, final transition date.

SS. UNIVERSITY REVIEW/APPROVAL: All goods, services, products, design, etc. produced by the Contractor for or on behalf of Mason are subject to Mason's review and approval.

TT. WAIVER: The failure of a party to enforce any provision in this Contract shall not be deemed to be a waiver of such right.

**Environmental Systems Service, Ltd.**

Signed by:
Cody Hoehna
Signature 90D70EA39557472...

Name: Cody Hoehna

Title: ES Director

Date: 5/1/2025

**George Mason University**

DocuSigned by:
James Russell
Signature 2F61E096C77E4DC...

Name: James Russell

Title: Purchasing Director

Date: 4/30/2025

GEORGE MASON UNIVERSITY

Purchasing Department
4400 University Drive, MS 3C1, Fairfax, VA 22030
Phone: 703.993.2580; http://fiscal.gmu.edu/purchasing/

April 22, 2025

Mr. Cody Hoehna
Environmental Services Director – codyh@ess-services.com
Environmental Systems Service, Ltd.
218 North Main Street
Culpeper, VA 22701

SUBJECT: RFP GMU-CM0220-25 Waste Water Treatment Plant Operations and Maintenance

Dear Mr. Hoehna:

We have reached the point in the evaluation process where we are ready to start negotiations/clarifications as provided for in Section XIII, B of the subject RFP. Therefore, we would appreciate your response to the following:

1. Mason is an educational institution and entity of the Commonwealth of Virginia. As such, we are obligated to ensure that all pricing and contractual elements meet our institution's needs. Can you provide a reduced hourly rate for services?

   Environmental Systems Service, Ltd. Response: Billing hourly instead of per day is the most economical way to handle the GMU system while it's offline. ESS has provided the best hourly rate available based on current economic factors.

2. Can you provide any additional discounts based on total university spend?

   Environmental Systems Service, Ltd. Response: ESS does occasionally reduce laboratory prices based on volume. If the system comes online and testing is included in the contract, we are able to revisit those prices.

3. If awarded a contract, do you acknowledge, agree and understand George Mason University cannot guarantee a minimum amount of business?

   Environmental Systems Service, Ltd. Response: ESS recognizes there is no guaranteed amount of business with the GMU contract.

4. Do you agree to sign Mason's Standard Contract (RFP Attachment B – Sample Contract) if awarded a contract?

   Environmental Systems Service, Ltd Response: Yes

Please advise if you have any questions or need clarification before responding.

Regards,

Christopher Mullins, VCO
Procurement Officer
Cmullin4@gmu.edu

GEORGE MASON UNIVERSITY

Purchasing Department
4400 University Drive, MS 3C1, Fairfax, VA 22030
Phone: 703.993.2580; http://fiscal.gmu.edu/purchasing/

VIRGINIA ASSOCIATION OF STATE COLLEGE & UNIVERSITY PURCHASING PROFESSIONALS
VASCUPP

**REQUEST FOR PROPOSALS**
**GMU-CM0220-25**

| | |
|---|---|
| **ISSUE DATE:** | March 10, 2025 |
| **TITLE:** | Waste Water Treatment Plant Operations and Maintenance – Point of View (POV) Facility |
| **PRIMARY PROCUREMENT OFFICER:** | Christopher Mullins, Senior Buyer, cmullin4@gmu.edu |
| **SECONDARY PROCUREMENT OFFICER:** | James Russell, Director, Purchasing, jrussell@gmu.edu |
| **MANDATORY PRE-PROPOSAL CONFERENCE:** | **March 17, 2025 at 9:00AM.** See Section XVII. Item m. |

**QUESTIONS/INQUIRIES:** Submit all inquiries through Mason's Bonfire Portal, no later than 4:00 PM Eastern Time (ET) on March 21, 2025. **All questions must be submitted through Mason's Bonfire portal**. For assistance with technical questions related to Bonfire, contact Support@GoBonfire.com or visit Bonfire's help forum at https://vendorsupport.gobonfire.com/hc/en-us. Responses to questions will be posted to Mason's Bonfire portal and by 5:00 PM ET on March 27, 2025.

**PROPOSAL DUE DATE AND TIME:** April 8, 2025 @ 2:00 PM ET. ATTENTION: PROPOSALS WILL NOT BE ACCEPTED VIA EMAIL, MAIL, THROUGH eVA OR IN PERSON. SEE SECTION XIII.A.1 FOR DETAILS ON ELECTRONIC PROPOSAL SUBMISSION.

**IMPORTANT!** All communication with Offerors will take place in Bonfire, to include negotiations. Mason can only message individuals at your organization that have interacted in Bonfire for this specific RFP. Please ensure that the appropriate person responsible for negotiations and RFP communication has individually logged into the system and either downloaded documents, submitted your proposal or asked a question.

**In Compliance With This Request For Proposal And To All The Conditions Imposed Therein And Hereby Incorporated By Reference, The Undersigned Offers And Agrees To Furnish The Goods/Services In Accordance With The Attached Signed Proposal Or As Mutually Agreed Upon By Subsequent Negotiations.**

Name and Address of Firm:

Legal Name: _____ Date: _____

DBA: _____

Address: _____

_____ By: _____
Signature

FEI/FIN No. _____ Name: _____

Fax No. _____ Title: _____

Email: _____ Telephone No. _____

SWaM Certified: Yes: _____ No: _____ (See Section VII. SWaM CERTIFICATION for complete details).

SWaM Certification Number: _____

☐ Check box to confirm your proposal contains any exceptions to Mason's Standard Contract and all terms and conditions or subsequent Statements of Work that could apply over the life of any resulting contract. See section IV. Final Contract for additional information.

This public body does not discriminate against faith-based organizations in accordance with the *Governing Rules, § 36* or against a Bidder/Offeror because of race, religion, color, sex, national origin, age, disability, or any other prohibited by state law relating to discrimination in employment.

## OFFEROR PROPOSAL SUBMISSION CHECKLIST

Offerors responding to this RFP should use this checklist to ensure all requested documents are completed and submitted with their proposal.

- □ RFP Cover Page, accurately filled in and signed with checked off box confirming your proposal contains any exceptions to Mason's Standard Contract and all terms and conditions or subsequent Statements of Work that could apply over the life of any resulting contract.

- □ All addenda, if any were issued and a signature line is included.

- □ Attachment A - Small Business Subcontracting Plan. This is a requirement for all Offerors.

- □ Exceptions (if any) to Mason's Standard Contract.

- □ Any Statements of Work or supplemental document(s) Mason may be required to sign or that could potentially be incorporated into a final contract or apply during the term of a resulting contract.

- □ Any agreement that Mason would be required to sign with a third party.

- □ State your payment preference as required in Bonfire. Only select one payment option.

- □ Ensure your proposal contains all information listed and answers all questions outlined in Section XIII.B. Specific Requirements. Your proposal must include a response to each of these 4 questions listed at the end of this section.

    1. Are you and/or your subcontractor currently involved in litigation with any party?
    2. Please list any investigation or action from any state, local, federal or other regulatory body (OSHA, IRS, DOL, etc.) related to your firm or any subcontractor in the last three years.
    3. Please list all lawsuits that involved your firm or any subcontractor in the last three years.
    4. In the past ten (10) years has your firm's name changed? If so, please provide a reason for the change.

- □ If your proposal contains proprietary information, you must submit a second copy in accordance with Section XIII.A.1. General Requirements and Section XIII.B.2.d. that outlines the specific submission format.

**TABLE OF CONTENTS**
**GMU-CM0220-25**

**I.** **PURPOSE:** The purpose of this Request for Proposal (RFP) is to solicit sealed proposals to establish a contract through competitive negotiations with one or more qualified vendors to provide daily operation, maintenance, and testing services for the waste water treatment plant at the Point of View Facility located in Lorton, Virginia for George Mason University (herein after referred to as "Mason," or "University"). George Mason University is an educational institution and agency of the Commonwealth of Virginia.

**II.** **PURCHASING MANUAL/GOVERNING RULES:** This solicitation and any resulting contract shall be subject to the provisions of the Commonwealth of Virginia *Purchasing Manual for Institutions of Higher Education and their Vendor's*, and any revisions thereto, and the *Governing Rules*, which are hereby incorporated into this contract in their entirety. A copy of both documents is available for review at: https://vascupp.org

**III.** **COMMUNICATION:** Communications regarding the Request For Proposals shall be formal from the date of issuance until a contract has been awarded. Unless otherwise instructed offerors are to communicate with only the Procurement Officers listed on the cover page. Offerors are not to communicate with any other employees of Mason.

**IV.** **FINAL CONTRACT:** ATTACHMENT B to this solicitation is Mason's standard two-party contract. It is the intent of this solicitation to base the final contractual documents off of Mason's standard two-party contract and Mason's General Terms and Conditions as outlined in Attachment B – Standard Contract. Any exceptions to our standard contract and General Terms and Conditions must be denoted in your RFP response. Other documents may be incorporated into the final contract, either by way of attachment or by reference, but in all cases this contract document and Mason's General Terms and Conditions shall jointly take precedence over all other documents and will govern the terms and conditions of the contract.

As a public institution of higher education and agency of the Commonwealth of Virginia, Mason cannot agree to any of the following terms in any documents:

A. An express or implied waiver of sovereign immunity.
B. An agreement to indemnify, defend or hold harmless any entity.
C. An agreement to maintain insurance.
D. An agreement providing for binding arbitration.
E. An agreement providing for the payment of attorneys' fees, costs of collection, or liquidated damages.
F. Waiver of jury trial.
G. Choice of law or venue other than the Commonwealth of Virginia.

Contracts will only be issued to the FEI/FIN Number and Firm listed on the signed cover page submitted in your RFP response. Joint proposals will not be accepted.

Note: The Offeror must include any and all terms and conditions, additional documents, and/or statements of work that could potentially be incorporated into a final contract or apply during the term of a resulting contract. As outlined in Attachment B – Standard Contract, Statements of Work ("SOW") for specific engagements may only include the work to be performed during scope of the specific engagement. Additional terms and conditions will not be accepted on any SOW submitted during the course of the contract. All SOW's must be on a form approved by Mason prior to the start of the contract.

In addition to the above note, the Offeror must submit with their proposal any agreement that Mason would be required to sign with a third party.

**V.** **ADDITIONAL USERS:** It is the intent of this solicitation and resulting contract to allow for cooperative procurement. Accordingly, any public body, public or private health or educational institutions, or affiliated corporations may access any resulting contract if authorized by the contractor.

Participation in this cooperative procurement is strictly voluntary. If authorized by the Contractor(s), the resultant contract(s) will be extended to the entities indicated above to purchase goods and services in accordance with contract terms. As a separate contractual relationship, the participating entity will place its own orders directly with the Contractor(s) and shall fully and independently administer its use of the contract(s) to include contractual disputes, invoicing and payments without direct administration from the University. No modification of this contract or execution of a separate agreement is required to participate; however, the participating entity and the Contractor may modify the terms and conditions of the contract to accommodate specific governing laws, regulations, policies, and business goals required by the participating entity. Any such modification will apply solely between the participating entity and the contractor.

The University may require the Contractor provide semi-annual usage reports for all entities accessing the contract. The University shall not be held liable for any costs or damages incurred by any other participating entity as a result of any authorization by the Contractor to extend the contract. It is understood and agreed that the University is not responsible

for the acts or omissions of any entity and will not be considered in default of the contract no matter the circumstances.

Use of this contract(s) does not preclude any participating entity from using other contracts or competitive processes as needed.

**VI.** **eVA BUSINESS-TO-GOVERNMENT VENDOR REGISTRATION:** The eVA Internet electronic procurement solution, website portal www.eVA.virginia.gov, streamlines and automates government purchasing activities in the Commonwealth. The eVA portal is the gateway for vendors to conduct business with state agencies and public bodies. All vendors desiring to provide goods and/or services to the Commonwealth shall participate in the eVA Internet eProcurement solution by completing the free eVA Vendor Registration. All bidders or offerors agree to self-register in eVA and pay the Vendor Transaction Fees prior to being awarded a contract. Registration instructions and transaction fees may be viewed at: https://eva.virginia.gov/

**VII.** **SWaM CERTIFICATION:** Vendor agrees to fully support the Commonwealth of Virginia and Mason's efforts related to SWaM goals. Upon contract execution, eligible vendors (as determined by Mason and the Virginia Department of Small Business and Supplier Diversity) shall submit all required documents necessary to achieve SWaM certification to the Department of Small Business and Supplier Diversity within 90 days. Vendors currently SWaM certified agree to maintain their certification for the duration of the contract and shall submit all required renewal documentation at least 30 days prior to existing SWaM expiration. https://www.sbsd.virginia.gov/

**VIII.** **SMALL BUSINESS SUBCONTRACTING PLAN**: All potential offerors are required to fill out and submit Attachments A with their proposal.

Note: Invoices shall only be submitted to Mason by the entity awarded a contract. Subcontractors cannot submit invoices to Mason under any resulting contract.

**IX.** **PERIOD OF PERFORMANCE**: One (1) year from date of award with four (4) successive one-year renewal options.

**X.** **BACKGROUND**: Mason's Point of View Facility, located at 7301 Old Spring Drive, Lorton, VA 22079 is a retreat and research facility that is part of Mason's School for Conflict Analysis and Resolution (S-CAR). Additional information about the Facilities History and Vision are available here: https://scar.gmu.edu/retreat-facility/point-view-history-and-vision

Services Background: Waste water treatment services at this facility are currently provided via a Rider Contract riding a cooperative, competitively solicited, Fairfax County Public Schools (FCPS) Contract with Environmental Systems Services LTD. The Fairfax County Public Schools contract is expiring and Mason is seeking to enter into a new competitively solicited contract to continue services at this facility.

Process Equipment:
The system has been designed for an average daily flow of 5,000 gallons per day but based on the anticipated usage of the facility the flows will vary dramatically from typical daily use (potentially less than 500 gpd) to peak days based on large functions planned at the site. The POV waste water treatment plant is not currently operational and requires only on pump and hauling services at this time . In the event of the plant becoming fully operational, George Mason will make the necessary upgrades and work with the contractor to bring the plant equipment up to operational standards and include any scope of work changes to the contract. GMU will keep the operator apprised to the best of their ability of large events anticipated at the site that may require adjustments to the system prior to the events. The equipment provided in general consists of the following:

- Onsite Submersible Pump Station
- Packaged Wastewater Treatment System including
  - Fine Screen
  - Influent Equalization
  - Anoxic Biological Treatment
  - IFAS Biological treatment using a Bio-Wheel
  - Membrane Filtration
  - Disinfection
  - Flow Measurement
  - Post Aeration
  - Effluent Reuse Station with dosing of up to 500 gallons per day to a subsurface field adjacent to the WWTP
  - Associated chemical additions
  - Sludge Holding

- On-site Back-up Generator

**XI.** **STATEMENT OF WORK (sow)** The contractor shall furnish all necessary qualified personnel, supervision, equipment, tools, materials, transportation, testing materials, and incidentals as may be required to perform operations, maintenance, testing, and repair services to ensure efficient and proper operation of the waste water treatment plant at the GMU Point of View (POV) Facility in Lorton, Virginia in accordance with the Virginia Department of Environmental Quality (DEQ) regulations under Virginia Pollutant Discharge Elimination System (VDPES) Permit Number VA0090221 and all other state and federal regulations. The contractor shall maintain all necessary licenses required and demonstrate the capability of using the eDMR program with DEQ. GMU will require both operations and maintenance (fixed-fee) and "as needed" (time and material) services, which are outlined in Paragraphs B and C below. The site address is as follows:

Site Address:
Point of View Facility: 7301 Old Spring Dr. Lorton, VA 22079

Campus Maps and Directions are available here: https://scar.gmu.edu/retreat-facility/point-view-contact-and-directions

**1. OPERATIONS & ROUTINE MAINTENANCE (FIXED FEE) SERVICES:** The following services (Paragraphs A through N) shall be included as part of the fixed-fee (unless called out as an exclusion or separate fee):

**A. STAFFING:**

The Contractor agrees to provide qualified personnel to ensure efficient and proper operation of the wastewater treatment plant. Staffing levels will be in accordance with the current requirements of the State regulatory agencies. The Contractor personnel will be responsible for all plant process adjustments, *performance of all required VPDES and Health Department water quality analyses and documentation of all operational activities.

*During plant start up and initial low flow period, water quality analyses will be billed on a per occurrence basis due to the predicted low flow and infrequent discharge conditions present at the treatment facility.

**B. TESTING AND REPORTING:**

All test parameters will be analyzed in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater and other applicable State and Federal standards.

The contractor is to provide all on-site testing as required by the VPDES permit. On-site testing includes but is not limited to:

| | |
|---|---|
| Flow | pH |
| Dissolved Oxygen | Chlorine residuals |
| Temperature | |

The Contractor is to provide all off-site testing in accordance with the current VPDES permit. Currently, the permit-required off-site testing includes:

| | |
|---|---|
| CBOD -- (1)/month | Ammonia -- (1)/month |
| TSS -- (1)/month | E.Coli- (1)/week |
| TKN - (1)/2 weeks | N02 + N03 as Nitrogen (1)/2 weeks |
| Total Phosphorus (1)/2 weeks | |

**C. MAINTENANCE:**

The contractor shall provide routine maintenance that can be accomplished during the normal operation of the facility. These routine maintenance items are contained in the facility O&M Manual (Appendix B). Major maintenance items, those requiring specialized equipment, electronic calibration, will be performed by a separate contract. The Contractor may be requested to provide a written estimate to GMU for major maintenance items. the treatment plant discharge within the current VPDES and VDH permit limits. The contractor shall also be responsible for performing calibration and maintenance of the instruments/probes (e.g. pH meter, etc.) and the wastewater treatment plant components (e.g. flow meter, etc.).

**D. RECORDS AND DOCUMENTATION:**

The Contractor will maintain all required process, equipment, chemical inventories, and testing records on-site, as required by the regulatory agencies. All required reporting functions will be handled by the Contractor, with copies supplied to GMU. GMU shall be notified immediately upon receipt of any sampling data results received that are not in compliance with VPDES requirements to address the issue and determine necessary modification

upon Contractor input.

**E. OWNER REPRESENTATION:**
The Contractor will act as representative for GMU in matters concerning the operation and reporting for the wastewater system when requested to do so.

**F. PERMIT COMPLIANCE AND DISCLAIMER:**
The Contractor will maintain the treatment plant discharge within the current VPDES and VDH permit limits. The Contractor will not assume liability for violations of permit limits caused by equipment malfunction, power failures, hydraulic or organic overloading which exceeds the design limits of the wastewater treatment facility, or any other problems beyond the control of the Contractor.

**G. EMERGENCY RESPONSE:**
The Contractor will provide 24-hour-per-day 7-day-a-week emergency response to address system failure, alarms, and other situations. This service will be billed on a per-occurrence basis, based on the emergency response fee rate presented in the fee schedule.

**H. TECHNICAL SUPPORT SERVICES:**
The Contractor will provide GMU, under this contract proposal, non-engineering, technical assistance to resolve process, maintenance or other facility problems as related to the operation of the wastewater treatment plant**.**

**I. SLUDGE HAULING:**

The Contractor will assume responsibility for coordinating the removal of sludge from the wastewater facility. Coordination for removal of sludge from the septic tanks will be the responsibility of GMU. The provision of a disposal site, actual removal and costs incurred for hauling is the responsibility of GMU. Any laboratory analysis to determine sludge quality will be at an additional fee.

**J. ONSITE LABORATORY TEST EQUIPMENT:**
The Contractor to provide the following test equipment for onsite required effluent and process control testing:

Dissolved Oxygen Meter

pH Meter

Nitrate Meter

Ammonia Test Kit

Meter Calibration Standards

Total Phosphorus Test Kit

Sample Collection Devices

Settleometer

Miscellaneous Glassware as required

Laboratory Stir Plate

The Contractor will provide a laboratory equipment fee that will be invoiced on a monthly basis, in addition to the base operations and maintenance fee. Rates are provided in the fee schedule.

**K. PURCHASE OF PROCESS CHEMICALS AND EXPENDABLE LABORATORY SUPPLIES:**
Purchase of process chemicals, such as soda ash and Micro-C, will be the responsibility of the Contractor and will be billed separately outside of the fixed contract price. The Contractor will notify GMU in advance of the need to purchase resupply chemicals.

**L. ADDITIONAL SERVICES AND STAFFING REQUIREMENTS:**
The proposed staffing level meets the current DEQ requirement. Should this staffing requirement need to be increased at the direction of the regulatory agencies, The Contractor will provide the required increased staffing levels. Additional charges will apply based on the level and increased frequency of required site visits or other services. Fee for these additional mandated services will be based on the rates specified on the Fee Schedule

**M. SITE SAFETY:**

The Contractor reserves the right to immediately discontinue operational services in the event of unsafe conditions. Conditions include, but are not limited to, failure of the owner to properly maintain equipment, such as machinery guarding, access stairs and ladders, or other site conditions that could cause injury. In addition to mechanical/physical safety concerns, any situation involving other individuals that may attempt to interfere with or create a situation where harm to the Contractor personnel could ensue, the Contractor will immediately leave the site and report the incident to the owner. Failure to implement corrective actions by the owner may, at the sole discretion of the Contractor, result in immediate termination of the contract.

**N. EXCLUSIONS:**

The Contractor will not be responsible for grounds maintenance, including grass cutting, painting, or upkeep of the site other than inside building cleaning.

2. **TIME AND MATERIAL (T&M)/ "AS NEEDED SERVICES":** "As needed" services shall be billed as time (labor hour) and material services based on the labor rates provided. Overhead costs are to be built into the labor rates pricing. Material costs will be reimbursed according to paid invoice. The GMU CA will request a proposal for as-needed services. The Contractor must return their proposed costs/proposal within three days unless a different time of return is mutually agreed upon by the Buyer, Contract Administrator, and Contractor. Estimates shall be furnished by the Contractor at no charge. Estimates must be detailed, outlining labor costs and estimated material costs, and if applicable, any equipment rentals/ subcontractors. Estimates will cover only quoted work; unforeseen or unknown repairs will be mutually agreed upon by the Contractor and the CA. Estimates shall be valid for acceptance by the University for no less than 30 days. The following services shall be performed on an as-needed basis:

- Major maintenance items, those requiring specialized equipment, and electronic calibration.
- The purchase of expendable laboratory supplies, reagents, and process chemicals, such as soda ash and Micro-C, will be the responsibility of the Contractor and will be reimbursed in accordance with the schedule of prices, Attachment X. Usage will vary depending on flow rate, number of discharge days, etc. Receipts for purchases must be included with the invoices.
- Emergency response: The Contractor shall provide emergency services on an as-needed basis. Emergency service shall be available on a 24/7 basis, including weekends and holidays. The Contractor shall provide George Mason University an after-hours emergency contact person's name and telephone number or have a voice mail paging system or answering service. Contractors using a voice mail system or answering service in lieu of a contact person shall be required to initiate a call back to the sender within 15 – 25 minutes. The Contractor shall be capable of responding to an emergency situation within four (4) hours of notification. The responding technicians must be trained on the WWTP systems and its operations. Contractor will invoice for labor and material costs according to price schedule.

**XII.** **<u>PRICING SCHEDULE/LABOR RATES</u>**: The contractor shall provide both a fixed fee proposal for Operations and Maintenance and time and material (T&M)/Labor Rates pricing that is inclusive of all requirements listed in the Statement of Work (SOW). Fixed Fee pricing shall be inclusive of all labor, supervision, travel, insurance, materials, etc. to complete the work listed in the specifications in the SOW. A suggested pricing template is available below but Offeror's must provide a detailed pricing proposal as part of their offer.

**EXAMPLE PRICING TEMPLATE/SAMPLE – DO NOT FILL OUT**

| Description | Unit of Measure | Price |
|---|---|---|
| Per Visit Fee –<br>Including travel expenses and up to two hours on site. | Per Visit | |
| Additional Time on Site – Regular Hours<br>(Mon. – Fri. – 7:00AM – 3:00PM) | Hour | |
| Additional Time on Site – Overtime Hours<br>(Mon. – Fri. – 3:30PM – 8:00AM) | Hour | |
| Additional Time on Site – Emergency Response<br>(Weekends) | Hour | |
| Maintenance Fees outside of Base Contract Fee –<br>Scheduled – Work Day | Hour | |
| Maintenance Fees outside of Base Contract Fee –<br>Emergency Response (after hours & weekends) | Hour | |
| Maintenance Fees outside of Base Contract Fee –<br>Maintenance Helper | Hour | |
| Onsite Laboratory Equipment Rental (per month) | Month | |
| Laboratory Services Unit Pricing – CBOD | Each | |

| | | |
|---|---|---|
| Laboratory Services Unit Pricing – TSS | Each | |
| Laboratory Services Unit Pricing – NO2/NO3 | Each | |
| Laboratory Services Unit Pricing – E.Coli | Each | |
| Laboratory Services Unit Pricing – Total Phos. | Each | |
| Laboratory Services Unit Pricing – Ammonia | Each | |
| Laboratory Services Unit Pricing – TKN | Each | |
| Process Chemicals and Expendable Laboratory Supplies | Each | |

Labor Rates: The Contractor may be required to provide repairs that are not part of the routine daily operational adjustments. These types of repairs include but are not limited to overseeing the pumping of septic tanks, sludge removal (The Contractor will advise), replacing parts (belts, bearings, electrical parts, and motors, mechanical parts, etc.) specialized equipment (anything other than hand tools used for routine maintenance), electronic calibration of machinery at the option of GMU and at the labor rate quoted in the Pricing Schedule. Contractor's shall provide a comprehensive labor rate schedule/table as part of their offer.

1. Labor rates will be paid on the basis of productive time at the site.
2. The Contractor shall not accept work which will require the use of a subcontractor without obtaining the approval of the Buyer and the Contract Administrator and agreement to the payment terms for the subcontractor's services. If specialized equipment or materials are required the rental or material costs must include any operator, driver, user fees. No additional costs of any kind will be allowed.

## XIII. PROPOSAL PREPARATION AND SUBMISSION REQUIREMENTS:

A. GENERAL REQUIREMENTS:

1. RFP Response: In order to be considered, Offerors must submit a complete response to Mason's Purchasing Office prior to the due date and time stated in this RFP. Offerors are required to submit one (1) signed copy of the entire proposal including all attachments and proprietary information. If the proposal contains proprietary information, then submit two (2) proposals must be submitted; one (1) with proprietary information included and one (1) with proprietary information removed (see 2.d. below for details on how to submit a redacted proposal). The Offeror shall make no other distribution of the proposals.

At the conclusion of the RFP process proposals with proprietary information removed (redacted versions) shall be provided to requestors in accordance with Virginia's Freedom of Information Act. Offerors will not be notified of the release of this information.

An Offeror may not request any of the following be proprietary and/or confidential in their proposal:

a. Pricing or any calculation used to determine pricing;
b. A notation or footer on the bottom of every page with "proprietary and confidential;"
c. Entire contents of company history or executive summary;
d. A case study, social media post, or billboard already available to the public;
e. Name of company or firm listed as a reference;
f. Any resulting Statement of Work (SOW), Order Form, or Invoice.

ELECTRONIC PROPOSAL SUBMISSION: **ATTENTION: PROPOSALS WILL NOT BE ACCEPTED VIA EMAIL, MAIL, THROUGH eVA, OR IN PERSON. Mason will only accept electronic proposal submissions via Bonfire for this Request for Proposals.**

**The following shall apply:**

a. You must register with Bonfire and submit your proposal, and it must be received prior to the submission deadline, by submitting through the online Bonfire portal at https://gmu.bonfirehub.com.

b. The Offeror must ensure the proposals are uploaded and submitted through Bonfire sufficiently in advance of the proposal deadline. **Plan Ahead: It is the Offeror's responsibility to ensure that electronic proposal submissions have sufficient time to make its way through Bonfire's submission portal. Mason recommends you submit your proposal the day prior to the due**

**date.**

c. Submissions by other methods will not be accepted. Minimum system requirements: Microsoft Edge, Google Chrome, Safari, or Mozilla Firefox. JavaScript and browser cookies must be enabled.

d. Respondents should contact Bonfire at support@gobonfire.com for technical questions related to submission or visit Bonfire's help forum at https://vendorsupport.gobonfire.com/hc/en-us.

e. Submission materials should be prepared in the file formats listed under Requested Information for this opportunity in the Bonfire Portal. The maximum upload file size is 1000 MB. Documents should not be embedded within uploaded files, as the embedded files will not be accessible or evaluated.

f. All solicitation schedules are subject to change.

g. Go to Mason's Bonfire Portal for all updates and schedule changes. https://gmu.bonfirehub.com

h. All communication with Offerors will take place in Bonfire, to include negotiations. Mason can only message Offerors that have interacted with this specific RFP. Please ensure the appropriate person to handle negotiations and other RFP notifications has submitted the Offerors proposal in Bonfire.

2. Proposal Presentation:

a. Proposals shall be signed by an authorized representative of the Offeror. All information requested must be submitted. Failure to submit all information requested may result in your proposal being scored low.

b. Proposals should be prepared simply and economically, providing a straightforward, concise description of capabilities to satisfy the requirement of the RFP. Emphasis should be on completeness and clarity of content.

c. Proposals should be organized in the order in which the requirements are presented in the RFP. All pages of the proposal should be numbered. Each paragraph in the proposal should reference the paragraph number corresponding section of the RFP. It is also helpful to cite the paragraph number, sub letter and repeat the text of the requirement as it appears in the RFP. The proposal should contain a table of contents which cross references the RFP requirements. Information which the Offeror desires to present that does not fall within any of the requirement of the RFP should be inserted at the appropriate place or be attached at the end of the proposal and designated as additional material.

A WORD version of this RFP will be provided upon request.

d. Except as provided, once an award is announced, all proposals submitted in response to this RFP will be open to inspection by any citizen, or interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by a firm prior to or as part of its proposal will not be subject to public disclosure under the Virginia Freedom of Information Act only under the following circumstances: (1) the appropriate information is clearly identified by some distinct method such as highlighting or underlining; (2) only the specific words, figures, or paragraphs that constitute trade secrets or proprietary information are identified; and (3) a summary page is supplied immediately following the proposal title page that includes (a) the information to be protected, (b) the section(s)/page number(s) where this information is found in the proposal, and (c) a statement why protection is necessary for each section listed. A statement simply noting "trade secret" is not a sufficient reason for redaction. The firm must also provide a separate attachment of the proposal with the trade secrets and/or proprietary information redacted. *If all of these requirements are not met, then the firm's entire proposal will be available for public inspection.*
**IMPORTANT**: **A firm may not request that its entire proposal be treated as a trade secret or proprietary information, nor may a firm request that its pricing/fees be treated as a trade secret or proprietary information, or otherwise be deemed confidential. If after given a reasonable time, the Offeror refuses to withdraw the aforementioned designation, the proposal will be rejected.**

3. Oral Presentation: Offerors who submit a proposal in response to this RFP **may be** required to give an oral presentation/demonstration of their proposal/product to Mason. This will provide an opportunity for the Offeror to clarify or elaborate on their proposal. Performance during oral presentations may affect the final award decision. If required, oral presentations will be scheduled at the appropriate time.

   Mason will expect that the person or persons who will be working on the project to make the presentation so experience of the Offeror's staff can be evaluated prior to making selection. Oral presentations are an option of Mason and may or may not be conducted; therefore, it is imperative all proposals should be complete.

B. SPECIFIC REQUIREMENTS: Proposals should be as thorough and detailed as possible to allow Mason to properly evaluate the Offeror's capabilities and approach toward providing the required services. Offerors should submit the following items as a complete proposal.

1. Procedural information:

   a. Return signed cover page and all addenda, if any, signed and completed as required.
   b. Return Attachment A – Small Business Subcontracting Plan
   c. Return Attachment B - STANDARD CONTRACT.
   d. Exceptions (if any) to Mason's two-party contract, Attachment B.
   e. Any SOW or supplemental document Mason may be required to sign. See section IV. Final Contract
   f. State your payment preference as required in Bonfire. (See section XVI.)

2. Executive Summary: Submit an executive summary at the beginning of the proposal response not to exceed 2 pages.

3. Qualifications and Experience: Describe your experience, qualifications and success in providing the services described in the Statement of Needs to include the following:

   a. Background and brief history of your company.
   b. Names, qualifications and experience of personnel to be assigned to work with Mason.
   c. No fewer than three (3) references that demonstrate the Offeror's qualifications, preferably from other comparable higher education institutions your company is/has provided services with and that are similar in size and scope to that which has been described herein. Include a contact name, contact title, phone number, and email for each reference and indicate the length of service.

4. Specific Plan (Methodology): Explain your specific plans for providing the proposed services outlined in the Statement of Needs including:

   a. Your approach to providing the services described herein.
   b. What, when and how services will be performed.

5. Proposed Pricing: Provide hourly rates for all services described herein.

   Rates must include travel-related expenses if Offeror is traveling within a 50-mile radius of Mason's Fairfax campus. If Offeror is traveling from outside a 50-mile radius of the Fairfax Campus, travel will only be reimbursed in accordance with Mason's polices, http://fiscal.gmu.edu/travel/, and GSA per diem rates.

6. In your proposal response please address the following:

   a. Are you and/or your subcontractor currently involved in litigation with any party?
   b. Please list any investigation or action from any state, local, federal or other regulatory body (OSHA, IRS, DOL, etc.) related to your firm or any subcontractor in the last three years.
   c. Please list all lawsuits that involved your firm or any subcontractor in the last three years.
   d. In the past ten (10) years has your firm's name changed? If so please provide a reason for the change.

## XIV. INITIAL EVALUATION CRITERIA AND SUBSEQUENT AWARD:

A. INITIAL EVALUATION CRITERIA: Proposals shall be initially evaluated and ranked using the following criteria:

| | Description of Criteria | Maximum Point Value |
|---|---|---|
| 1. | Quality of products/services offered and suitability for the intended purpose | 25 |
| 2. | Qualifications and experiences of offeror in providing the goods/services, including references | 20 |
| 3. | Specific plans or methodology to be used to provide the services | 20 |
| 4. | Price Offered: | 25 |
| 5. | Offeror is certified as a small, minority, or women-owned business (SWaM) with Virginia SBSD at the proposal due date & time. | 10 |
| | Total Points Available: | 100 |

B. AWARD: **Following the initial scoring by the evaluation committee,** at least two or more top ranked offerors may be contacted for oral presentations/demonstrations or advanced directly to the negotiations stage. ***If oral presentations are conducted Mason will then determine, in its sole discretion, which offerors will advance to the negotiations phase.*** Negotiations shall then be conducted with each of the offerors so selected. Price shall be considered, but need not be the sole determining factor. After negotiations have been conducted with each offeror so selected, Mason shall select the offeror which, in its sole discretion has made the best proposal, and shall award the contract to that offeror. When the terms and conditions of multiple awards are so provided in the Request for Proposal, awards may be made to more than one offeror. Should Mason determine in writing and in its sole discretion that only one offeror has made the best proposal, a contract may be negotiated and awarded to that offeror. Mason is not required to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous (*Governing Rules §49.D.*).

**XV. CONTRACT ADMINISTRATION:** Upon award of the contract, Mason shall designate, in writing, the name of the Contract Administrator who shall work with the contractor in formulating mutually acceptable plans and standards for the operations of this service. The Contract Administrator shall use all powers under the contract to enforce its faithful performance. The Contract Administrator shall determine the amount, quality and acceptability of work and shall decide all other questions in connection with the work. All direction and order from Mason shall be transmitted through the Contract Administrator, or their designee(s) however, the Contract Administrator shall have no authority to approve changes which shall alter the concept or scope of the work or change the basis for compensation to the contractor.

**XVI. PAYMENT TERMS / METHOD OF PAYMENT:**

*PLEASE NOTE: THE VENDOR MUST REFERENCE THE PURCHASE ORDER NUMBER ON ALL INVOICES SUBMITTED FOR PAYMENT.*

Option #1- Payment to be mailed in 10 days-Mason will make payment to the vendor under 2%/10 Net 30 payment terms. Invoices should be submitted via email to the designated Accounts Payable email address which is acctpay@gmu.edu.

The 10-day payment period begins the first business day after receipt of proper invoice or receipt of goods, whichever occurs last. A paper check will be mailed on or before the 10th day.

Option #2- To be paid in 20 days. The vendor may opt to be paid through our Virtual Payables credit card program. The vendor shall submit an invoice and will be paid via credit card on the 20th day from receipt of a valid invoice. The vendor will incur standard credit card interchange fees through their processor. All invoices should be sent to:

George Mason University
Accounts Payable Department
4400 University Drive, Mailstop 3C1
Fairfax, VA 22030
Voice: 703.993.2580 | Fax: 703.993.2589
e-mail: AcctPay@gmu.edu

Option#3- Net 30 Payment Terms. Vendor will enroll in Paymode-X where all payments will be made electronically to the vendor's bank account. To sign up for electronic payments, please contact the Paymode-X Enrollment Team at 1-800-331-0974 or email enrollment@paymode-x.com. The enrollment team can assist you with any questions about the enrollment process and setting up the membership.

**Please state your payment preference in your proposal response.**

## XVII. SOLICITATION TERMS AND CONDITIONS:

a. ANNOUNCEMENT OF AWARD: Upon the award or the announcement of the decision to award a contract over $200,000, as a result of this solicitation, Mason will publicly post such notice on the DGS/DPS eVA web site (https://eva.virginia.gov/) for a minimum of 10 days.

b. BEST AND FINAL OFFER (BAFO): At the conclusion of negotiations, the offeror(s) may be asked to submit in writing, a best and final offer (BAFO). After the BAFO is submitted, no further negotiations shall be conducted with the offeror(s).

c. CONFLICT OF INTEREST: By submitting a proposal the contractor warrants that they have fully complied with the Virginia Conflict of Interest Act; furthermore certifying that they are not currently an employee of the Commonwealth of Virginia.

d. DEBARMENT STATUS: By submitting a proposal, offerors certify that they are not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of goods and/or services covered by this solicitation, nor are they an agent of any person or entity that is currently so debarred.

e. ETHICS IN PUBLIC CONTRACTING: By submitting a proposal, offerors certify that their proposal is made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other offeror, supplier, manufacturer or subcontractor in connection with their proposal, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

f. LATE PROPOSALS: To be considered for selection, proposals must be received in Mason's Bonfire Portal by the designated date and hour. The official time used in the receipt of proposals is the proposal due date and hour in Mason's Bonfire Portal. Proposals submitted after the due date and time has expired will not be accepted nor considered. Mason is not responsible for any delays related to Bonfire's website or vendor registration process. It is the responsibility of the offeror to ensure that their proposal is submitted by the designated date and hour.

g. MANDATORY USE OF MASON FORM AND TERMS AND CONDITIONS: Failure to submit a proposal on the official Mason form provided for that purpose may be a cause for rejection of the proposal. Modification of or additions to the General Terms and Conditions of this solicitation may be cause for rejection of the proposal; however, Mason reserves the right to decide, on a case-by-case basis, in its sole discretion, whether to reject such a proposal.

h. OBLIGATION OF OFFEROR: It is the responsibility of each offeror to inquire about and clarify any requirements of this solicitation that are not understood. Mason will not be bound by oral explanations as to the meaning of specifications or language contained in this solicitation. Therefore, all inquiries must be in writing and submitted as instructed on page 1 of this solicitation. By submitting a proposal, the offeror covenants and agrees that they have satisfied themselves, from their own investigation of the conditions to be met, that they fully understand their obligation and that they will not make any claim for, or have right to cancellation or relief from the resulting contact because of any misunderstanding or lack of information.

i. QUALIFICATIONS OF OFFERORS: Mason may make such reasonable investigations as deemed proper and necessary to determine the ability of the offeror to perform the services/furnish the goods and the offeror shall furnish to Mason all such information and data for this purpose as may be requested. Mason reserves the right to inspect the offeror's physical facilities prior to award to satisfy questions regarding the offeror's capabilities. Mason further reserves the right to reject any proposal if the evidence submitted by, or investigations of, such offeror fails to satisfy Mason that such offeror is properly qualified to carry out the obligations of the resulting contract and to provide the services and/or furnish the goods contemplated therein.

j. RFP DEBRIEFING: In accordance with §49 of the *Governing Rules* Mason is not required to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous. However, upon request we will provide a scoring/ranking summary and the award justification memo from the evaluation committee. Formal

debriefings are generally not offered.

k. TESTING AND INSPECTION: Mason reserves the right to conduct any test/inspection it may deem advisable to assure goods and services conform to the specifications.

l. MAINTENANCE MANUALS: The contractor shall provide with each piece of equipment an operations and maintenance manual with wiring diagrams, parts list, and a copy of all warranties.

m. MANDATORY PREPROPOSAL CONFERENCE & SITE WALKTHROUGH: A mandatory preproposal conference and site visit (walkthrough) will be held on **March 17, 2025 at 9:00AM** at the Point of View Facility located at 7301 Old Spring Drive, Lorton, VA 22079 **in the Library**. Directions to the Facility are available here: https://scar.gmu.edu/retreat-facility/point-view-contact- and-directions. The purpose of this conference is to allow potential offerors an opportunity to present questions and obtain clarification relative to any facet of this solicitation.

**Due to the importance of all bidders/offerors having a clear understanding of the specifications/scope of work and requirements of this solicitation, attendance at this conference and all site walkthroughs will be a prerequisite for submitting a proposal. Proposals will only be accepted from those offerors who are represented at this preproposal conference and all site walkthroughs. Attendance at the conference and these walkthroughs will be evidenced by the representative's signature on the attendance rosters. If you arrive late the walkthrough may have already begun and we will not re-visit areas or answer questions that have already been answered due to tardiness.**

There are Visitor's parking spots available at the Point of View Facility. Please meet in the Library which is where the site-walkthrough will begin.

n. OBLIGATION OF OFFEROR: It is the responsibility of each Offeror to inquire about and clarify any requirements of this solicitation that is not understood. Mason will not be bound by oral explanations as to the meaning of specifications or language contained in this solicitation. Therefore, all inquiries must be in writing and submitted as instructed on page 1 of this solicitation. By submitting a proposal, the Offeror covenants and agrees that they have satisfied themselves, from their own investigation of the conditions to be met, that they fully understand their obligation and that they will not make any claim for, or have right to cancellation or relief from this contact because of any misunderstanding or lack of information.

o. PRIME CONTRACTOR RESPONSIBILITIES: The contractor shall be responsible for completely supervising and directing the work under this contract and all subcontractors that he may utilize, using his best skill and attention. Subcontractors who perform work under this contract shall be responsible to the prime contractor. The contractor agrees that he is as fully responsible for the acts and omissions of his subcontractors and of persons employed by them as he is for the acts and omissions of his own employees.

p. RFP DEBRIEFING: In accordance with §49 of the *Governing Rules* Mason is not required to furnish a statement of the reasons why a particular proposal was not deemed to be the most advantageous. However, upon request we will provide a scoring/ranking summary and the award justification memo from the evaluation committee. Formal debriefings are generally not offered.

q. WORK SITE DAMAGES: Any damage to existing utilities, equipment or finished surfaces resulting from the performance of this contract shall be repaired to the Commonwealth's satisfaction at the contractor's expense.

**XVIII.** **RFP SCHEDULE (Subject to Change):** Go to Mason's Bonfire Portal for all updates and schedule changes. https://gmu.bonfirehub.com

**ATTACHMENT A**
**SMALL BUSINESS SUBCONTRACTING PLAN**
**TO BE COMPLETED BY OFFEROR**

Offerors must advise any portion of this contract that will be subcontracted. All potential offerors are required to include this document with their proposal in order to be considered responsive.

**Small Business:** "Small business (including micro)" means a business which holds a certification as such by the Virginia Department of Small Business and Supplier Diversity (DSBSD) on the due date and time for proposals. This shall also include DSBSD certified women- owned and minority-owned businesses and businesses with DSBSD service disabled veteran owned status when they also hold a DSBSD certification as a small business on the proposal due date. Currently, DSBSD offers small business certification and micro business designation to firms that qualify.

Certification applications are available through DSBSD online at www.SBSD.virginia.gov (Customer Service).

**Offeror Name:** _____

**Preparer Name:** _____ **Date:** _____

**Who will be doing the work: □ I plan to use subcontractors □ I plan to complete all work**

**Instructions**

A. If you are certified by the DSBSD as a micro/small business, complete Section A of this form.

B. If the "I plan to use subcontractors" box is checked, complete Section B of this form. For the proposal to be considered and the offeror to be declared responsive, the offeror shall identify the portions of the contract that will be subcontracted to any subcontractor, to include DSBSD certified small business for the initial contract period in relation to the offeror's total price for the initial contract period in Section B.

**Section A**

If your firm is certified by the DSBSD provide your certification number and the date of certification.

Certification Number: _____ Certification Date: _____

**Section B**

If the "I plan to use subcontractors" box is checked, populate the requested information below, per subcontractor to show your firm's plans for utilization of any subcontractor, to include DSBSD-certified small businesses, in the performance of this contractfor the initial contract period in relation to the offeror's total price for the initial contract period. Certified small businesses includebut are not limited to DSBSD-certified women-owned and minority-owned businesses and businesses with DSBSD service disabled veteran-owned status that have also received the DSBSD small business certification. Include plans to utilize small businesses as part of joint ventures, partnerships, subcontractors, suppliers, etc. It is important to note that these proposed participation will be incorporated into the subsequent contract and will be a requirement of the contract. Failure to obtain the proposed participation dollar value or percentages may result in breach of the contract.

**Plans for Utilization of Any subcontractor, to include DSBSD-Certified Small Businesses, for this Procurement**

**Subcontract #1**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #2**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #3**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #4**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #5**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

GEORGE MASON UNIVERSITY

Purchasing Department
4400 University Drive, MS 3C1, Fairfax, VA 22030
Phone: 703.993.2580; http://fiscal.gmu.edu/purchasing/



# ATTACHMENT B – STANDARD CONTRACT

**Note: Other documents may be incorporated into this document, either by way of attachment or by reference, but in all cases this contract document shall take precedence over all other documents and will govern the terms and conditions of the contract.**

This Contract entered on this ____ day of _____, 2025 (Effective Date) by _____ hereinafter called "Contractor" (located at _____) and George Mason University hereinafter called "Mason," "University".

**I.** **WITNESSETH** that the Contractor and Mason, in consideration of the mutual covenants, promises and agreement herein contained, agree as follows:

**II.** **SCOPE OF CONTRACT:** The Contractor shall provide for the of George Mason University as set forth in the Contract documents.

During the term of this Contract, Contractor may issue Statements of Work ("SOW") to modify the scope of the engagement or otherwise change the work to be performed under this Contract. All SOW's must be on a form approved by Mason prior to the start of this Contract. Any SOW that does not conform to the pre-approved SOW form shall be void even if approved by Mason. Additionally, the SOW shall be limited to modifications to the scope of the engagement or other changes to the work to be performed under this Contract; any other terms contained in a SOW shall be void and have no effect even if approved by Mason. Other than changes to the scope of the engagement or the work to be performed under this Contract, Contractor may not change, modify, add, supersede, or remove any term from this Contract through a SOW.

**III.** **PERIOD OF CONTRACT:** One year from the Effective Date with four (4) successive one-year renewal options. *(or as negotiated)*

**IV.** **PRICE SCHEDULE:** The pricing specified in this section represents the complete list of charges from the Contractor. Mason shall not be liable for any additional charges.

*Negotiated price schedule will be inserted here.*

**V.** **CONTRACT ADMINISTRATION:** _____ shall serve as Contract Administrator for this Contract and shall use all powers under the Contract to enforce its faithful performance. The Contract Administrator shall determine the amount, quality and acceptability of work and shall decide all other questions in connection with the work. All direction and order from Mason shall be transmitted through the Contract Administrator, however, the Contract Administrator shall have no authority to approve changes which shall alter the concept or scope or change the basis for compensation.

**VI.** **METHOD OF PAYMENT:** *As selected from RFP Payment Term Options / Method of Payment.* Contractor shall submit invoices directly to acctpay@gmu.edu and copy the Contract Administrator. Invoices must reference a Mason Purchase Order number to be considered valid. Invoices will only be accepted if submitted after services rendered or goods received. All invoice will be paid Net 30 *(or as selected in Payment Terms / Method of Payment)*, after receipt of invoice in the accounts payable email inbox.

**VII.** **THE CONTRACT DOCUMENTS SHALL CONSIST OF (In order of precedence):**

A. This signed form;
B. Negotiation Response(s) dated XXXXX (attached);
C. RFP No. GMU-XXXX-XX, in its entirety (attached);
D. Contractor's proposal dated XXXXXX (attached);
E. Contractor's Statement of Work template (attached).

**VIII.** **GOVERNING RULES:** This Contract is governed by the provisions of the Restructured Higher Education Financial and Administrative Operations Act, Chapter 10 (§ 23.1-1000 et seq.) of Title 23.1 of the Code of Virginia, and the *"Governing Rules"* and the *Purchasing Manual for Institutions of Higher Education and their Vendors.* Documents may be viewed at: https://vascupp.org.

**IX.** **CONTRACT PARTICIPATION:** It is the intent of this Contract to allow for cooperative procurement. Accordingly, any public body, public or private health or educational institutions, or affiliated corporations may access this Contract if authorized by the Contractor.

Participation in this Contract is strictly voluntary. If authorized by the Contractor, the contract will be extended to the entities indicated above to purchase goods and services in accordance with contract terms. As a separate contractual relationship, the participating entity will place its own orders directly with the Contractor and shall fully and independently administer its use of the contract to include contractual disputes, invoicing and payments without direct administration from the University. No modification of this Contract or execution of a separate agreement is required to participate; however, the participating entity and the Contractor may modify the terms and conditions of the contract to accommodate specific governing laws, regulations, policies, and business goals required by the participating entity. Any such modification will apply solely between the participating entity and the Contractor.

The University may request the Contractor provide semi-annual usage reports for all entities accessing the Contract. The University shall not be held liable for any costs or damages incurred by any other participating entity as a result of any authorization by the Contractor to extend the Contract. It is understood and agreed that the University is not responsible for the acts or omissions of any entity and will not be considered in default of the contract no matter the circumstances.

Use of this Contract does not preclude any participating entity from using other contracts or competitive processes as needed.

## X. STANDARD TERMS AND CONDITIONS:

A. APPLICABLE LAW AND CHOICE OF FORUM: This Contract shall be construed, governed, and interpreted pursuant to the laws of the Commonwealth of Virginia. All disputes arising under this Contract shall be brought before an appropriate court in the Commonwealth of Virginia.

B. ANTI-DISCRIMINATION: By entering into this Contract, Contractor certifies to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians with Disabilities Act, the Americans with Disabilities Act and §§ 9&10 of the *Governing Rules.* If Contractor is a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the Contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Governing Rules*, § 36).

In every contract over $10,000 the provisions in 1. and 2. below apply:

1. During the performance of this Contract, the Contractor agrees as follows:

   a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

   b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

   c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting these requirements.

2. The Contractor will include the provisions of 1. above in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or Contractor.

C. ANTITRUST: By entering into this Contract, the Contractor conveys, sells, assigns, and transfers to the Commonwealth of Virginia all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the Commonwealth of Virginia under this Contract.

D. ASSIGNMENT: Neither party will assign or otherwise transfer its rights or obligations under this Contract without both parties' prior written consent. Any attempted assignment, transfer, or delegation without such consent is void.

E. AUDIT: The Contractor shall retain all books, records, and other documents relative to this Contract for five (5) years after final payment, or until audited by the Commonwealth of Virginia, whichever is sooner. Mason, its authorized agents, and/or state auditors shall have full access to and the right to examine any of said materials during said period.

F. AVAILABILITY OF FUNDS: It is understood and agreed between the parties herein that Mason shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this Contract.

G. AUTHORIZED SIGNATURES: The signatory for each Party certifies that he or she is an authorized agent to sign on behalf such Party.

H. BACKGROUND CHECKS: Prior to any of Contractors employees, agents, or subcontractors (collectively "Personnel") performing services on any Mason campus, Contractor shall, at its sole expense, obtain comprehensive background checks on all Personnel. Such background checks shall include, at minimum: a review of the Personnel's records to include social security number search, local and federal criminal records (any misdemeanor convictions and/or felony convictions), the Sex Offender Registry, and the SanctionsBase+ Search or equivalent. In addition, for sensitive financial work or when operating a motor vehicle in the performance of duties for Mason, the background investigation shall include a credit report or motor vehicle check, respectively. Contractor warrants that all such Personnel have successfully passed these background checks and are qualified to perform the contracted services. Contractor shall maintain records of all background checks and make them available to Mason upon request. Mason reserves the right to deny access to its premises to any Personnel based on the results of these background checks or for any other reason at Mason's sole discretion. Contractor shall immediately remove any Personnel from Mason's premises upon Mason's request. Signature on this Contract confirms your compliance with this requirement.

I. CANCELLATION OF CONTRACT: Mason reserves the right to cancel this Contract, in part or in whole, without penalty, for any reason, upon 60 days written notice to the Contractor. Upon written notice of cancellation from Mason, Mason shall be fully released from any further obligation under the Contract and Contractor agrees to directly refund all payments, for services not already performed, to Mason, including any pre-paid deposits, within 14 days. Any contract cancellation notice shall not relieve the Contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

J. CHANGES TO THE CONTRACT: Changes can be made to this Contract in any of the following ways:

1. The parties may agree in writing to modify the scope of this Contract.

2. Mason may order changes within the general scope of Contract at any time by written notice to Contractor. Changes within the scope of this Contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. Contractor shall comply with the notice upon receipt. Contractor shall be compensated for any additional costs incurred as the result of such order and shall give Mason a credit for any savings. Said compensation shall be determined by one of the following methods:

   a. By mutual agreement between the parties in writing; or

   b. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the Mason's right to audit Contractor's records and/or to determine the correct number of units independently; or

   c. By ordering Contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the Contract. The same markup shall be used for determining a decrease in price as the result of savings realized. Contractor shall present Mason with all vouchers and records of expenses incurred and savings realized. Mason shall have the right to audit the records of Contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to Mason within thirty (30) days from the date of receipt of the written order from Mason. If the Parties fail to agree on an amount of adjustment, the question of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for resolving disputes provided by the Disputes Clause of this Contract or, if there is none, in accordance with the disputes provisions of the Commonwealth of Virginia Purchasing Manual for Institutions of Higher Education and Their Contractors. Neither the existence of a claim

nor a dispute resolution process, litigation or any other provision of this Contract shall excuse the Contractor from promptly complying with the changes ordered by Mason or with the performance of the contract generally.

K. CLAIMS: Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after final payment. However, written notice of the Contractor's intention to file a claim shall be given at the time of the occurrence or beginning of the work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pendency of claims shall not delay payment of amounts agreed due in the final payment.

1. The Contractor must submit written claim to:
Chief Procurement Officer
George Mason University
4400 University Drive, MSN 3C5
Fairfax, VA 22030

2. The Contractor must submit any unresolved claim in writing no later than 60 days after final payment to the Chief Procurement Officer.

3. Upon receiving the written claim, the Chief Procurement Officer will review the written materials relating to the claim and will mail their decision to the Contractor within 60 days after receipt of the claim.

4. The Contractor may appeal the Chief Procurement Officer's decision in accordance with §55 of the *Governing Rules.*

L. COLLECTION AND ATTORNEY'S FEES: The Contractor shall pay to Mason any reasonable attorney's fees or collection fees, at the maximum allowable rate permitted under Virginia law, incurred in enforcing this Contract or pursuing and collecting past-due amounts under this Contract.

M. COMPLIANCE: All goods and services provided to Mason shall be done so in accordance with any and all applicable local, state, federal, and international laws, regulations and/or requirements and any industry standards, including but not limited to: the Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH), Government Data Collection and Dissemination Practices Act, Gramm-Leach-Bliley Financial Modernization Act (GLB), Payment Card Industry Data Security Standards (PCI-DSS), Americans with Disabilities Act (ADA), and Federal Export Administration Regulations. Any Contractor personnel visiting Mason facilities will comply with all applicable Mason policies regarding access to, use of, and conduct within such facilities. Mason's policies can be found at https://universitypolicy.gmu.edu/all-policies/ and any facility specific policies can be obtained from the facility manager.

N. CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION: The Contractor shall ensure that personally identifiable information ("PII") which is defined as any information that by itself or when combined with other information can be connected to a specific person and may include but is not limited to personal identifiers such as name, address, phone, date of birth, Social Security number, student or personal identification numbers, driver's license numbers, state or federal identification numbers, biometric information, religious or political affiliation, non-directory information, and any other information protected by state or federal privacy laws, will be collected and held confidential and in accordance with this Contract, during and following the term of this Contract, and will not be divulged without the individual's and Mason's written consent and only in accordance with federal law or the Code of Virginia.

O. CONFLICT OF INTEREST: Contractor represents to Mason that its entering into this Contract with Mason and its performance through its agents, officers and employees does not and will not involve, contribute to nor create a conflict of interest prohibited by Virginia State and Local Government Conflict of Interests Act (Va. Code 2.2-3100 *et seq*), the Virginia Ethics in Public Contracting Act (§57 of the *Governing Rules)*, the Virginia Governmental Frauds Act (Va. Code 18.2 – 498.1 *et seq*) or any other applicable law or regulation.

P. CONTINUITY OF SERVICES:

1. The Contractor recognizes that the services under this Contract are vital to Mason and must be continued without interruption and that, upon Contract expiration, a successor, either Mason or another contractor, may continue them. The Contractor agrees:

a. To exercise its best efforts and cooperation to affect an orderly and efficient transition to a successor;
b. To make all Mason owned facilities, equipment, and data available to any successor at an appropriate time prior to the expiration of the Contract to facilitate transition to successor; and
c. That the University Procurement Officer shall have final authority to resolve disputes related to the transition of the Contract from the Contractor to its successor.

2. The Contractor shall, upon written notice from the Procurement Officer, furnish phase-in/phase-out services for up to ninety (90) days after this Contract expires and shall negotiate in good faith a plan with the successor to execute the phase-in/phase-out services. This plan shall be subject to the Procurement Officer's approval.

3. The Contractor shall be reimbursed for all reasonable, pre-approved phase-in/phase-out costs (i.e., costs incurred within the agreed period after Contract expiration that result from phase-in, phase-out operations). All phase-in/phase-out work fees must be approved by the Procurement Officer in writing prior to commencement of said work.

Q. DEBARMENT STATUS: As of the Effective Date, the Contractor certifies that it is not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of services covered by this Contract, nor is the Contractor an agent of any person or entity that is currently so debarred.

R. DEFAULT: In the case of failure to deliver goods or services in accordance with this Contract, Mason, after due oral or written notice, may procure them from other sources and hold Contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies which Mason may have.

S. DRUG-FREE WORKPLACE: Contractor has, and shall have in place during the performance of this Contract, a drug-free workplace policy (DFWP), which it provides in writing to all its employees, vendors, and subcontractors, and which specifically prohibits the following on company premises, during work-related activities, or while conducting company business: the sale, purchase, manufacture, dispensation, distribution possession, or use of any illegal drug under federal law (including marijuana). For purposes of this section, "drug-free workplace" covers all sites at which work is done by Contractor in connection with this Contract.

T. ENTIRE CONTRACT: This Contract constitutes the entire understanding of the Parties with respect to the subject matter herein and supersedes all prior oral or written contracts with respect to the subject matter herein. This Contract can be modified or amended only by a writing signed by all of the Parties.

U. EXPORT CONTROL:

1. **Munitions Items**: If the Contractor is providing any items, data or services under this order that are controlled by the Department of State, Directorate of Defense Trade Controls, International Traffic in Arms Regulations ("ITAR"), or any items, technology or software controlled under the "600 series" classifications of the Bureau of Industry and Security's Commerce Control List ("CCL") (collectively, "Munitions Items"), prior to delivery, Contractor must:

   a. notify Mason (by sending an email to export@gmu.edu), and

   b. receive written authorization for shipment from Mason's Director of Export Controls.

The notification provided by the Contractor must include the name of the Mason point of contact, identify and describe each ITAR or CCL-controlled commodity, provide the associated U.S. Munitions List (USML) category number(s) or Export Control Classification Number, and indicate whether or not the determination was reached as a result of a commodity jurisdiction determination, or self-classification process. The Contractor promises that if it fails to obtain the required written pre-authorization approval for shipment to Mason of any Munitions Item, it will reimburse Mason for any fines, legal costs and other fees imposed for any violation of export controls regarding the Munition Item that are reasonably related to the Contractor's failure to provide notice or obtain Mason's written pre-authorization.

2. **Dual-Use Items**: If the Contractor is providing any dual-use items, technology or software under this order that are listed on the CCL in a series other than a "600 series", Contractor must (i) include the Export Control Classification Number (ECCN) on the packing or other transmittal documentation traveling with the item(s)

and, (ii) send a description of the item, its ECCN, and the name of the Mason point of contact to: export@gmu.edu.

V. FORCE MAJEURE: Mason shall be excused from any and all liability for failure or delay in performance of any obligation under this Contract resulting from any cause not within the reasonable control of Mason, which includes but is not limited to acts of God, fire, flood, explosion, earthquake, or other natural forces, war, civil unrest, accident, any strike or labor disturbance, travel restrictions, acts of government, disease, pandemic, or contagion, whether such cause is similar or dissimilar to any of the foregoing. Upon written notification from Mason that such cause has occurred, Contractor agrees to directly refund all payments to Mason, for services not yet performed, including any pre-paid deposits within 14 days.

W. FUTURE GOODS AND SERVICES: Mason reserves the right to have Contractor provide additional goods and/or services that may be required by Mason during the term of this Contract. Any such goods and/or services will be provided by the Contractor under the same pricing, terms and conditions of this Contract. Such additional goods and/or services may include other products, components, accessories, subsystems or related services that are newly introduced during the term of the Contract. Such newly introduced additional goods and/or services will be provided to Mason at Favored Customer pricing, terms and conditions.

X. IMMIGRATION REFORM AND CONTROL ACT OF 1986: By entering into this Contract Contractor certifies that they do not and will not during the performance of this Contract employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986.

Y. INDEMNIFICATION: Contractor agrees to indemnify, defend and hold harmless Mason, the Commonwealth of Virginia, its officers, agents, and employees from any claims, damages and actions of any kind or nature, whether at law or in equity, arising from or caused by the use of any materials, goods, or equipment of any kind or nature furnished by the Contractor/any services of any kind or nature furnished by the Contractor, provided that such liability is not attributable to the sole negligence of Mason or to the failure of Mason to use the materials, goods, or equipment in the manner already and permanently described by the Contractor on the materials, goods or equipment delivered. Contractor understands and acknowledges that Mason has not agreed to provide any indemnification or save harmless agreements running to Contractor.

Z. INDEPENDENT CONTRACTOR: The Contractor is not an employee of Mason, but is engaged as an independent contractor. The Contractor shall indemnify and hold harmless the Commonwealth of Virginia, Mason, and its employees and agents, with respect to all withholding, Social Security, unemployment compensation and all other taxes or amounts of any kind relating to the Contractor's performance of this Contract. Nothing in this Contract shall be construed as authority for the Contractor to make commitments which will bind Mason or to otherwise act on behalf of Mason, except as Mason may expressly authorize in writing.

AA. INFORMATION TECHNOLOGY ACCESS ACT: Computer and network security is of paramount concern at Mason. Mason wants to ensure that computer/network hardware and software does not compromise the security of its IT environment. Contractor agrees to use commercially reasonable measures in connection with any offering your company makes to avoid any known threat to the security of the IT environment at Mason.

All e-learning and information technology developed, purchased, upgraded or renewed by or for the use of Mason shall comply with all applicable University policies, Federal and State laws and regulations including but not limited to Section 508 of the Rehabilitation Act (29 U.S.C. 794d), the Information Technology Access Act, §§2.2-3500 through 2.2-3504 of the Code of Virginia, as amended, and all other regulations promulgated under Title II of The Americans with Disabilities Act which are applicable to all benefits, services, programs, and activities provided by or on behalf of the University. The Contractor shall also comply with the Web Content Accessibility Guidelines (WCAG) 2.0. For more information, please visit http://ati.gmu.edu, under Policies and Procedures.

BB. INSURANCE: The Contractor shall maintain all insurance necessary with respect to the services provided to Mason. The Contractor further certifies that they will maintain the insurance coverage during the entire term of the Contract and that all insurance is to be placed with insurers with a current reasonable A.M. Best's rating authorized to sell insurance in the Commonwealth of Virginia by the Virginia State Corporation Commission. The Commonwealth of Virginia and Mason shall be named as an additional insured. By requiring such minimum insurance, Mason shall not be deemed or construed to have assessed the risk that may be applicable to the Contractor. The Contractor shall assess its own risks and, if it deems appropriate and/or prudent, maintain higher limits and/or broader coverage. The Contractor is not relieved of any liability or other obligations assumed or pursuant to this Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

1. Commercial General Liability Insurance in an amount not less than one million dollars ($1,000,000) per

occurrence for bodily injury or property damage, personal injury and advertising injury, products and completed operations coverage;

2. Workers Compensation Insurance in an amount not less than that prescribed by statutory limits; and, as applicable;

3. Commercial Automobile Liability Insurance applicable to bodily injury and property damage, covering owned, non-owned, leased, and hired vehicles in an amount not less than one million dollars ($1,000,000) per occurrence; and

4. An umbrella/excess policy in an amount not less than five million dollars ($5,000,000) to apply over and above Commercial General Liability, Employer's Liability, and Commercial Automobile Liability Insurance.

CC. INTELLECTUAL PROPERTY: Contractor warrants and represents that it will not violate or infringe any intellectual property right or any other personal or proprietary right and shall indemnify and hold harmless Mason against any claim of infringement of intellectual property rights which may arise under this Contract.

1. Unless expressly agreed to the contrary in writing, all goods, products, materials, documents, reports, writings, video images, photographs or papers of any nature including software or computer images prepared or provided by Contractor (or its subcontractors) for Mason will not be disclosed to any other person or entity without the written permission of Mason.

2. Work Made for Hire. Contractor warrants to Mason that Mason will own all rights, title and interest in any and all intellectual property rights created in the performance or otherwise arising from the Contract and will have full ownership and beneficial use thereof, free and clear of claims of any nature by any third party including, without limitation, copyright or patent infringement claims. Contractor agrees to assign and hereby assigns all rights, title, and interest in any and all intellectual property created in the performance or otherwise arising from the Contract, and will execute any future assignments or other documents needed for Mason to document, register, or otherwise perfect such rights. Notwithstanding the foregoing, for research collaboration pursuant to subcontracts under sponsored research contracts administered by the University's Office of Sponsored Programs, intellectual property rights will be governed by the terms of the grant or contract to Mason to the extent such grant or contract requires intellectual property terms to apply to subcontractors.

DD. NON-DISCRIMINATION: All parties to this Contract agree to not discriminate on the basis of race, color, religion, national origin, sex, pregnancy, childbirth or related medical conditions, age (except where sex or age is a bona fide occupational qualification, marital status or disability).

EE. NON-EXCLUSIVITY: Nothing herein is intended nor shall be construed as creating any exclusive arrangement with Contractor. This Contract will not restrict or prohibit Mason from acquiring the same or similar goods and/or services from other entities or sources.

FF. PAYMENT TO SUBCONTRACTORS: The Contractor shall take the following actions upon receiving payment from Mason: (1) pay the subcontractor within seven days for the proportionate share of the total payment received from Mason attributable to the work performed by the subcontractor under that Contract; or (2) notify Mason and subcontractor within seven days, in writing, of its intention to withhold all or a part of the subcontractor's payment with the reason for non-payment. The Contractor shall collect the appropriate Tax Identification Number (Either SSN# or EIN#) based on the entity type of the subcontractor. The Contractor shall pay interest to subcontractors on all amounts owed by the Contractor that remain unpaid after seven days following receipt by the Contractor of payment from Mason for work performed by the subcontractor under that contract, except for amounts withheld as allowed by prior notification. Unless otherwise provided under the terms of this Contract, interest shall accrue to subcontractors at the rate of one percent per month. The Contractor shall include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower-tier subcontractor. A contractor's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of Mason. A contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

GG. PUBLICITY: Contractor shall not use, in its external advertising, marketing programs, or promotional efforts, any data, name, insignia, trademarks, pictures or other representation of the University or its employees except on the specific written authorization in advance by the University. The University must receive all requests for authorization

in writing no later than ten (10) days in advance of the use date.

HH. REMEDIES: If the Contractor breaches this Contract, in addition to any other rights or remedies, Mason may terminate this Contract without prior notice.

II. RENEWAL OF CONTRACT: This Contract may be renewed by Mason for four (4) successive one-year renewal options under the terms and conditions of this Contract except as stated in 1. and 2. below. Price increases may be negotiated only at the time of renewal. Written notice of the University's intention to renew shall be given approximately 90 days prior to the expiration date of each contract period.

1. If the University elects to exercise the option to renew the Contract for an additional one-year period, the Contract price(s) for the additional one year shall not exceed the Contract price(s) of the original Contract increased/decreased by more than the percentage increase/decrease of the "other goods and services" category of the CPI-U section of the Consumer Price Index of the United States Bureau of Labor Statistics for the latest twelve months for which statistics are available or 2%, whichever is lower.

2. If during any subsequent renewal periods, the University elects to exercise the option to renew the Contract, the Contract price(s) for the subsequent renewal period shall not exceed the Contract price(s) of the previous renewal period increased/decreased by more than the percentage increase/decrease of the "other goods and services" category of the CPI-U section of the Consumer Price Index of the United States bureau of Labor Statistics for the latest twelve months for which statistics are available, or 2%, whichever is lower.

JJ. REPORTING OF CRIMES, ACCIDENTS, FIRES AND OTHER EMERGENCIES: Any Mason Employee, including contracted service providers, who is not a staff member in Counseling and Psychological Services (CAPS) or a pastoral counselor, functioning within the scope of that recognition, is considered a "Campus Security Authority (CSA)." CSAs must promptly report all crimes and other emergencies occurring on or near property owned or controlled by Mason to the Department of Police & Public Safety or local police and fire authorities by dialing 9-1-1. At the request of a victim or survivor, identifying information may be excluded from a report (e.g., names, initials, contact information, etc.). Please visit the following website for more information and training: http://police.gmu.edu/clery-act-reporting/campus-security-authority-csa/."

KK. RESPONSE TO LEGAL ORDERS, DEMANDS, OR REQUESTS FOR DATA: Except as otherwise expressly prohibited by law, Contractor will: i) immediately notify Mason of any subpoenas, warrants, or other legal orders, demands or requests received by Contractor seeking University Data; ii) consult with Mason regarding its response; iii) cooperate with Mason's reasonable requests in connection with efforts by Mason to intervene and quash or modify the legal order, demand or request; and iv) upon Mason's request, provide Mason with a copy of its response.

If Mason receives a subpoena, warrant, or other legal order, demand (including request pursuant to the Virginia Freedom of Information Act) or request seeking University Data maintained by Contractor, Mason will promptly provide a copy to Contractor. Contractor will promptly supply Mason with copies of data required for Mason to respond, and will cooperate with Mason's reasonable requests in connection with its response.

LL. SEVERABILITY: Should any portion of this Contract be declared invalid or unenforceable for any reason, such portion is deemed severable from the Contract and the remainder of this Contract shall remain fully valid and enforceable.

MM. SOVEREIGN IMMUNITY: Nothing in this Contract shall be deemed a waiver of the sovereign immunity of the Commonwealth of Virginia and of Mason.

NN. SUBCONTRACTS: No portion of the work shall be subcontracted without prior written consent from Mason. In the event that the Contractor desires to subcontract some part of the work specified herein, the Contractor shall furnish Mason the names, qualifications and experience of their proposed subcontractors. The Contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of this Contract. This paragraph applies to, but is not limited to, subcontractor(s) who process University Data.

OO. SWaM CERTIFICATION: Contractor agrees to fully support the Commonwealth of Virginia and Mason's efforts related to SWaM goals. Upon contract execution, Contractor (as determined by Mason and the Virginia Department of Small Business and Supplier Diversity) shall submit all required documents necessary to achieve SWaM certification to the Department of Small Business and Supplier Diversity within 90 days. If Contractor is currently SWaM certified, Contractor agrees to maintain their certification for the duration of the Contract and shall submit all

required renewal documentation at least 30 days prior to existing SWaM expiration at https://www.sbsd.virginia.gov/.

PP. UNIVERSITY DATA: University Data includes all Mason owned, controlled, or collected PII and any other information that is not intentionally made available by Mason on public websites, including but not limited to business, administrative and financial data, intellectual property, and patient, student and personnel data. Contractor agrees to the following regarding University Data it may collect or process as part of this Contract:

1. Contractor will use University Data only for the purpose of fulfilling its duties under the Contract and will not share such data with or disclose it to any third party without the prior written consent of Mason, except as required by the Contract or as otherwise required by law. University Data will only be processed by Contractor to the extent necessary to fulfill its responsibilities under the Contract or as otherwise directed by Mason.

2. University Data, including any back-ups, will not be accessed, stored, or transferred outside the United States without prior written consent from Mason. Contractor will provide access to University Data only to its employees and subcontractors who need to access the data to fulfill Contractor's obligations under the Contract. Contractor will ensure that employees who perform work under the Contract have read, understood, and received appropriate instruction as to how to comply with the data protection provisions of the Contract and to maintain the confidentiality of the University Data.

3. The parties agree that as between them, all rights including all intellectual property rights in and to University Data shall remain the exclusive property of Mason, and Contractor has a limited, nonexclusive license to use the University Data as provided in the Contract solely for the purpose of performing its obligations under the Contract. The Contract does not give a party any rights, implied or otherwise, to the other party's data, content, or intellectual property, except as expressly stated in the Contract.

4. Contractor will take reasonable measures, including audit trails, to protect University Data against deterioration or degradation of data quality and authenticity. Contractor shall be responsible for ensuring that University Data, per the Virginia Public Records Act, is preserved, maintained, and accessible throughout their lifecycle, including converting and migrating electronic data as often as necessary so that information is not lost due to hardware, software, or media obsolescence or deterioration.

5. Contractor shall notify Mason within three business days if it receives a request from an individual under any applicable law regarding PII about the individual, including but not limited to a request to view, access, delete, correct, or amend the information. Contractor shall not take any action regarding such a request except as directed by Mason.

6. If Contractor will have access to University Data that includes "education records" as defined under the Family Educational Rights and Privacy Act (FERPA), the Contractor acknowledges that for the purposes of the Contract it will be designated as a "school official" with "legitimate educational interests" in the University education records, as those terms have been defined under FERPA and its implementing regulations, and the Contractor agrees to abide by the limitations and requirements imposed on school officials. Contractor will use the education records only for the purpose of fulfilling its duties under the Contract for Mason's and its end user's benefit, and will not share such data with or disclose it to any third party except as provided for in the Contract, required by law, or authorized in writing by the University.

QQ. UNIVERSITY DATA SECURITY: Data security is of paramount concern to Mason. Contractor will utilize, store and process University Data in a secure environment in accordance with commercial best practices, including appropriate administrative, physical, and technical safeguards, to secure such data from unauthorized access, disclosure, alteration, and use. Such measures will be no less protective than those used to secure Contractor's own data of a similar type, and in no event less than reasonable in view of the type and nature of the data involved. At a minimum, Contractor shall use industry-standard and up-to-date security tools and technologies such as anti-virus protections and intrusion detection methods to protect University Data.

1. Immediately upon becoming aware of circumstances that could have resulted in unauthorized access to or disclosure or use of University Data, Contractor will notify Mason, fully investigate the incident, and cooperate fully with Mason's investigation of and response to and remediation of the incident. Except as otherwise required by law, Contractor will not provide notice of the incident directly to individuals who's PII was involved, regulatory agencies, or other entities, without prior written permission from Mason.

2. Mason reserves the right in its sole discretion to perform audits of Contactor, at Mason's expense, to ensure compliance with all obligations regarding University Data. Contractor shall reasonably cooperate in the

performance of such audits. Contractor will make available to Mason all information necessary to demonstrate compliance with its data processing obligations. Failure to adequately protect University Data or comply with the terms of this Contract with regard to University Data may be grounds to terminate this Contract.

RR. UNIVERSITY DATA UPON TERMINATION OR EXPIRATION: Upon termination or expiration of the Contract, Contractor will ensure that all University Data are securely returned or destroyed as directed by Mason in its sole discretion within 180 days of the request being made. Transfer to Mason or a third party designated by Mason shall occur within a reasonable period of time, and without significant interruption in service. Contractor shall ensure that such transfer/migration uses facilities and methods that are compatible with the relevant systems of Mason or its transferee, and to the extent technologically feasible, that Mason will have reasonable access to University Data during the transition. In the event that Mason requests destruction of its data, Contractor agrees to destroy all data in its possession and in the possession of any subcontractors or agents to which the Contractor might have transferred University Data. Contractor agrees to provide documentation of data destruction to the University.

Contractor will notify the University of any impending cessation of its business and any contingency plans. This includes immediate transfer of any previously escrowed assets and University Data and providing Mason access to Contractor's facilities to remove and destroy Mason-owned assets and University Data. Contractor shall implement its exit plan and take all necessary actions to ensure a smooth transition of service with minimal disruption to Mason. Contractor will also provide a full inventory and configuration of servers, routers, other hardware, and software involved in service delivery along with supporting documentation, indicating which if any of these are owned by or dedicated to Mason. Contractor will work closely with its successor to ensure a successful transition to the new equipment, with minimal downtime and effect on Mason, all such work to be coordinated and performed in advance of the formal, final transition date.

SS. UNIVERSITY REVIEW/APPROVAL: All goods, services, products, design, etc. produced by the Contractor for or on behalf of Mason are subject to Mason's review and approval.

TT. WAIVER: The failure of a party to enforce any provision in this Contract shall not be deemed to be a waiver of such right.

| **Contractor Name** | **George Mason University** |
|---|---|
| _____ | _____ |
| Signature | Signature |
| Name: _____ | Name: _____ |
| Title: _____ | Title: _____ |
| Date: _____ | Date: _____ |

FACILITY NAME: Point of View WWTP VPDES PERMIT NUMBER: VA0090221

# VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

## SCREENING INFORMATION

This application is divided into sections. Sections A pertain to all applicants. The applicability of Sections B, C and D depend on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

1. All applicants must complete Section A (General Information).

2. Will this facility generate sewage sludge? ✓ Yes _No

   Will this facility derive a material from sewage sludge? _Yes ✓ No

   If you answered Yes to either, complete Section B (Generation Of Sewage Sludge Or Preparation Of A Material Derived From Sewage Sludge).

3. Will this facility apply sewage sludge to the land? _Yes ✓ No

   Will sewage sludge from this facility be applied to the land? _Yes ✓ No

   If you answered No to both questions above, skip Section C.

   If you answered Yes to either, answer the following three questions:

   a. Will the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions?
   _Yes _No

   b. Will sewage sludge from this facility be placed in a bag or other container for sale or give-away for application to the land? _Yes _No

   c. Will sewage sludge from this facility be sent to another facility for treatment or blending? _Yes _No

   If you answered No to all three, complete Section C (Land Application Of Bulk Sewage Sludge).

   If you answered Yes to a, b or c, skip Section C.

4. Do you own or operate a surface disposal site? _Yes ✓ No

   If Yes, complete Section D (Surface Disposal).

## SECTION A. GENERAL INFORMATION

**All applicants must complete this section.**

1. Facility Information.
   a. Facility name: Point of View WWTP
   b. Contact person: Thomas G. Calhoun
      Title: Vice President, George Mason University
      Phone: ( 703 ) 993-9467
   c. Mailing address:
      Street or P.O. Box: 4400 University Dr., MS 1E4
      City or Town: Fairfax State: VA Zip: 22030
   d. Facility location:
      Street or Route #: End of Route 601, Belmont Blvd
      County: Fairfax
      City or Town: Lorton State: VA Zip: 22079
   e. Is this facility a Class I sludge management facility? ___Yes ✓ No
   f. Facility design flow rate: 0.005 mgd
   g. Total population served: 100 (estimated)
   h. Indicate the type of facility:
      ✓ Publicly owned treatment works (POTW)
      ___ Privately owned treatment works
      ___ Federally owned treatment works
      ___ Blending or treatment operation
      ___ Surface disposal site
      ___ Other (describe):

2. Applicant Information. If the applicant is different from the above, provide the following:
   a. Applicant name:
   b. Mailing address:
      Street or P.O. Box:
      City or Town: _____ State: _____ Zip:
   c. Contact person:
      Title:
      Phone: ( )
   d. Is the applicant the owner or operator (or both) of this facility?
      ✓ owner _____ operator
   e. Should correspondence regarding this permit be directed to the facility or the applicant? (Check one)
      _____ facility ✓ applicant

3. Permit Information.
   a. Facility's VPDES permit number (if applicable): VA0090221
   b. List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices:

| Permit Number: | Type of Permit: |
|---|---|
| | |
| | |

4. Indian Country. Does any generation, treatment, storage, application to land or disposal of sewage sludge from this facility occur in Indian Country? ___Yes ✓ No If yes, describe:

5. Topographic Map. Provide a topographic map or maps (or other appropriate maps if a topographic map is unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility:
   a. Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.
   b. Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.

6. Line Drawing. Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction.

7. Contractor Information. Are any operational or maintenance aspects of this facility related to sewage sludge generation, treatment, use or disposal the responsibility of a contractor? __Yes __No
If yes, provide the following for each contractor (attach additional pages if necessary).
Name: TBD
Mailing address:
Street or P.O. Box:
City or Town: _____ State: _____ Zip:
Phone: ( )
Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

8. Pollutant Concentrations. Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old.

| POLLUTANT | CONCENTRATION (mg/kg dry weight) | SAMPLE DATE | ANALYTICAL METHOD | DETECTION LEVEL FOR ANALYSIS |
|---|---|---|---|---|
| Arsenic | | | | |
| Cadmium | | | | |
| Chromium | | | | |
| Copper | | | | |
| Lead | | | | |
| Mercury | | | | |
| Molybdenum | | | | |
| Nickel | | | | |
| Selenium | | | | |
| Zinc | | | | |

9. Certification. Read and submit the following certification statement with this application. Refer to the instructions to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:

____Section A (General Information)
____Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)
____Section C (Land Application of Bulk Sewage Sludge)
____Section D (Surface Disposal)

**FACILITY NAME:** Point of View WWTP **VPDES PERMIT NUMBER:** VA0090221

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Thomas G. Calhoun, Vice President

Signature Thomas G. Calhoun Date Signed 7/21/2015

Telephone number 703-993-9467

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

FACILITY NAME: Point of View WWTP VPDES PERMIT NUMBER: VA0090221

## SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION OF A MATERIAL DERIVED FROM SEWAGE SLUDGE

**Complete this section if your facility generates sewage sludge or derives a material from sewage sludge**

1. Amount Generated On Site.
   Total dry metric tons per 365-day period generated at your facility: 3.1 dry metric tons

2. Amount Received from Off Site. If your facility receives sewage sludge from another facility for treatment, use or disposal, provide the following information for each facility from which sewage sludge is received. If you receive sewage sludge from more than one facility, attach additional pages as necessary.
   a. Facility name: N/A
   b. Contact Person:
      Title:
      Phone ( )
   c. Mailing address:
      Street or P.O. Box:
      City or Town: _____ State: _____ Zip:
   d. Facility Address:
      (not P.O. Box)
   e. Total dry metric tons per 365-day period received from this facility: _____ dry metric tons
   f. Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics:

3. Treatment Provided at Your Facility.
   a. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
      __Class A __Class B ✓ Neither or unknown
   b. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge:

   c. Which vector attraction reduction option is met for the sewage sludge at your facility?
      ✓ Option 1 (Minimum 38 percent reduction in volatile solids)
      __ Option 2 (Anaerobic process, with bench-scale demonstration)
      ✓ Option 3 (Aerobic process, with bench-scale demonstration)
      __ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
      __ Option 5 (Aerobic processes plus raised temperature)
      __ Option 6 (Raise pH to 12 and retain at 11.5)
      __ Option 7 (75 percent solids with no unstabilized solids)
      __ Option 8 (90 percent solids with unstabilized solids)
      __ None or unknown
   d. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce vector attraction properties of sewage sludge:

   e. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities, including blending, not identified in a - d above:

4. Preparation of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements and One of Vector Attraction Reduction Options 1-8 (EQ Sludge).
   **(If sewage sludge from your facility does not meet all of these criteria, skip Question 4.)**
   a. Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the land:
      0 dry metric tons
   b. Is sewage sludge subject to this section placed in bags or other containers for sale or give-away?
      __Yes ✓ No

5. Sale or Give-Away in a Bag or Other Container for Application to the Land. N/A

**(Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)**

a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application to the land:_____ dry metric tons

b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.

6. Shipment Off Site for Treatment or Blending.

**(Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)**

a. Receiving facility name: TBD

b. Facility contact:
Title:
Phone: ( )

c. Mailing address:
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility: _____ dry metric tons

e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:

| Permit Number: | Type of Permit: |
|---|---|
| _____ | |
| _____ | |

f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility? ___Yes ___No
Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?
___Class A ___Class B ___Neither or unknown
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge:

g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? ___Yes ___No
Which vector attraction reduction option is met for the sewage sludge at the receiving facility?
___ Option 1 (Minimum 38 percent reduction in volatile solids)
___ Option 2 (Anaerobic process, with bench-scale demonstration)
___ Option 3 (Aerobic process, with bench-scale demonstration)
___ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
___ Option 5 (Aerobic processes plus raised temperature)
___ Option 6 (Raise pH to 12 and retain at 11.5)
___ Option 7 (75 percent solids with no unstabilized solids)
___ Option 8 (90 percent solids with unstabilized solids)
___ None unknown
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge:

h. Does the receiving facility provide any additional treatment or blending not identified in f or g above?
___Yes ___No
If yes, describe, on this form or another sheet of paper, the treatment processes not identified in f or g above:

i. If you answered yes to f., g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.

j Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land? __Yes __No
If yes, provide a copy of all labels or notices that accompany the product being sold or given away.

k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? ___ Yes ___ No. If no, provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.
Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported.

7. Land Application of Bulk Sewage Sludge. N/A

**(Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6; complete Question 7.b, c & d only if you are responsible for land application of sewage sludge.)**

a. Total dry metric tons per 365-day period of sewage sludge applied to all land application sites:_____dry metric tons

b. Do you identify all land application sites in Section C of this application? __Yes __No
If no, submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).

c. Are any land application sites located in States other than Virginia? __Yes __No
If yes, describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.

d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).

8. Surface Disposal. N/A

**(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)**

a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: _____ dry metric tons

b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?
__Yes __No
If no, answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.

c. Site name or number:

d. Contact person:
Title:
Phone: ( )
Contact is: __Site Owner __Site operator

e. Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site: _____ dry metric tons

g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:

| Permit Number: | Type of Permit: |
|---|---|
| _____ | |
| _____ | |

9. Incineration. N/A

**(Complete Question 9 if sewage sludge from your facility is fired in a sewage sludge incinerator.)**

a. Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge

incinerator: _____ dry metric tons

b. Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired?
___Yes ___No
If no, answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.

c. Incinerator name or number:

d. Contact person:
Title:
Phone: ( )
Contact is: ___Incinerator Owner ___Incinerator Operator

e. Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

f. Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge incinerator: _____ dry metric tons

g. List on this form or an attachment the numbers of all other federal, state or local permits that regulate the firing of sewage sludge at this incinerator:
Permit Number: Type of Permit:
_____
_____

10. Disposal in a Municipal Solid Waste Landfill. N/A

**(Complete Question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for each municipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.)**

a. Landfill name:

b. Contact person:
Title:
Phone: ( )
Contact is: ___Landfill Owner ___Landfill Operator

c. Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

d. Landfill location.
Street or Route #:
County:
City or Town: _____ State:_____ Zip:

e. Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill:
_____ dry metric tons

f. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the operation of this municipal solid waste landfill:
Permit Number: Type of Permit:
_____
_____

g. Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill?
___Yes ___No

h. Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.? ___Yes ___No

i. Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill be watertight and covered? ___ Yes ___ No
Show the haul route(s) on a location map or briefly describe the route below and indicate the days of the week and time of the day sewage sludge will be transported.

## SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE

**Complete this section for sewage sludge that is land applied unless any of the following conditions apply:**
**The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-8 (fill out B.4 instead) (EQ Sludge); or**
**The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or**
**You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).**
**Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.**

1. Identification of Land Application Site. N/A
   a. Site name or number:
   b. Site location (Complete i and ii)
      i. Street or Route#:
      County:
      City or Town: _____ State: _____ Zip:
      ii. Latitude:_____ Longitude:
      Method of latitude/longitude determination
      _____ USGS map _____ Filed survey _____ Other
   c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.

2. Owner Information.
   a. Are you the owner of this land application site? ___Yes ___No
   b. If no, provide the following information about the owner:
      Name:
      Street or P.O. Box:
      City or Town: _____ State:_____ Zip:
      Phone: ( )

3. Applier Information:
   a. Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site? ___Yes ___No
   b. If no, provide the following information for the person who applies the sewage sludge:
      Name:
      Street or P.O. Box:
      City or Town:_____ State:_____ Zip:
      Phone: ( )
   c. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the person who applies sewage sludge to this land application site:
      Permit Number: Type of Permit:
      _____
      _____

4. Site Type. Identify the type of land application site from among the following:
   ___Agricultural land ___Reclamation site ___Forest
   ___Public contact site ___Other. Describe

5. Vector Attraction Reduction.
   Are any vector attraction reduction requirements met when sewage sludge is applied to the land application site?
   ____Yes ____No If yes, answer a and b.
   a. Indicate which vector attraction reduction option is met:
      ___ Option 9 (Injection below land surface)
      ___ Option 10 (Incorporation into soil within 6 hours)
   b. Describe, on this form or on another sheet of paper, any treatment processes used at the land application site to reduce the vector attraction properties of sewage sludge:

6. Cumulative Loadings and Remaining Allotments.

**(Complete Question 6 only if the sewage sludge applied to this site since July 20, 1993 is subject to the cumulative pollutant loading rates (CPLRs) - see instructions.)**

a. Have you contacted DEQ or the permitting authority in the state where the sewage sludge subject to the CPLRs will be applied to ascertain whether bulk sewage sludge subject to the CPLRs has been applied to this site since July 20, 1993? __Yes __No
If no, sewage sludge subject to the CPLRs may not be applied to this site.
If yes, provide the following information:
Permitting authority:
Contact person:
Phone:( )

b. Based upon this inquiry, has bulk sewage sludge subject to the CPLRs been applied to this site since July 20, 1993? __Yes __No If no, skip the rest of Question 6. If yes, answer questions c - e.

c. Site size, in hectares: _____ (one hectare = 2.471 acres)

d. Provide the following information for every facility other than yours that is sending or has sent sewage sludge subject to the CPLRs to this site since July 20, 1993. If more than one such facility sends sewage sludge to this site, attach additional pages as necessary.
Facility name:
Facility contact:
Title:
Phone: ( )
Mailing address.
Street or P.O. Box:
City or Town:_____ State:_____ Zip:

e. Provide the total loading and allotment remaining, in kg/hectare, for each of the following pollutants:

| | Cumulative loading | Allotment remaining |
|---|---|---|
| Arsenic | _____ | |
| Cadmium | _____ | |
| Copper | _____ | |
| Lead | _____ | |
| Mercury | _____ | |
| Nickel | _____ | |
| Selenium | _____ | |
| Zinc | _____ | |

**Complete Questions 7-12 below only if you apply sewage sludge, or you are responsible for land application of sewage sludge. Information required by these questions may be prepared as attachments to this form. Skip the following questions if you contract land application to someone else (as indicated under Section A.7) who is responsible for the operation.**

7. Sludge Characterization. Use the table below or a separate attachment, provide at least one analysis for each parameter.

PCBs (mg/kg)
pH (S. U.)
Percent Solids (%)
Ammonium Nitrogen (mg/kg)
Nitrate Nitrogen (mg/kg)
Total Kjeldahl Nitrogen (mg/kg)
Total Phosphorus (mg/kg)
Total Potassium (mg/kg)
Alkalinity as $CaCO_3$* (mg/kg)

* Lime treated sludge (10% or more lime by dry weight) should be analyzed for percent $CaCO_3$.

8. Storage Requirements.
Existing and proposed sludge storage facilities must provide an estimated annual sludge balance on a monthly basis incorporating such factors as storage capacity, sludge production and land application schedule. Include pertinent calculations justifying storage requirements.
Proposed sludge storage facilities must also provide the following information:

a. A sludge storage site layout on a 7.5 minute topographic quadrangle or other appropriate scaled map to show the following topographic features of the surrounding landscape to a distance of 0.25 mile. Clearly mark the property line.
   1) Water wells, abandoned or operating
   2) Surface waters
   3) Springs
   4) Public water supply(s)
   5) Sinkholes
   6) Underground and/or surface mines
   7) Mine pool (or other) surface water discharge points
   8) Mining spoil piles and mine dumps
   9) Quarry(s)
   10) Sand and gravel pits
   11) Gas and oil wells
   12) Diversion ditch(s)
   13) Agricultural drainage ditch(s)
   14) Occupied dwellings, including industrial and commercial establishments
   15) Landfills or dumps
   16) Other unlined impoundments
   17) Septic tanks and drainfields
   18) Injection wells
   19) Rock outcrops

b. A topographic map of sufficient detail to clearly show the following information:
   1) Maximum and minimum percent slopes
   2) Depressions on the site that may collect water
   3) Drainageways that may attribute to rainfall run-on to or runoff from this site
   4) Portions of the site (if any) which are located with the 100-year floodplain and how the storage facility will be protected from flooding

c. Data and specifications for the storage facility lining material.

d. Plan and cross-sectional views of the storage facility.

e. Depth from the bottom of the storage facility to the seasonal high water table and separation distance to the permanent water table.

9. Land Area Requirements. Provide calculations justifying the land area requirements for land application of sewage sludge taking into consideration average soil productivity group, crop(s) to be grown and most limiting factor(s) of the sewage sludge, specifically Plant Available Nitrogen (PAN), Calcium Carbonate Equivalence (CCE), and metal loadings (CPLR sewage sludge only), where applicable. Relate PAN, CCE, and metal loadings to demonstrate the most limiting factor for land application.

10. Landowner Agreement Forms. Provide a properly completed **Land Application Agreement – Biosolids** Form and necessary attachments (attached at end of VPDES Sewage Sludge Permit Application Form) for each landowner if sewage sludge is to be applied onto land not owned by the applicant.

11. Ground Water Monitoring.
Are any ground water monitoring data available for this land application site? __Yes __No
If yes, submit the ground water monitoring data with this permit application. Also submit a written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

12. Land Application Site Information.
**(Complete Items a-d for sites receiving infrequent application - land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period; complete Items a-h for sites receiving frequent application - land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period)**

a. Provide a general location map for each county which clearly indicates the location of all the land application sites.

b. For each land application site provide a site plan of sufficient detail to clearly show the concerned landscape features and associated buffer zones (See instructions). Provide a legend for each landscape feature and the net acreage for each field taking into account the proposed buffer zones.

c. In order to ensure that land application of bulk sewage sludge will not impact federally listed threatened or endangered species or federally designated critical habitat, the applicant must notify the field office of the U. S. Department of the Interior, Fish and Wildlife Service (FWS), by a letter, the proposed land application activities with the identification of the land application sites. The address and phone number of FWS are provided below.

U. S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
TEL: (804)693-6694

Provide a copy of the notification letter with this application form.

d. Provide a soil survey map, preferably photographically based, with the field boundaries clearly marked. (A USDA-SCS soil survey map should be provided, if available.)
Provide a detailed legend for each soil survey map which uses accepted USDA-SCS descriptions of the typifying pedon for each soil series (soil type). Complex associations may be described as a range of characteristics. Soil descriptions shall include as a minimum the following information.

1) Soil symbol
2) Soil series, textural phase and slope range
3) Depth to seasonal high water table
4) Depth to bedrock
5) Estimated soil productivity group (for the proposed crop rotation)

**Item e - h are required for sites receiving frequent application of sewage sludge**

e. In order to verify the information provided in item d, characterize the soil at each land application site. Representative soil borings or test pits to a depth of five feet or to bedrock if shallower, are to be coordinated for the typifying pedon of each soil series (soil type). Soil descriptions shall include as a minimum the following information:

1). Soil symbol
2). Soil series, textural phase and slope range
3). Depth to seasonal high water table
4). Depth to bedrock
5). Estimated soil productivity group (for the proposed crop rotation)

f. Collect and analyze soil samples from each field, weighted to best represent each of the soil borings performed for Item e. Using the table below or a separate attachment, provide at least one analysis per sample for each of the following parameters.

Soil Organic Matter (%)
Soil pH (std. units)
Cation Exchange Capacity (meq/100g)
Total Nitrogen (ppm)
Organic Nitrogen (ppm)
Ammonia Nitrogen (ppm)
Nitrate Nitrogen (ppm)
Available Phosphorus (ppm)
Exchangeable Potassium (mg/100g)
Exchangeable Sodium (mg/100g)
Exchangeable Calcium (mg/100g)
Exchangeable Magnesium (mg/100g)
Arsenic (ppm)
Cadmium (ppm)
Copper (ppm)
Lead (ppm)
Mercury (ppm)
Molybdenum (ppm)
Nickel (ppm)
Selenium (ppm)
Zinc (ppm)
Manganese (ppm)
Particle Size Analysis or
USDA Textural Estimate (%)

g. Relate the crop nutrient needs to anticipated yields, soil productivity rating and the various fertilizer or nutrient sources from sludge and chemical fertilizers. Describe any specialized agronomic management practices which may be required as a result of high soil pH. If the sludge is expected to possess an unusually high CCE or other unusual properties, provide a description of any plant tissue testing, supplemental fertilization or intensive agronomic management practices which may be necessary.

h. Using a narrative format and referencing any related charts, describe the proposed cropping system. Show how the crop rotation and management will be coordinated with the design of the land application system. Include any supplemental fertilization program, soil testing and the coordination of tillage practices, planting and harvesting schedules and timing of land application.

FACILITY NAME:_____ VPDES PERMIT NUMBER:

## SECTION D. SURFACE DISPOSAL

**Complete this section only if you own or operate a surface disposal site. Provide the information for each active sewage sludge unit.**

1. Information on Active Sewage Sludge Units. N/A
   a. Unit name or number:
   b. Unit location
      i. Street or Route#:
      County:
      City or Town: _____ State: _____ Zip:
      ii. Latitude:_____ Longitude:
      Method of latitude/longitude determination
      _____ USGS map _____ Filed survey _____ Other
   c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location.
   d. Total dry metric tons of sewage sludge placed on the active sewage sludge unit per 365-day period: _____dry metric tons.
   e. Total dry metric tons of sewage sludge placed on the active sewage sludge unit over the life of the unit: _____ dry metric tons.
   f. Does the active sewage sludge unit have a liner with a minimum hydraulic conductivity of $1 \times 10^{-7}$cm/sec? ___Yes ___No If yes, describe the liner or attach a description.

   g. Does the active sewage sludge unit have a leachate collection system? ___Yes ___No
   If yes, describe the leachate collection system or attach a description. Also, describe the method used for leachate disposal and provide the numbers of any federal, state or local permits for leachate disposal:

   h. If you answered no to either f or g, answer the following:
   Is the boundary of the active sewage sludge unit less than 150 meters from the property line of the surface disposal site? ___Yes ___No If yes, provide the actual distance in meters:
   i. Remaining capacity of active sewage sludge unit, in dry metric tons:_____ dry metric tons
   Anticipated closure date for active sewage sludge unit, if known:_____ (MM/DD/YYYY)
   Provide with this application a copy of any closure plan developed for this active sewage sludge unit.

2. Sewage Sludge from Other Facilities.
   Is sewage sludge sent to this active sewage sludge unit from any facilities other than yours? ___Yes ___No
   If yes, provide the following information for each such facility, attach additional sheets as necessary.
   a. Facility name:
   b. Facility contact:
   Title:
   Phone: ( )
   c. Mailing address.
   Street or P.O. Box:
   City or Town:_____ State:_____ Zip:
   d. List, on this form or an attachment, the facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the facility's sewage sludge management practices:
   Permit Number: Type of Permit:
   _____
   _____
   e. Which class of pathogen reduction is achieved before sewage sludge leaves the other facility?
   ___Class A ___Class B ___Neither or unknown
   f. Describe, on this form or on another sheet of paper, any treatment processes used at the other facility to reduce pathogens in sewage sludge:

g. Which vector attraction reduction option is achieved before sewage sludge leaves the other facility?
___ Option 1 (Minimum 38 percent reduction in volatile solids)
___ Option 2 (Anaerobic process, with bench-scale demonstration)
___ Option 3 (Aerobic process, with bench-scale demonstration)
___ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
___ Option 5 (Aerobic processes plus raised temperature)
___ Option 6 (Raise pH to 12 and retain at 11.5)
___ Option 7 (75 percent solids with no unstabilized solids)
___ Option 8 (90 percent solids with unstabilized solids)
___ None or unknown

h. Describe, on this form or another sheet of paper, any treatment processes used at the other facility to reduce vector attraction properties of sewage sludge:

i. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities performed by the other facility that are not identified in e - h above:

3. Vector Attraction Reduction.

a. Which vector attraction reduction option, if any, is met when sewage sludge is placed on this active sewage sludge unit?
___ Option 9 (Injection below land surface)
___ Option 10 (Incorporation into soil within 6 hours)
___ Option 11 (Covering active sewage sludge unit daily)

b. Describe, on this form or another sheet of paper, any treatment processes used at the active sewage sludge unit to reduce vector attraction properties of sewage sludge:

4. Ground Water Monitoring.

a. Is ground water monitoring currently conducted at this active sewage sludge unit or are ground water monitoring data otherwise available for this active sewage sludge unit? ___Yes ___No
If yes, provide a copy of available ground water monitoring data. Also provide a written description of the well locations, the approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

b. Has a ground water monitoring program been prepared for this active sewage sludge unit?
___Yes ___No If yes, submit a copy of the ground water monitoring program with this application.

c. Have you obtained a certification from a qualified ground water scientist that the aquifer below the active sewage sludge unit has not been contaminated? ___Yes ___No
If yes, submit a copy of the certification with this application.

5. Site-Specific Limits.

Are you seeking site-specific pollutant limits for the sewage sludge placed on the active sewage sludge unit?
___Yes ___No If yes, submit information to support the request for site-specific pollutant limits with this application.

# Operations and Maintenance Manual

The following is an excerpt from the H2O Innovations Operations and Maintenance (O&M) Manual that covers the main process equipment.

The complete manual of approximately 1100 pages is available for review if requested. The manual is still in draft/review mode.

O&M Manuals for additional components such as the Collection System Pump Station Chlorination/Dechlorination system, Post Aeration and Effluent Reuse system will be provided when available in a comprehensive package.

# Process Description and Control Narrative

**George Mason University**

**ICAR Wastewater Treatment Plant**

**Project No: U16185**

**Document Number: U16185-I13-0001,01**

**H2O Innovation Inc.**

**Document Rev Date: May 19, 2015**

# TABLE OF CONTENTS

# SECTION 1 - DOCUMENT INTRODUCTION

## 1.1 - OBJECTIVES OF THIS DOCUMENT

The process control narrative document presents sewage treatment system functions. It describes the specific requirements in terms of functionality and control. The information in this document is necessary for proper and efficient operation of the system. It explains how the system runs through the different operating modes. The use of this document is in tandem with P&IDs, PFD, GA and HMI operator interface. It should be noted that only the scope of work of H2O Innovation is explained in this document.

## 1.2 - REFERENCE DOCUMENTS

### 1.2.1 - DRAWINGS

| DRAWING NUMBER | DRAWING NAME | NUMBER OF PAGES |
|---|---|---|
| **U16185-C01-0001** | DIAGRAM LEGEND | 1 |
| **U16185-C01-0110** | RAW WATER SCREENING | 1 |
| **U16185-C01-0190** | FEED WATER EQUALIZATION | 1 |
| **U16185-C01-0720** | ANOXIC TANK & BIO-WHEEL TANK | 1 |
| **U16185-C01-0740** | MEMBRANE FILTRATION | 1 |
| **U16185-C01-0750** | BLOWERS FOR BIO-BRANE SYSTEM | 1 |
| **U16185-C01-0770** | CIP TANK | 1 |
| **U16185-C01-0800** | DOSING SKIDS – ALUM AND CARBON | 1 |
| **U16185-C01-0960** | SLUDGE HANDLING SYSTEM | 1 |

## 1.3 - ABBREVIATIONS

| ABBRÉVIATIONS | DÉFINITION |
|---|---|
| **AUTO** | Automatic |
| **HMI** | Human Machine Interface |
| **HAND** | Manual |
| **STP** | Sewage Treatment Plant |
| **EQ** | Equalization |
| **IFAS** | Integrated Fixed-Film Activated Sludge |
| **MBR** | Membrane Bioreactor |
| **MLSS** | Mixed Liquor Suspended Solids |

| | |
|---|---|
| **RAS** | Return Activated Sludge |
| **WAS** | Waste Activated Sludge |
| **CIP** | Clean in Place |
| **HRT** | Hydraulic Retention Time |
| **VFD** | Variable Frequency Drive |
| **PLC** | Programmable Logic Controller |
| **TMP** | Trans-Membrane Pressure |

# SECTION 2 - PROCESS DESCRIPTION

The Sewage Treatment Plant (STP) will treat wastewater from George Mason University's ICAR Center in Fairfax, VA. It will include fine screening, equalization, biological reactors with membrane filtration, and a sludge handling system. A process schematic, shown in Figure 1 below illustrates the process flow of this system.

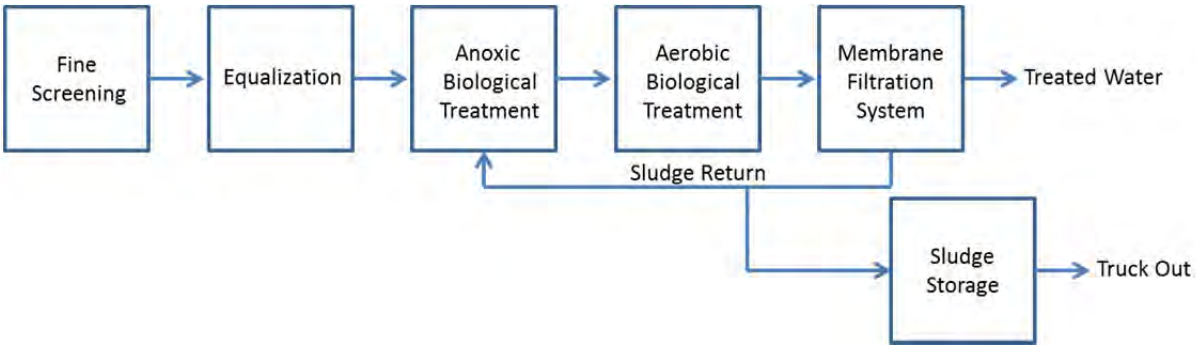



**Figure 1 – Process Flow Schematic**

The biological treatment system is designed to handle an average day flow rate of 5,000 GPD with a peak flow of up to 10,000 GPD for limited durations. The system is comprised of a single train that provides Screening, Equalization, Biological Treatment and Membrane Filtration processes. Waste sludge is sent to a sludge holding tank before it is removed for disposal. All of the unit operations are performed within a multi-section steel tank that is provided as a single package.

## 2.1 - FINE SCREEN SYSTEM

Feed is pumped into the plant (by others) and enters a rotating brush screen with 2mm openings to remove debris and trash. This protects the downstream processes and equipment. The fine screen operates continuously when there is wastewater being sent to it and is OFF when there is no feed to the unit.

## 2.2 - EQUALIZATION (EQ) SYSTEM

Effluent from the fine screen enters the equalization tank by gravity. The equalization tank will provide a residence time sufficient to maintain steady flows to the biological treatment system during low and high flow periods.

## 2.3 - ANOXIC BIOLOGICAL TREATMENT

The Anoxic biological process is designed to provide:

1. Removal of nitrogen
2. Removal of a portion of soluble BOD
3. A reduction in the Alkalinity that is consumed by the nitrification process

The primary purpose of the Anoxic process is the conversion of nitrate to nitrogen gas through a biological process called denitrification. This is the tank where the return activated sludge (RAS) is sent from the membrane tank and combined with incoming feed. A mixer is used to keep the solids in suspension before the overflow to the downstream Aerobic Bioreactor. A portion of the volume of the Anoxic tank is isolated to form a mixing zone where dissolved oxygen that remains in the RAS is depleted as it is mixed with incoming feed.

## 2.4 - BIO-WHEEL IFAS BIOLOGICAL TREATMENT

Aerobic biological treatment is the work-horse of any biological wastewater system. In this process, heterotrophic bacteria consume organic pollutants (BOD), oxygen and ammonia (NH3) and produce carbon dioxide, water and nitrate as well as reproducing to grow the bacteriological population. These processes are achieved using a Bio-Wheel Integrated Fixed-Film Activated Sludge (IFAS) System. As the Bio-Wheel Rotates air is trapped within the plates and released below the liquid surface as oxygen rich bubbles. The air bubbling from the Bio-Wheel imparts oxygen into the liquid phase to maintain a dissolved oxygen concentration to satisfy the needs of the biomass. The bubbling is also used to keep the bacteria in suspension. The mixed liquor enters in one end of the tank and exits by flowing over a weir on the opposite end of the Aerobic Tank to the membrane filtration process.

## 2.5 - MEMBRANE FILTRATION

Membrane filtration is used to separate the bacteria from the water to keep them in the bioreactor tanks at the desired concentration. Activated sludge is returned at a constant flow rate to the Anoxic Tank to prevent a build-up of sludge and return nitrate to the anoxic zone. The Return Activated Sludge (RAS) flow rate is 3-5 times the design flow rate of the plant. In this manner the activated sludge is recirculated from the anoxic tank to the aerobic tank, to the membrane tank and back to the anoxic tank constantly at 3-5 times the feed flow rate as shown in Figure 2.

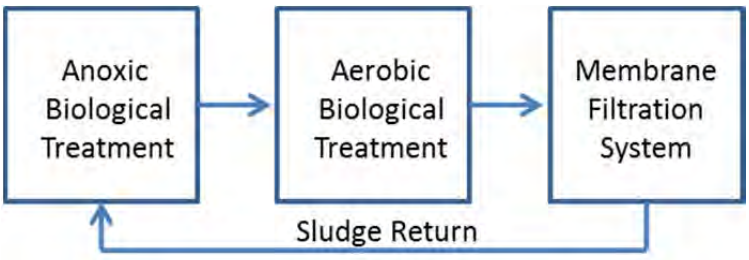



**Figure 2 – Bioreactor Sludge Recirculation Set-up**

The liquid (called permeate) is pulled through the membrane filters at a flow rate that matches the feed flow rate from the Equalization Tanks to maintain a constant liquid level in the membrane tank. To mitigate membrane fouling, several maintenance processes are performed:

1. Membrane Relax –membrane permeation is stopped for 1 minute after every 9 minutes of permeation.
2. Clean in Place (CIP) – a semi-annual process where a high concentration of chemical is used to restore permeability to the membranes.

## 2.6 - SLUDGE HANDLING

Since bacteria within the STP continue to reproduce as they consume organics and nutrients, the concentration of biomass, measured as Mixed Liquor Suspended Solids (MLSS), increases with time. To maintain a steady MLSS in the bioreactors some sludge must be wasted on a daily basis. Sludge is wasted by re-directing the RAS flow to the Sludge Storage Tank. The sludge tank is aerated to maintain an aerobic biomass and must be emptied on a periodic basis.

# SECTION 3 - CONTROLS PHILOSOPHY

## 3.1 - INTRODUCTION

The controls for the George Mason University ICAR STP are automated by a programmable logic controller (PLC) that functions based on a series of operating "modes". The PLC automatically moves the system operation between the different modes based on triggers that are executed based on a variety of parameters such as tank level, pressure, dissolved oxygen and flow rate. These parameters are measured continuously by the instrumentation that is installed throughout the plant. Automated valves are actuated and equipment is turned ON and OFF based on the modes and conditions at any given time.

### 3.1.1 - EQUIPMENT CONTROL – HOA CONTROL

All equipment can either be manually controlled or controlled by the PLC program. Each piece of equipment appears on the touch screen that acts as the Human Machine Interface (HMI). When the symbol for a piece of equipment such as a pump is touched, a PlantPAX Faceplate screen appears, allowing the operator to configure and control the corresponding piece of equipment. From the PlantPAX object the user can set the equipment to either Operator control or Program control. If it is set to Operator control, the equipment will start operating regardless of the plant's current status. If it is sent to OFF, the equipment will stop, regardless of the current status of the plant. If it is set to Program control, it will come ON and OFF based on the mode and conditional programming that has been established and is described in detail within this document.

The PlantPAX Faceplate screen for equipment whose speed can be controlled such as a pump with a VFD, allows the operator to input a specific speed (0-100%) if the equipment is set to manually operate.

## 3.2 - MODES OF OPERATION

The controls system operates based on a number of modes as shown below:

| MODE | DESCRIPTION |
|---|---|
| **OFF** | All process equipment is OFF. |
| **PRODUCTION** | Production Mode occurs during normal operation when sewage is being sent to the Fine Screen. All process equipment operates based on the automatic control logic to provide treatment of sewage |

| | |
|---|---|
| **STANDBY** | Standby Mode occurs when the amount sewage being sent to the system is less than the system capacity such that the system must "wait" for adequate feed to continue operation |

## 3.3 - OPERATING SEQUENCE CHART (OSC)

The OSC shown below provides an overview of the status of the major equipment and valve positions for different operating modes. It indicates for each operating mode whether equipment is OFF, indicated by an "X" or ON/AUTO, indicated by an "O".

| | | EQUIPMENT | | | | | | | | | | Valves | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | X - equipment OFF<br>O - equipment ON/Auto | EQ Pumps[1] | Fine Screen[2] | Anoxic Mixer | Bio-Wheel[3] | Alum Pump[4] | Membrane Blower | Permeate Pump | Supplemental Carbon Pump[4] | RAS Pump | Sludge Blower | RAS Valve (FV-72001) | Wasting Valve (FV-96001) |
| MODE | **OFF** | X | X | X | O | X | O | X | X | X | X | X | X |
| | **Standby** | O | O | O | O | X | O | X | X | O | O | O | O |
| | **Production - Permeation** | O | O | O | O | O | O | O | O | O | O | O | O |
| | **Production - Relax** | O | O | O | O | O | O | X | O | O | O | O | O |

Where a piece of equipment is assigned an "X" for a particular mode, it indicates that this equipment will always be OFF during the associated mode. However, where a piece of equipment is assigned an "O" for a particular mode, it indicates that this equipment will operate either continuously or based on a set of conditions. Since some equipment operates conditionally based on triggers, the "O" status indicates that this equipment will be subject to its conditional programming. For example, the Fine Screen is indicated as "O" during the "Production Mode", however, it is programmed to only operate when the Feed Flow Rate is >0. Therefore, even though the system is in "Production Mode" if the Feed Flow Rate is zero, the Fine Screen will stop operating until the Feed Flow Rate starts.

## 3.4 - CONTROL SYSTEM AND COMMUNICATION

### 3.4.1 - PROGRAMMABLE LOGIC CONTROLLER

The system will be controlled by a 1769-L32E Allan Bradley CompactLogix Processor.

### 3.4.2 - OTHER COMMUNICATIONS

Communication between the sewage treatment plant and the Central Core will be Ethernet/IP. Programming will be provided to allow interfacing with the Central Core. Ethernet/IP will be used to communicate to the local MCC control room.

# SECTION 4 - CONTROL NARRATIVE

## 4.1 - FINE SCREEN SYSTEM

The raw sewage flows into the Fine Screen SCR-11200 to remove trash or debris that can have a detrimental effect on downstream processes. The fine screens are rotating brush screens and the brush rotates to clean the screen to prevent excessive accumulation of debris on the screen holes. Once the sewage passes through the screen it falls into the Equalization Tank T-19000 by gravity. Screenings that are removed by the screen fall into a Trash Basket and are disposed of on a daily basis.

### 4.1.1 - FINE SCREEN SYSTEM EQUIPMENT

| ÉQUIPMENT | TAGS | Qty | DESIGN VALUE FOR EACH COMPONENT | NOTES |
|---|---|---|---|---|
| **Fine Screens** | SCR-11200 | 1 | 2mm, 60 gpm | Removes trash and debris |

#### 4.1.1.1 - FINE SCREENS

When the process is in PRODUCTION mode or STANDBY mode, the screen will be functional. The screens operate when there is feed to them as indicated by the digital signal indicating that the lift station is active (signal provided by others).

### 4.1.2 - FINE SCREEN SYSTEM ALARMS

If the Fine Screen has a fault it will send an alarm indicating “Fine Screen Fault” and the Feed Flow will bypass the Fine Screen through the overflow. This is a condition that must be rectified as soon as possible.

## 4.2 - EQUALIZATION (EQ) SYSTEM

The Equalization (EQ) System suppresses variability in feed flow to the treatment plant. The EQ tank fills and empties as sewage production varies, but sends a relatively consistent flow forward to the downstream processes.

The EQ pumps (P-19001A/S) are submersible pumps installed on the bottom of the EQ tank that are used to transport equalized sewage from the EQ tank (T-19000) into the biological treatment system. The equalization system contains a diffuser grid to maintain an aerobic environment within the EQ tank to prevent the proliferation of odors. The blower dedicated to the EQ tanks operates at all times.

The sewage travels from the EQ pumps, through the Feed Flow Meter (FIT-19274) and into the Anoxic Tank (T-14000).

Two (2) EQ pumps are installed in the EQ tank and operate on a Duty/Standby basis.

### 4.2.1 - EQUALIZATION SYSTEM EQUIPMENT

| EQUIPMENT | TAGS | QTY | DESCRIPTION | DESIGN VALUE FOR EACH COMPONENT | NOTES |
|---|---|---|---|---|---|
| **EQ tanks** | T-19000 | 1 | Integrated Steel Tank Section | Volume = 3500 gal | |
| **EQ pumps** | P-19001A/S | 2 | EQ pumps located in T-19000 | 7 gpm @ 24 ft $H_2O$ | |
| **EQ level sensor** | LIT-19060 | 1 | Measures the level in the equalization section of the EQ Tank | 0 – 15 ft $H_2O$ | |
| **Feed Flow Meters** | FIT-19274 | 1 | Measures the flow rate of the EQ pumps | 2.5 – 80 gpm | |
| **Equalization Tank Blower** | B-75000-A | 1 | Provides air for the EQ Tank | 30 cfm @ 7ft H2O | |

#### 4.2.1.1 - EQUALIZATION PUMPS

##### 4.2.1.1.1 - AUTOMATIC OPERATION

When the process is in PRODUCTION mode or STANDBY mode, the EQ pump will operate based on the commands given from the PLC. The EQ pumps operate with VFDs to allow their speeds to be adjusted to meet different Flow Rate Set-Points. These Flow Rate Set-Points are met using a PID loop to adjust the Pump Speed based on the measured flow of the Feed Flow Meter FIT-19274. The EQ pump status and Flow Rate Set-Points are determined in response to LIT-19060 as follows:

| EQ Tank Level | DESCRIPTION | NOTES |
|---|---|---|
| **Below LoLo Level Set-Point** | EQ pump OFF | This protects the pumps from running dry. LoLo Alert is shown on PLC. |
| **Between Lo Level and Hi Level Set-Points** | EQ pump ON.<br>Flow rate = “Design Flow Set-Point” | The “Design Flow Set-Point” is 5000 GPD (3.5 gpm) however, the operator can override this value to prevent intermittent operation |

| | | |
|---|---|---|
| | | during times with low sewage production |
| **Above Hi level Set-Point** | EQ pump ON.<br>Flow rate = "Max Flow Set-Point" | The Max Flow Set-Point is 10,000 GPD (7.0 gpm). After the "Max Flow Set-Point" has been activated, the EQ pump continues to operate at the "Max Flow Set-point" until the EQ tank level drops to the LoLo Level Set-Point. When the Hi Level Set-Point is reached, the HMI displays an Alert "EQ Tank Level Hi" |
| **Above HiHi Level Set-Point** | EQ pump ON.<br>Flow rate = "Max Flow Set-Point" | When the EQ Tank Level increases to the HiHi Level Set-Point a critical alarm occurs "EQ Tank Level HiHi" |

Each of the LoLo, Lo, Hi and HiHi Level Set-Points can be set and adjusted on the HMI.

### 4.2.2 - EQUALIZATION SYSTEM HMI INPUTS

The following values are input on the HMI and can be adjusted to achieve optimized operation.

| HMI INPUT | INITIAL VALUE |
|---|---|
| **EQ Tank Level – LoLo Set-Point** | 1.0 ft |
| **EQ Tank Level - Lo Set-Point** | 2.0 ft |
| **EQ Tank Level - Hi Set-Point** | 5.0 ft |
| **EQ Tank Level - HiHi Set-Point** | 7.0 ft |
| **Design Flow Rate Set-Point** | 3.5 gpm |
| **Max Flow Rate Set-Point** | 7.0 gpm |
| **Flow Rate - LoLo Set-Point** | 0.2 gpm |

### 4.2.3 - EQUALIZATION SYSTEM ALARMS

| ALARM OR ALERT | DESCRIPTION | ACTION |
|---|---|---|
| **EQ Tank Level - LoLo** | Occurs when EQ tank level drops below the LoLo Level Set-Point | Switch to Standby pump and display alarm |

| | | |
|---|---|---|
| **EQ Tank Level - Hi** | Occurs when EQ tank level rises above Hi Level Set-Point | Increase EQ Pump Flow Rate to Max Flow Rate Set-Point |
| **EQ Tank Level - HiHi** | Occurs when EQ tank level rises above HiHi Level Set-Point | Send Critical Alarm |
| **Design Flow Rate - LoLo** | Occurs when EQ Pump is ON and Train Feed Flow Rate is less than the Train Feed LoLo Set-Point | Display Alarm |

## 4.3 - ANOXIC BIOLOGICAL TREATMENT

Equalized Sewage enters the Anoxic Bioreactor Tank (T-14000) where it is mixed with Return Activated Sludge (RAS). The combined mixture called “Mixed Liquor” or “Activated Sludge” travels by gravity through the Anoxic Tank into the Aerobic Tank (T-7300). The solids are kept in suspension in the Anoxic Tank with Anoxic Mixer MX-73083. A “mixing zone” is included which is a segregated portion of the Anoxic Tank where the RAS and equalized feed are mixed to allow the dissolved oxygen to be depleted and therefore ensure an adequate HRT at near zero dissolved oxygen.

The purpose of the Anoxic Biological Treatment is to provide a residence time within which the Mixed Liquor encounters a dissolved oxygen concentration of near zero (less than 0.2 mg/L). When this occurs, autotrophic bacteria present in the Mixed Liquor become active and they convert nitrate to nitrogen gas, produce alkalinity and consume organics in the process. The Anoxic Mixer must continuously operate to ensure the biomass remains in suspension in the Anoxic Tank.

### 4.3.1 - ANOXIC BIOLOGICAL SYSTEM EQUIPMENT

| ÉQUIPEMENTS | TAGS | CONFIGURATION | Design Value | NOTES |
|---|---|---|---|---|
| **Anoxic Tank** | T-14000 | 1 | Volume = 2,356 gal<br>HRT = 112min | One section of multi-section steel |
| **Anoxic Mixer** | MX-73083 | 1 | 55 rpm | |

#### 4.3.1.1 - ANOXIC MIXER OPERATION

When the MBR train associated with a mixer is in any mode other than OFF, the mixer will be ON at a constant speed. The mixer speeds are not controlled but are ON continuously at 100%.

## 4.4 - BIO-WHEEL IFAS BIOLOGICAL TREATMENT

Mixed Liquor flows from the Anoxic Tank (T-14000) over a weir into the Aerobic Tank (T-73000) where the Bio-Wheel system (BW-73000) provides air continuously. The purpose of this IFAS Aerobic Biological Treatment process is to provide a residence time within which the Mixed Liquor encounters a dissolved oxygen concentration above 1 mg/L. This allows heterotrophic bacteria in suspension and within the fixed film on the Bio-Wheel to consume organics and ammonia and convert them to carbon dioxide and nitrate. During this biological process the bacteria also consume oxygen and produce more bacteria. Oxygen supply is provided at variable mass flow rates as the Bio-Wheel speed is adjusted. The Dissolved Oxygen (DO) concentration is continuously measured by the DO sensor (AE-73093) and the Bio-Wheel operates to control the DO concentration at a DO Set-Point based on a PID loop with the Bio-Wheel VFD. The MLSS concentration must be maintained by daily wasting of MLSS to remove bacteria from the system at the same rate at which they grow. The daily wasting volume can be estimated by comparing the MLSS measurements taken from the RAS line with the target MLSS concentration. Biological growth varies with a number of factors and, as the system is operated, a steady state growth will occur, leading to the development of a consistent Sludge Wasting volume. The daily Waste Activated Sludge (WAS) volume can be input on the Sludge Wasting Screen on the HMI. The operator can then choose to adjust the daily wasting volume once the need for adjustment is confirmed. The calculation for "calculated wasting volume to maintain MLSS concentration" is given in section 4.7.

### 4.4.1 - AEROBIC BIOLOGICAL SYSTEM EQUIPMENT

| ÉQUIPEMENTS | TAGS | CONFIGURATION | Design Value | NOTES |
|---|---|---|---|---|
| **Bio-Wheel** | BW-73000 | 1 | Model: BW9x1.8<br>Rotational Speed: 0.25-2 rpm | The Bio-Wheel operates with a VFD to control DO to DO Set-Point. |
| **Alum Dosing Pumps** | P-80100 | 1 | 0.6 L/hr | Dosing occurs only when feed enters the bioreactors at a rate that is proportional to the feed flow rate. |
| **DO Sensor** | AE-73093 | 1 Per Train | 0-10 mg/L | |
| **Supplemental Carbon Dosing Pumps** | P-80300 | 1 | 3.9 L/hr | Dosing occurs only when feed enters the bioreactors at a rate that is proportional to the feed flow rate. |

#### 4.4.1.1 - BIO-WHEEL

The Bio-Wheel is used to supply oxygen to the Biomass in the Aerobic Tank. It also provides 4260 $ft^2$ of surface area for fixed-film bacteria to thrive leading to an increased net concentration of biomass in the system. The Bio-Wheel is equipped with a VFD to allow it to be turned down to minimize energy consumption.

#### 4.4.1.2 - ALUM DOSING PUMPS

The dosing of Alum (Aluminum sulfate) is used to provide the removal of phosphorus within the wastewater treatment system. Phosphorus, in the form of phosphate combines with Alum to form an insoluble precipitate that is filtered by the membranes and removed from the system through wasting of sludge. The Alum Dosing Pumps transport Alum into the RAS line for the Bioreactors at a flow rate that is proportional to the flow rate of the train as measured by FIT-19274.

When the MBR train associated with an Alum Dosing Pump is in Production mode the Alum Dosing Pump will be ON. The PLC controls the Alum Dosing Pump speed to be proportional to the Design Flow Rate. The actual stroke rate and stroke length of the Alum Dosing Pumps remains the constant and the PLC is used to provide time averaged dosing flow rates that match the required dosing rate. For the maximum dosing rate required, the PLC activates the Alum Dosing Pump continuously. If the flow rate drops to 75% design flowrate, the PLC activates the dosing pump for only 45 seconds (75%) of every minute. If the flow rate drops to 10% of the design flow rate, the PLC activates the dosing pump for only 6 seconds (10%) every minute. The correct Alum dosing rate for the design flow rate must be calibrated during start-up to facilitate proportional dosing over the range of flow rates expected.

#### 4.4.1.3 - SUPPLEMENTAL CARBON DOSING PUMPS

The dosing of supplemental carbon as Micro-C is used to provide the additional substrate required to accommodate the denitrification process. The feed for this application is expected to be nitrogen-rich and bacteria cannot remove that nitrogen without a proportional amount of carbon (BOD) within the feed to the wastewater treatment system. The Supplemental Carbon Dosing Pump transports Micro-C into the RAS line of the Bioreactors at a flow rate that is proportional to the flow rate of the train as measured by FIT-19274.

When the MBR train associated with an Supplemental Carbon Dosing Pump is in Production mode the Supplemental Carbon Dosing Pump will be ON. The PLC controls the Supplemental Carbon Dosing Pump speed to be proportional to the Design Flow Rate. The actual stroke rate and stroke length of the Supplemental Carbon Pumps remains the constant and the PLC is used to provide time averaged dosing flow rates that match the required dosing rate. For the maximum dosing rate required, the PLC activates the Supplemental Carbon Dosing Pump continuously. If the flow rate drops to 75% design flowrate, the PLC activates the dosing pump for only 45 seconds (75%) of every minute. If the flow rate drops to 10% of the design flow rate, the PLC activates the dosing pump for only 6 seconds (10%) every minute. The correct Supplemental Carbon dosing rate for the design flow rate must be calibrated during start-up to facilitate proportional dosing over the range of flow rates expected.

### 4.4.2 - AEROBIC BIOLOGICAL SYSTEM HMI INPUTS

| HMI INPUT | INITIAL VALUE* |
|---|---|
| **DO Set-Point** | 3.0 mg/L |
| **DO Lo – Set-Point** | 1.5 mg/L |
| **DO LoLo – Set-Point** | 0.5 mg/L |
| **DO Hi – Set-Point** | 6.0 mg/L |

### 4.4.3 - AEROBIC BIOLOGICAL SYSTEM ALARMS

| ALARM OR ALERT | DESCRIPTION | ACTION |
|---|---|---|
| **Bio-Wheel Fault** | Indicates the Bio-Wheel motor or VFD has faulted | Send Critical Alarm |
| **DO Lo** | Indicates DO has dropped below the DO Lo Set-Point | No Action |
| **DO LoLo** | Indicates DO has dropped below the DO LoLo Set-Point | No Action |
| **DO Hi** | Indicates DO has increased above the DO Hi Set-Point | No Action |
| **Alum Dosing Pump Fault** | Indicates a mechanical failure of the Alum Dosing Pump | Display Alarm |
| **Supplemental Carbon Dosing Pump Fault** | Indicates a mechanical failure of the Carbon Dosing Pump | Display Alarm |

## 4.5 - MEMBRANE FILTRATION

The Mixed Liquor flows from the Aerobic Tank (T-73000) over a weir into the Membrane Tank (T-74000). The membrane filtration process is used to filter the Mixed Liquor. The membranes have tiny pores (0.08µm) that prevent solids from entering the permeate side of the membrane but allow the passage

of water. Permeation occurs during the PRODUCTION mode at a rate that is, on average, equal to the feed flow rate to the train to prevent accumulation of liquid in the Membrane Tanks.

To prevent solids accumulation on the surface of the membranes, they permeate for a period of time followed by a "Relax" step where permeate is stopped for a short period of time. The default "Production Cycle" includes a 9 minute Permeation period followed by a 1 minute Relax period.

To overcome excessive solids accumulation within the Membrane Tank, and to facilitate the transport of nitrate back to the Anoxic Tank, the Mixed Liquor is returned to the Anoxic Tank using the Return Activated Sludge (RAS) Pumps (P-74600A/S). The RAS Pumps operate at a flow rate of approximately 17.5 gpm.

### 4.5.1 - MEMBRANE FILTRATION SYSTEM EQUIPMENT

| ÉQUIPMENT | TAGS | CONFIGURATION | Design Value | NOTES |
|---|---|---|---|---|
| **Membrane Module** | F-74000 | 1 | 968 $ft^2$ | |
| **Permeate Pumps** | P-7170A/S | 2 | 7 gpm | |
| **RAS Pumps** | P-74600A/S | 2 | 17.5 gpm | RAS pump also used for wasting sludge and draining the system |
| **Permeate Flow Meter** | FIT-79074 | 1 | 2.5-80 gpm | |
| **RAS Flow Meter** | FIT-74674 | 1 | 2.5-80 gpm | |
| **Membrane Tank Level Sensor** | LT-74060 | 1 | 0 – 15 ft | |
| **Permeate Pressure Sensor** | PT-79045 | 1 | -100 to 200 $kPa_g$ | |
| **Membrane System Blower** | B-75400 | 1 | 40 cfm at 7 ft H2O | |

#### 4.5.1.1 - PERMEATE PUMPS

The Permeate Pumps (P-7170A/S) are used to transport filtered water (permeate) from the Membrane Tank through the Permeate Flow Meter (FIT-79074) and to the discharge location (by others). They are equipped with VFDs so that they can control the flow rate to achieve the desired permeate flow rate through the membranes.

##### 4.5.1.1.1 - PRODUCTION MODE

During Production mode the Permeate Pump cycles ON and OFF to accommodate the required "permeation" and "relax" steps. In normal operation the permeation step duration is 9 minutes and the relax step duration is 1 minute. The status, as well as a counter showing the time left within a permeation or relax step, will be displayed on the HMI.

During the permeation step, the PLC adjusts the Permeate Pump speed using a PID loop with the pump VFD and the Permeate Flow Meter (FIT-79074) to achieve the "Permeate Flow Set-Point" which is a value calculated by the PLC based on the following equation:

$$Permeate\ Flow\ SetPoint = Feed\ Flow\ Rate + Trim$$

Where,

Train Feed Flow Rate = "current value" of the Train Feed Flow Meter (FIT-19274)

$$Trim = (Membrane\ Tank\ Level - Membrane\ Tank\ Level\ SetPoint) \times k$$

"k" is a constant with the units of gpm/ft. "k" will have a starting value of 3.5 gpm/ft, however this value will be input on the HMI and can be adjusted. The Permeate Flow Set-Point will be limited by a Maximum and Minimum Permeate Flow rate that are boundary limits on the flow the membranes can produce. The low flow boundary exists to prevent the pump from running at extremely low speeds. Should this condition occur, the system will go into "Standby". The high flow boundary exists to prevent the excessive fouling that can occur if the membranes are operated at excessively high fluxes.

##### 4.5.1.1.2 - STANDBY MODE

The Process goes in to Standby mode when the Membrane Tank Level reaches the Lo Level. This will occur if the MBR train feed is either zero or low enough that the Permeate Flow Set-Point drops below the Minimum Permeate Pump Flow Rate.

##### 4.5.1.1.3 - TRANS-MEMBRANE PRESSURE (TMP)

The TMP is a measure of fouling of the membranes. It allows monitoring of changes in membrane permeability as a function of time to provide information on CIP performance and changes in feed water quality. The TMP is the change in pressure across the membrane and is calculated based on the membrane feed-side hydrostatic pressure minus the permeate-side pressure during permeation. It is calculated as the permeate-side pressure minus the feed side pressure during backward flow.

$$TMP\ (psi) = Feed\ Pressure - Permeate\ Pressure$$

And

$$TMP_{Backpulse}\ (psi) = Permeate\ Pressure - Feed\ Pressure$$

where,

$$Feed\ Pressure\ (psi) = [Membrane\ Tank\ Level\ (ft) - Midlevel\ of\ Membrane\ (ft)] \times \frac{0.4335\ psi}{ft\ H2O}$$

and

$$\begin{aligned} Permeate\ Pressure\ (psi) \\ = Permeate\ Pressure\ Reading\ (psi) \\ + \Big\{[Level\ of\ Pressure\ Transducer\ Installation\ (ft) \\ - Midlevel\ of\ Membrane\ (ft)] \times \frac{0.4335 psi}{ft\ H2O}\Big\} \end{aligned}$$

#### 4.5.1.1.4 - Flux and Permeability

The permeability is a calculated parameter that normalizes the TMP for different flow rates. The flow rate per unit membrane area is called the "Membrane Flux" and it is calculated based on the equation below:

$$Flux\left(\frac{gal}{ft^2 day}\right) or\ (gfd) = \frac{Flow\ Rate\ (gpm) \times 1440\left(\frac{min}{\text{day}}\right)}{Membrane\ Area\ (ft^2)}$$

The Permeability is the Flux divided by the TMP as given below:

$$Permeability\ (gfd/psi) = \frac{Flux\ (gfd)}{TMP\ (psi)}$$

Finally, to ensure accurate monitoring of Permeability it should be corrected for temperature. The following equation can be used to correct the Permeability for temperature:

$$Permeability_{20^\circ C} = Permeability_{T^\circ C} \times 1.024^{(T-20)}$$

### 4.5.1.2 - RETURN ACTIVATED SLUDGE (RAS) PUMPS

The RAS pumps are used to return solids and nitrate to the Anoxic Tank. This ensures that the biomass separated from the liquid during membrane filtration do not accumulate excessively within the Membrane Tank. It also allows the return of nitrate to the Anoxic Tank to facilitate the denitrification process.

When the MBR train associated with a RAS Pump is in Production mode or Standby mode, the RAS Pump will be ON. The PLC controls the RAS pump speed to achieve the "RAS Pump Flow-Rate Set-Point" based on a PID loop with the RAS Flow meter. The "RAS Pump Flow-Rate Set-Point" is a value input on the HMI. The default value is 17.5 GPM.

### 4.5.2 - MEMBRANE FILTRATION SYSTEM HMI INPUTS

#### 4.5.2.1 - MEMBRANE FILTRATION HMI INPUTS

| HMI INPUT | INITIAL VALUE |
|---|---|
| **Membrane Tank Level Set-Point** | 6.5 ft |
| **Membrane Tank Level Hi Set-Point** | 7 ft |
| **Membrane Tank Level HiHi Set-Point** | 8 ft |
| **Membrane Tank Level Lo Set-Point** | 6 ft |
| **Membrane Tank Level LoLo Set-Point** | 5.5 ft |
| **Value of k** | 3.5 gpm/ft |
| **TMP Hi Set-Point** | 1.5 psi |
| **TMP Hi Hi Set-Point** | 2.5 psi |
| **RAS Flow Rate Set-Point** | 17.5 gpm |
| **RAS Flow Rate LoLo Set-Point** | 1 gpm |
| **Permeate Flow Rate LoLo Set-Point** | 0.5 gpm |
| **Permeate Flow Rate Hi Set-Point** | 7 gpm |

### 4.5.3 - MEMBRANE FILTRATION SYSTEM ALARMS

| ALARM OR ALERT | DESCRIPTION | ACTION |
|---|---|---|
| **Membrane Tank Level Hi** | Indicates Membrane Tank level has reached Hi level Set-Point | Alarm. Set Permeate Flow Rate to "Max Flow Set-Point" (7gpm) |
| **Membrane Tank Level HiHi** | Indicates Membrane Tank level has reached the HiHi level Set-Point | Send Critical Alarm. |
| **Membrane Tank Level Lo** | Indicates Membrane Tank level has reached the Lo level Set-Point | System goes into standby (permeation stops) |
| **Membrane Tank Level LoLo** | Indicates Membrane Tank level has reached LoLo level | Turn OFF RAS pump and Stop Permeation until |

| | | |
|---|---|---|
| | Set-Point | Membrane Tank Level reaches Membrane Tank Level Set-Point |
| **TMP Hi** | Indicates TMP has reached Hi Set-Point. | No Action. Alert to Schedule a CIP as soon as possible. |
| **TMP Hi Hi** | Indicates TMP has reached HiHi Set-Point | Send Critical Alarm. |
| **RAS Flow Rate LoLo** | Indicates the flow rate of the RAS has reached the LoLo Set-Point | Switch to standby RAS pump. Check pump, valve and instrument. Display Alarm. |
| **Permeate Flow Rate LoLo** | Indicates the flow rate of the permeate has reached the LoLo Set-Point | Stop Permeation, system goes into standby while pump, valve and instrument are checked. Display Alarm. |
| **Permeate Flow Rate Hi** | Indicates the flow rate of the permeate has reached the Hi Set-Point | Send Alarm "Flow to the plant is beyond the design flow rate". Continue operation. Need to confirm flow rates. |
| **Membrane Blower Fault** | | Send Critical Alarm. Shutdown system until backup air supply established. |

## 4.6 - MEMBRANE CLEANING

Clean-In-Place (CIP) procedures are conducted manually when required. The following Steps should be taken:

### 4.6.1 - MEMBRANE CLEANING PROCEDURE

| STEP | DESCRIPTION |
|---|---|
| CIP SOLUTION PREPARE: | i) Fill CIP Tank (T-77000) with 45 gal of potable water.<br>ii) Add Chemical per chemical addition chart<br>iii) Top up CIP Tank to 90 gal total.<br>iv) Ensure chemical is mixed (use mixer if required) |
| TURN OFF TREATMENT SYSTEM | Turn System to OFF on the HMI. Manually turn OFF Membrane Air Scour Blower (B-75400) and turn ON the Anoxic Tank Mixer (MX-73083). At this point, the Bio-Wheel |

| | |
|---|---|
| | should continue to rotate automatically. |
| SET NEW VALVE POSITIONS | i) Close Permeate Pump isolation valve HV-79050A<br>ii) Open CIP valve HV-77201 |
| CHEMICAL ADDITION | i) Open CIP Tank isolation valve HV-77078 and ensure level is dropping. This indicates that the chemical is flowing to the membrane.<br>ii) When the volume remaining in the CIP tank is less than 5 gal the chemical addition is complete<br>iii) Close CIP Tank isolation valve HV-77078<br>iv) Close CIP valve HV-77201 |
| SOAK | Soak system for 1-3 hours |
| CHEMICAL FLUSH PREPARE | Fill CIP tank with 90 gal of potable water to prepare for chemical flush step. |
| TURN SYSTEM ON TO STANDBY | i) Turn system into STANDBY on HMI<br>ii) Return Membrane Air Scour Blowers to AUTO<br>iii) Ensure RAS pump is operating |
| CHEMICAL FLUSH | i) Open CIP Tank isolation valve HV-77078<br>ii) Open CIP valve HV-77201<br>iii) When the volume remaining in the CIP tank is less than 5 gal the chemical flush is complete<br>iv) Close CIP Tank isolation valve HV-77078<br>v) Close CIP valve HV-77201 |
| RETURN SYSTEM TO PRODUCTION | i) Open Permeate Pump isolation valve HV-79050A<br>ii) Turn system back into Auto Mode. |

### 4.6.2 - CHEMICAL ADDITION CHART

| CLEANING CHEMICAL | APPLICATION | QUANTITY |
|---|---|---|
| Sodium Hypochlorite (NaOCL) | Sodium Hypochlorite is an oxidant and is used to provide cleaning of typical membrane foulants (organic foulants) for this application. This chemical should be used for cleaning as a first response and will provide good results most of the time. | STOCK NaOCl: 10%<br><br>CIP Concentration: 2-4 g/L<br><br>Volume of chemical for 90 gal CIP sol'n: 1.8-3.6 gal |
| Citric Acid | Citric Acid is used to provide cleaning for the removal of inorganic substances from the membrane. In most cases | STOCK Citric Acid: Powered Form 100%<br><br>CIP Concentration: 1-3% wt.<br><br>Mass of chemical |

| | | |
|---|---|---|
| | this chemical is not required unless there is a concern of accumulation of inorganic substances. | For 90 gal CIP sol'n: 3.4-10 kg |

## 4.7 - SLUDGE HANDLING SYSTEM

The Return Activated Sludge (RAS) line has a Tee after the RAS Flow Meter (FIT-74674) where the RAS can be redirected to the Sludge Storage Tank by closing the RAS Valve (FV-72001) and opening the Sludge Wasting Valve (FV-96001). Wasting occurs once per day based on an HMI input called "Daily Sludge Wasting Volume". Once the valves have been actuated to redirect the Sludge to the Sludge Storage Tank, the PLC uses the RAS Flow Meter to totalize the volume of sludge that has been sent to the Sludge Storage Tank. Once the Daily Sludge Wasting Volume has been wasted, the valves return to their normal position. The volume of sludge that needs to be wasted is a function of the MLSS measured in the Aerobic Tank and the BOD loading rate of the plant. The system will operate well with MLSS values in the range of 4-5 g/L. The system will automatically waste the "Daily Sludge Wasting Volume" input into the HMI. The required daily wasting value can be estimated based on the following equation (note: negative values will result in zero sludge wasting)

$$Calculated\ wasting\ volume\ to\ maintain\ MLSS\ concentration\ (gal)$$

$$= \left\{ \frac{MLSS\ g/L"}{"4\ g/L"} - 1 \right\} \times 7500\ gal\ (Total\ Process\ Volume)$$

Where,

*MLSS g/L* = the measured MLSS concentration (based on a sample taken from the Bio-Wheel Tank and analyzed for MLSS at a laboratory.

***Recommendations:***

***i) It is recommended that after start-up NO WASTING is conducted for the first 2 weeks of operation unless the MLSS is above 4 g/L.***

***ii) As of 2 weeks after biological seeding and steady process operation it is recommended to waste at least 1% of the total daily flow each day to prevent accumulation of inert solids as the bacteria concentration grows to the design values.***

The Sludge Storage Tank has a volume of 1500 gal. The Sludge Tank is aerated continuously by the Sludge Mixing Blower (B-75000S) that feeds air to coarse bubble diffusers to keep the sludge in an aerobic state and encourage a degree of aerobic digestion. The level of sludge in the Sludge Storage Tank is measured by the Sludge Storage Tank Level Sensor (LT-96060). Based on the Level in the Sludge Storage Tank, the PLC estimates the remaining available volume for sludge storage to allow sludge truck-out events to be scheduled.

A Sludge Decant Pump P-96400 is provided to allow thickening of the waste sludge to maximize the concentration of waste sludge and therefore minimize the frequency that sludge needs to be trucked out from the site. A sludge decant is a manual operation that is performed when the Sludge Storage Tank (T-96000) level reaches the Hi Level Set-Point. This process involves turning OFF the Sludge Mixing Blower B-75000 and allowing the sludge to settle for approximately 1 hour. During this time, a clear interface will form between the sludge and the clarified water known as "supernatant". The Sludge Decant Pump P-96400 is lowered by it's support chain to a level just above the sludge/supernatant interface and is manually activated. Supernatant will flow from the sludge tank into the adjacent EQ Tank (T-19000). When the level in the Sludge Storage Tank approaches the sludge/supernatant interface, the Sludge Decant Pump is turned OFF.

### 4.7.1 - SLUDGE HANDLING SYSTEM EQUIPMENT

| ÉQUIPEMENT | TAGS | CONFIGURATION | Design Value | NOTES |
|---|---|---|---|---|
| **Sludge Storage Tank** | T-96000 | 1 | 1500 gal | |
| **Coarse Bubble Diffusers** | CBD-96086A/B | 2 | | |
| **Sludge Storage Tank Level Sensor** | LT-96060 | 1 | 0 – 15 ft H2O | |
| **Sludge Tank Blower** | B-75000S | 1 | | |

### 4.7.2 - SLUDGE HANDLING SYSTEM HMI INPUTS

| HMI INPUT | INITIAL VALUE |
|---|---|
| **Daily Sludge Wasting Volume** | 50 gal* |
| **Sludge Storage Tank Level Hi** | 7 ft |
| **Sludge Storage Tank Level HiHi** | 8 ft |
| **Sludge Storage Tank Level LoLo** | 1 ft |

*Disable for the first 2 weeks of operation

### 4.7.3 - SLUDGE HANDLING SYSTEM ALARMS

| ALARM OR ALERT | DESCRIPTION | ACTION |
|---|---|---|
| **Sludge Storage Tank Level Hi** | Indicates the level in the Sludge Storage Tank has reached the Hi Level Set-Point | Alarm. Schedule Sludge Truck Out. |
| **Sludge Storage Tank Level HiHi** | Indicates the level in the Sludge Storage Tank has reached the HiHi Level Set-Point | Alarm. Sludge Wasting is automatically stopped. |
| **Sludge Storage Tank Level LoLo** | Indicates the level in the Sludge Storage Tank has reached the LoLo Level Set-Point and is at the Coarse Bubble Diffusers | Stop Sludge Blower until the level increases above the LoLo Level. |
| **Sludge Blower Fault** | Indicates Sludge Blower has malfunctioned | Display Alarm. |

## 3.2 - ALARM LIST

# Alarm List

CUSTOMER: George Mason University
PROJECT NUMBER: U16185
DOCUMENT NUMBER: U16185-I11-001,01

Created by: Chris Weber
Revised by:
Date: 1/21/2015

Revision: 01

| TAG | TYPE | DESCRIPTION (HMI MESSAGE) | SETPOINT | UNITS | DELAY | ACTION | P&ID # | NOTES | Rev |
|---|---|---|---|---|---|---|---|---|---|
| FLT-MCP-120V | Discrete | MCP LOSS OF 120V POWER | | | 5 sec | Shutdown Fault | NA | | |
| FLT-MCP-ES | Discrete | MCP EMERGENCY STOP | | | | Shutdown Fault | NA | | |
| YA-11200 | Discrete | SCR-11200 ROTARY BRUSH SCREEN FAULT | | | 30 sec | Warning | U16185-C01-0110 | | |
| HA-11200 | Discrete | SCR-11200 ROTARY BRUSH SCREEN NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0110 | | |
| YA-19200A | Discrete | P-19200A EQUALIZATION PUMP A FAULT | | | 30 sec | Warning | U16185-C01-0190 | | |
| HA-19200A | Discrete | P-19200A EQUALIZATION PUMP A NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0190 | | |
| YA-19200S | Discrete | P-19200S EQUALIZATION PUMP S FAULT | | | 30 sec | Warning | U16185-C01-0190 | | |
| HA-19200S | Discrete | P-19200S EQUALIZATION PUMP S NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0190 | | |
| YA-73000 | Discrete | M-73000 BIO-WHEEL MOTOR FAULT | | | 30 sec | Warning | U16185-C01-0720 | | |
| HA-73000 | Discrete | M-73000 BIO-WHEEL MOTOR NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0720 | | |
| YA-73083 | Discrete | MX-73083 ANOXIC MIXER MOTOR FAULT | | | 30 sec | Warning | U16185-C01-0720 | | |
| HA-73083 | Discrete | MX-73083 ANOXIC MIXER MOTOR NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0720 | | |
| YA-74600A | Discrete | P-74600A RAS/WAS A PUMP FAULT | | | 30 sec | Warning | U16185-C01-0740 | | |
| HA-74600A | Discrete | P-74600A RAS/WAS A PUMP NOT AUTO | | | 30 sec | Warning | U16185-C01-0740 | | |
| YA-74600S | Discrete | P-74600S RAS/WAS PUMP S FAULT | | | 30 sec | Warning | U16185-C01-0740 | | |
| HA-74600S | Discrete | P-74600S RAS/WAS PUMP S NOT AUTO | | | 30 sec | Warning | U16185-C01-0740 | | |
| YA-79000A | Discrete | P-79000A PERMEATE PUMP A FAULT | | | 30 sec | Warning | U16185-C01-0740 | | |
| HA-79000A | Discrete | P-79000A PERMEATE PUMP A NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0740 | | |
| YA-79000S | Discrete | P-79000S PERMEATE PUMP S FAULT | | | 30 sec | Warning | U16185-C01-0740 | | |
| HA-79000S | Discrete | P-79000S PERMEATE PUMP S NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0740 | | |
| YA-75000A | Discrete | B-75000A MIXING BLOWER A FAULT | | | 30 sec | Warning | U16185-C01-0750 | | |
| HA-75000A | Discrete | B-75000A MIXING BLOWER A NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0750 | | |
| YA-75000S | Discrete | B-75000S MIXING BLOWER S FAULT | | | 30 sec | Warning | U16185-C01-0750 | | |
| HA-75000S | Discrete | B-75000S MIXING BLOWER S NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0750 | | |
| YA-75400 | Discrete | B-75400 MEMBRANE BLOWER S FAULT | | | 30 sec | Warning | U16185-C01-0750 | | |
| HA-75400 | Discrete | B-75400 MEMBRANE BLOWER S NOT IN AUTO | | | 30 sec | Warning | U16185-C01-0750 | | |
| YA-96001 | Discrete | FV-96001 WAS VALVE FAULT | | | 30 sec | Warning | U16185-C01-0740 | | |
| YA-72001 | Discrete | FV-72001 RAS VALVE FAULT | | | 30 sec | Warning | U16185-C01-0740 | | |
| LAHH-19060 | Analog | LT-19060 EQUALIZATION TANK LEVEL HIGH HIGH | | | | Warning | U16185-C01-0190 | | |
| LAH-19060 | Analog | LT-19060 EQUALIZATION TANK LEVEL HIGH | | | | Warning | U16185-C01-0190 | | |
| LAL-19060 | Analog | LT-19060 EQUALIZATION TANK LEVEL LOW | | | | Warning | U16185-C01-0190 | | |
| LALL-19060 | Analog | LT-19060 EQUALIZATION TANK LEVEL LOW LOW | | | | Warning | U16185-C01-0190 | | |
| FAH-19274 | Analog | FIT-19274 EQUALIZATION TO BIOREACTOR FLOW HIGH | | | | Warning | U16185-C01-0190 | | |
| FAL-19274 | Analog | FIT-19274 EQUALIZATION TO BIOREACTOR FLOW LOW | | | | Warning | U16185-C01-0190 | | |
| FALL-19274 | Analog | FIT-19274 EQUALIZATION TO BIOREACTOR FLOW LOW LOW | | | | Warning | U16185-C01-0190 | | |
| AAH-73093 | Analog | AIT-73093 BIO-WHEEL TANK DISSOLVED OXYGEN HIGH | | | | Warning | U16185-C01-0720 | | |
| AAL-73093 | Analog | AIT-73093 BIO-WHEEL TANK DISSOLVED OXYGEN LOW | | | | Warning | U16185-C01-0720 | | |
| LAHH-74060 | Analog | LT-74060 MEMBRANE TANK LEVEL HIGH HIGH | | | | Warning | U16185-C01-0720 | | |
| LAH-74060 | Analog | LT-74060 MEMBRANE TANK LEVEL HIGH | | | | Warning | U16185-C01-0740 | | |
| LAL-74060 | Analog | LT-74060 MEMBRANE TANK LEVEL LOW | | | | Warning | U16185-C01-0740 | | |
| LALL-74060 | Analog | LT-74060 MEMBRANE TANK LEVEL LOW LOW | | | | Warning | U16185-C01-0740 | | |
| PAH-79045 | Analog | PT-79045 PERMEATE PUMP FEED PRESSURE HIGH | | | | Warning | U16185-C01-0740 | | |
| PAL-79045 | Analog | PT-79045 PERMEATE PUMP FEED PRESSURE LOW | | | | Warning | U16185-C01-0740 | | |
| PALL-79045 | Analog | PT-79045 PERMEATE PUMP FEED PRESSURE LOW LOW | | | | Warning | U16185-C01-0740 | | |
| FAH-74674 | Analog | FIT-74674 RAS/WAS FLOW HIGH | | | | Warning | U16185-C01-0740 | | |
| FAL-74674 | Analog | FIT-74674 RAS/WAS FLOW LOW | | | | Warning | U16185-C01-0740 | | |
| FALL-74674 | Analog | FIT-74674 RAS/WAS FLOW LOW LOW | | | | Warning | U16185-C01-0740 | | |
| TMBAHH | Analog | TMBAHH TRANSMEMBRANE PRESSURE HI HI | | | | Warning | U16185-C01-0740 | | |
| TMBAH | Analog | TMBAH TRANSMEMBRANE PRESSURE HI | | | | Warning | U16185-C01-0740 | | |
| LAHH-96060 | Analog | LT-96060 SLUDGE HOLDING TANK LEVEL HIGH HIGH | | | | Warning | U16185-C01-0960 | | |
| LAH-96060 | Analog | LT-96060 SLUDGE HOLDING TANK LEVEL HIGH | | | | Warning | U16185-C01-0960 | | |
| LALL-96060 | Analog | LT-96060 SLUDGE HOLDING TANK LEVEL LOW LOW | | | | Warning | U16185-C01-0960 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

# SECTION 5 - OPERATING PROCEDURES

## 5.1 - SYSTEM CONFIGURATION

The system at George Mason University (ICAR Wastewater Treatment Plant) is based on a Bio-Brane system using a combination of Bio-Wheel and MBR technologies. Table 2 describes the installed system configuration.

**Table 2: Installed System Configuration**

| Description | Value |
|---|---|
| Plant Capacity (average day flow) | 5,000 gal/day |
| Plant Capacity (peak flow – limited durations) | 10,000 gal/day |
| Total # of Trains Installed | 1 |
| Type of Membrane Module | Toray TMR090 Series (100S) |
| Sheet Surface Area | 0.9 $m^2$ |
| Total Plant Surface Area Per Train | 900 $m^2$ |

A detailed description of the system configuration can be found in Section 3.1 - Process Control Narrative. Refer to Section 7.1 - Piping and Instrumentation Diagrams (P&IDs) for other detail on the system configuration including ancillary equipment.

## 5.2 - OPERATING THE SYSTEM


Before operating the system, please read the section in this manual on safety: Section 4 - Safety.

Use the following standard operating procedure to start up the plant. If restarting the plant after an alarm shutdown, refer to 5.3 - Restarting the System.

1. At the main plant motor control center (MCC), ensure that the master circuit-breaker is set to ON and that the selector switches for all equipment related to the subsystem are set to AUTO.

2. Refer to Section 8 -Vendor O&M Data and Manuals for information on how to specifically startup and operate individual items of equipment. In general, however, once the system is commissioned, the operation of most equipment items is handled by the PLC.
3. Set all manually operated valves in the proper position for normal operation.
4. At the main plant control panel, ensure that power is ON. All other auxiliary control panels need to be powered ON.
5. At the HMI, ensure that power is ON and that the screen displays one of the screens shown in section 3.3 - HMI Screen Shots. If power is ON but the screen remains dark, touch the screen to activate it.
6. On the HMI main screen, enter the user name and password, and then touch the OK button.
7. Place the system into AUTO mode to make it available for production. Confirm that the system starts up as expected without alarms.

## 5.3 - RESTARTING THE SYSTEM

Use the following standard operating procedure to resume operation of the plant after a shutdown.

1. At the HMI, navigate to the Alarms Screen.
2. Silence audible alarms if necessary.
3. Based on the information provided on the screen, determine what condition(s) caused the plant shutdown.
4. If the cause of the alarm(s) is something that requires physical intervention in the plant, attend to that requirement. Refer to section 6.4 - Trouble-Shooting for information on common causes of shutdowns.
5. Reset the alarm (or reset all alarms) on the screen. The plant will return to its previous AUTO states and resume operation.

## 5.4 - MANUAL CONTROLS


Before using manual controls, please read the section in this manual on safety: Section 4 - Safety.

Some measure of manual control of equipment is possible; however these controls should only be used in exceptional circumstances or for troubleshooting assistance. It is expected that this plant operates in AUTO mode most of the time.

1. **Valves**: Valves can be placed in an override condition and opened or closed manually from the HMI. Normally, automated valves are left in the AUTO condition.

2. **Pumps or blowers with VFDs**: Pumps or blowers with Variable Frequency Drives (VFDs) can be operated manually at specific frequencies. This allows the operator to adjust the flowrate of the pump or blower manually. Normally, the frequency that a pump or blower operates at is controlled by the PLC in AUTO mode.
3. **Pumps or Blowers without VFDs**: Pumps or blowers without VFDs can be placed in ON or OFF mode. Normally, pumps or blowers without VFDs are left in AUTO mode and turned ON and OFF by the PLC.
4. **Chemical Pumps**: Typically chemical pumps are operated only in AUTO mode. Refer to section Section 4 - Safety to understand some of the risks involved in chemical handling. Extreme care should be used when operating chemical pumps in manual mode. Chemical pumps typically are controlled in an ON/OFF fashion.
5. **Control Panels**: Control panels can be manually disabled and de-energized with the disconnect switch on the control panels themselves.
6. **Emergency Stop Button**: System operation can be stopped by pressing the emergency stop button. This is a red button located on the main control panel. In some systems, buttons are also located on remote panels but the functionality is the same. These buttons will place the system in a neutral state (all equipment placed in the OFF state) and system operation cannot resume until the button that has been depressed is physically pulled out to its ON location. When the system restarts, it restarts according to the normal start up sequence as defined in the PLC program and/or Process Control Narrative.

## 5.5 - SIMPLEX DOSING SKIDS


Before using manual controls, please read the section in this manual on safety: Section 4 - Safety.

### 5.5.1 - OPERATION

For the chemical skid to be operational, the valves must be arranged to allow the chemical to flow from the tank to the designated service point. This is achieved by opening the tank isolation valve, pump suction/discharge valves, and the skid outlet valve. The rest of the valves should be closed. Refer to Table 3: Valve Table for Chemical Skids.

### 5.5.2 - CALIBRATION - FILLING

For the chemical pump to be calibrated, the valves must be arranged to allow the chemical to flow from the tank to the calibration column. This is achieved by opening the tank isolation valve, pump

suction/discharge valves, and calibration column inlet valve. The rest of the valves should be closed. Refer to Table 3: Valve Table for Chemical Skids.

### 5.5.3 - CALIBRATION - EMPTYING

After calibration the column should be emptied before returning back to service. The valves must be arranged to allow the chemical to flow from the calibration column back to the tank. This is achieved by opening the calibration column outlet valve, pump suction/discharge valves, and the return to tank isolation valve. The rest of the valves should be closed. Refer to Table 3: Valve Table for Chemical Skids.

**Table 3: Valve Table for Chemical Skids**

| Tag Number | Calibration - Filling | Calibration - Emptying | Operation |
|---|---|---|---|
| **HV-XXX29** | X | X | X |
| **HV-XXX50** | O | O | O |
| **HV-XXX99** | X | X | O |
| **HV-XXX15** | O | X | X |
| **HV-XXX12** | X | O | X |
| **HV-XXX53** | X | O | X |
| **HV-XXX52** | O | O | O |

**Key:** Open (O); Closed (X)

# SECTION 6 - SYSTEM MAINTENANCE PROCEDURES


Before performing any maintenance, trouble-shooting or cleans on this system please read the section in this manual on safety: Section 4 -Safety.

## 6.1 - EQUIPMENT MAINTENANCE

Refer to Section 8 - Vendor O&M Data and Manuals for details on how to maintain equipment items provided by sub-vendors.

### 6.1.1 - MAINTENANCE LOGS

Clear documentation of system and equipment maintenance is helpful in understanding equipment operating costs and in warranty claims. It is recommended that for each piece of equipment in the plant, equipment identification and maintenance log sheets are kept. An example of a log sheet is shown in Table 9.

### 6.1.2 - WORKING WITH ROTATING EQUIPMENT

When working with or around pumps, blowers and other rotating equipment items, in addition to the instructions listed in Section 8 - Vendor O&M Data and Manuals, take the following precautions:

1. Before performing maintenance, isolate and drain all piping connected to a pump.
2. Before performing maintenance on any rotating or powered equipment item, ensure the item is brought to a zero energy state and complete all lock-out/tag-out procedures required by government regulations, plant-specific procedures, and those recommendations in section Section 4 - Safety.
3. After completing maintenance, replace any guards or other safety components removed during the procedure. Personnel working on pumps used to transfer chemicals must be familiar with the safe-handling procedures associated with the chemicals and biological involved.
4. When working with diaphragm pumps or other chemical transfer pumps, be aware that some media may remain within the pump’s diaphragm chamber even after the pump has been drained and ensure proper PPE is worn during this work.
5. In general, motors should be inspected at regular intervals; approximately every 500 hours of operation or every 3 months, whichever occurs first. Keep the motor clean and the ventilation openings clear. Electrical connectors should be tight. Megger readings on motor insulation should be taken and recorded to monitor for issues.

## 6.2 - MEMBRANE MAINTENANCE


Before performing any maintenance, trouble-shooting or cleans on this system please read the section in this manual on safety: Section 4 -Safety.

### 6.2.1 - MEMBRANE FOULING - MBR

Membranes foul with use and this is a normal process. The expected rate of fouling is a design parameter that is used to determine the cleaning and maintenance protocols for the facility. The cleaning frequency is a function of the production rate and water quality, since cleaning interval and flux are inter-related. The higher the flux the plant is operating at, the higher the observed fouling rate will be, and the shorter the cleaning interval.

Membrane fouling creates an increase in the trans-membrane pressure (TMP). As a result, there are increased energy costs and potentially reduced membrane life (depending on the type of fouling). When TMP increases, the permeate pump requires more energy to pull the water across the membrane to meet the flow set-point. In order to operate the system in the most efficient way and keep costs down, running with a balanced TMP range is the recommended practice.

### 6.2.2 - TEMPERATURE CORRECTION

Note that there is a strong relationship between water temperature and transmembrane pressure. When analyzing fouling data, it is important to remove the temperature effect by using a temperature correlation for viscosity. One commonly used correlation for temperature and viscosity is from the EPA's Membrane Filtration Guidance Manual, Equation 2.8:

$$\mu_T = 1.784 - (0.0575 \bullet T) + (0.0011 \bullet T^2) - (10^{-5} \bullet T^3) \qquad \text{Equation 2.8}$$

Where: $\mu_T$ = viscosity of water at temperature T (cp)
T = water temperature (°C)

Also from the Membrane Filtration Guidance Manual, Equation 2.9 can be used to adjust observed flux rates to temperature corrected flux rates. Normally, temperature corrections are made to 20°C by convention.

$$J_{20} \bullet \mu_{20} = J_T \bullet \mu_T \qquad \text{Equation 2.9}$$

Where:

| | | |
|---|---|---|
| $J_{20}$ | = | normalized flux at 20 °C (gfd) |
| $\mu_{20}$ | = | viscosity of water at 20 °C (cp) |
| $J_T$ | = | actual flux at temperature T (gfd) |
| $\mu_T$ | = | viscosity of water at temperature T (cp) |

These equations can be used to compare operating data from different times if temperature variations occur.

### 6.2.3 - FOULANTS

Foulants, in general, are compounds that accumulate on a membrane surface or inside the membrane pores. They reduce the effective membrane surface area reducing the area available for water to pass across the membrane. Foulants are divided into four types as shown in Table 4: Foulants and Treatment.

**Table 4: Foulants and Treatment**

| Foulant Type | Definition | Treatment and Prevention |
|---|---|---|
| **Solids** | High levels of solids can clog membrane modules and prevent filtration. | Ensuring that pre-screening is operating effectively and that wasting to the sludge holding tank occurs regularly. |
| **Precipitation** | Scale can form when the compounds in feed water are concentrated beyond their solubility (more common in RO and NF systems). For example, calcium carbonate and magnesium sulfate. Hard scale formation membranes, can block water flow. High pHs and hard feed water can promote scale formation. | Acid based cleaners are used to remove fouling from precipitation. Adjustments to the waste stream concentration can also help. Lime softening and downward feed water pH adjustment can minimize risk. |
| **Biological** | Living organisms such as bacteria, fungus, and algae, are biological foulants. Colonies can form on the surface of the membrane blocking water flow through the membrane surface. | Regular treatment with antimicrobial agents and biocides are effective in preventing and reversing biological fouling. Sodium hypochlorite is the most frequently used agent to kill biological organisms. |
| **Absorptive** | Oils, polymers, cationic surfactants, and hydrocarbons, are common adsorptive foulants. | This type of fouling can be irreversible and feed waters containing these compounds should be minimized or piloted beforehand. |

Since feed waters can change over time, it is important to have a regular sampling and testing program for potentially fouling compounds. This information is very valuable in diagnosing membrane fouling issues in the future, even if it is simply used to rule out potential causes.

### 6.2.4 - CLEANING PROTOCOL - MBR

The process control narrative (Section 3.1 - Process Control Narrative) describes the cleaning procedure for this project. Table 5 describes the recommended cleaning frequency.

**Table 5: Cleaning Frequency**

| Clean | Frequency |
|---|---|
| **Hypochlorite Cleans** | 180 days |
| **Citric Acid Cleans** | 180 days |

If alternatives to these cleaning frequencies are requested, please discuss with $H_2O$ Innovation. Cleans performed on trains are to be logged in a cleaning log (see Table 6: Cleaning Log Sample) by the plant operators. This information is critical for long term performance monitoring and is required to maintain the warranty on the membranes. $H_2O$ Innovation is a manufacturer of specialty cleaning chemicals and have lab services are available that can help determine cleaning protocols for fouled membranes. Please discuss membrane cleaning and fouling issues promptly to ensure seamless resolution.

Table 6: Cleaning Log Sample

| Cleaning Log | Date | {Date}… | {Date}… |
|---|---|---|---|
| **Chemical(s) used** | | | |
| **Volume of chemical added (gal)** | | | |
| **Time started** | | | |
| **Duration (minutes)** | | | |
| **Pre-clean TMP** | | | |
| **Pre-clean flowrate** | | | |
| **Pre-clean biomass temperature** | | | |
| **Pre-clean permeability (corrected to 20°C)** | | | |
| **Post-clean TMP** | | | |
| **Post-clean flowrate** | | | |
| **Post-clean biomass temperature** | | | |
| **Post-clean permeability (corrected to 20°C)** | | | |

## 6.3 - BIO-WHEEL

### 6.3.1 - VISUAL INSPECTION

The Bio-Wheel should be examined at least on a daily basis. Any trash or debris floating in the tank or affixed to the wheel should be manually removed to prevent damage.

Once a month, check the entire system for symptoms of wear, deterioration or damage. Such symptoms include excessive vibration, excessive or unusual noise, corrosion, loose pipes or fittings, and leaking fluids. Take necessary corrective action.

### 6.3.2 - REGULAR MAINTENANCE

Re-grease the drive bearings (if required) on the motors every six months or as per manufacturer's recommendations. Do not over-grease the motor. Excessive lubrication may damage bearing seals.

During the periodic inspection, wipe off dirt, oil, moisture, or other contaminants from external surfaces of equipment including motors, pumps, air inlets, etc.

The Bio-Wheel chain should be inspected, adjusted, and greased on an annual basis.

## 6.4 - TROUBLE-SHOOTING


Before performing any maintenance, trouble-shooting or cleans on this system please read the section in this manual on safety: Section 4 -Safety.

This trouble-shooting guide is intended to provide basic information only. Experienced operators and maintenance staff are required at any facility that has significant process equipment. Only qualified and trained personnel should engage in trouble-shooting or maintenance on the equipment covered by this manual. The information provided in Section 8 - Vendor O&M Data and Manuals must also be used for diagnosing and trouble-shooting issues with sub-vendor components.

The following tables describe some common problems and potential resolutions.

**Table 7: Trouble-Shooting Tips - MBR**

| Problem | Possible Cause | Potential Resolution |
|---|---|---|
| **High TMP during production** | Membrane fouling has occurred. If fouling occurred rapidly and unexpectedly, has there been an upstream issue? | Execute cleans as described in this manual once flow peaks have been alleviated. |
| | A manual valve in the pump suction line or filtrate line is partially closed. | Check positioning of all manual valves. |
| | Instrumentation failure. | Check the calibration and diagnostics of the feed pressure transmitter. Are the instruments communicating with the PLC? |
| | PID tuning parameters have been altered. | Confirm with $H_2O$ Innovation that the PID is as it was left at the end of commissioning. Have tuning parameters been adjusted? |
| | Aeration issues. | Check that air is getting to the entire membrane module. Air needs to get to all of each module to scour the membrane surface appropriately. |

| Problem | Possible Cause | Potential Resolution |
|---|---|---|
| | Accidental adjustment of set-points. | Confirm set-points in HMI reflect the commissioned values or agreed to, modified values. |
| **Pump low flow alarms** | Manual valves are closed or partially closed. Has maintenance recently occurred on the pump or system? | Confirm that manual valves are all in the correct positions. Isolation valves should be open for equipment that is intended to be online. |
| | Automated valves are not actuating as expected. | Check that the automated valves in the line are opening when they should for the programming sequence by looking at the position indicators on the actuators.<br><br>Confirm that the valve timing is suitable (delays between valve actuation and pump actuation).<br><br>Confirm that all pneumatic lines are open and connected to pneumatic valves. Confirm lines do not contain frozen moisture. |
| | Piping leaks. | Check that all piping connections are tight and not leaking. |
| | Instrumentation related issues. | Check to see if there is air trapped in the pipe where the mag meters is installed or if air is passing through a mag meter. |
| | Air entrainment. | Check if air is causing issues with pump priming and proper functioning. |
| | Issues with VFD. | Check to see if the VFD has presented any faults. |
| **Analogue device issues** | Instrumentation issues – moisture ingress. | Check that the seals in the instrument are good. |
| | Power issues. | Confirm that the instrument is receiving power and has booted up correctly. Check that the power supply is working. |
| | Communication issues. | Check that the PLC is receiving a signal from the instrument and if the instrument has HART, check the instrument's on-board diagnostics. |

| Problem | Possible Cause | Potential Resolution |
|---|---|---|
| **Digital device issues** | Power issues. | Check that the fuse has not blown to the switch and that the switch is receiving power as expected. |
| | Communication issues. | Check that the PLC is receiving a signal from the switch (continuity). |
| **Filtrate water quality** | Leaking modules or plates. | A module inspection may be required – please contact $H_2O$ Innovation. |
| | Instrumentation issues (typically turbidity; if installed). | The most common cause of high turbidity are issues with the instrument itself. Confirm that the instrument is functioning correctly and that calibration is accurate. Confirm that the flow through analytical instruments is within specification. |
| | Air entrainment. | The second most common cause of direct quality measurement issues is air entrainment in the process stream. Confirm that the flow rate to the instrument is within specification and that degassers are functioning appropriately. |
| **Unexpected alarms on HMI** | Devices in manual. | Required equipment is disabled or not in automatic mode. Place all available equipment in AUTO mode. |

Table 8: Trouble-Shooting Tips - Bio-Wheel System

| Problem | Possible Cause | Potential Resolution |
|---|---|---|
| **Bio Wheel stop** | Power failure. | Check power supply |
| | Variable frequency drive overload. | Check on VFD display for error messages and correct. |
| | Excessive vibration. | If vibration levels in rotating equipment change, refer to manual for equipment item for remedial actions. |

| Problem | Possible Cause | Potential Resolution |
|---|---|---|
| | Emergency stop engages. | Inspect the whole drive system and look for debris in tank – this may include lowering the water level manually. |
| | Bio wheel blocked by debris at the bottom of the tank | Drain tank and remove debris. Confirm that feed screen is functioning correctly. |
| **Equalization or RAS Pumps** | Partial or complete clog by debris. | Remove pump and clear debris. Inspect impeller and shaft carefully for damage. |
| | Excessive vibration. | If vibration levels in rotating equipment change, refer to manual for equipment item for remedial actions. |
| | Variable frequency drive overload (if installed for this pump). | Check on VFD display for error messages and correct |
| | No or low flow | Manual valves are closed or partially closed. Confirm that manual valves are all in the correct positions and that clogs have not developed. |
| **Skimmer not functioning (if installed)** | Partial or complete clog by debris. | Pig piping or otherwise check for debris. |

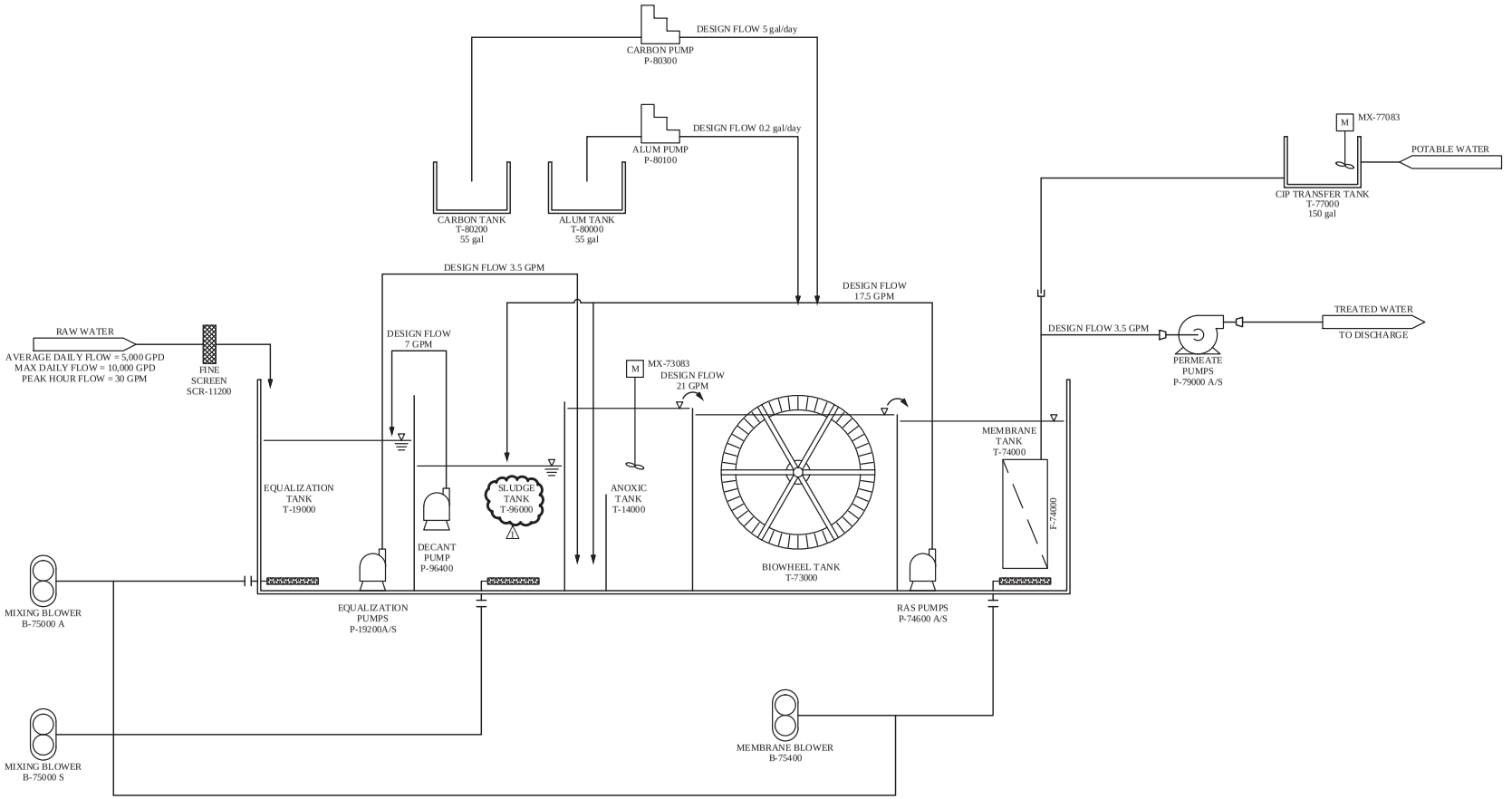
Table 9: Example Equipment Maintenance Log

| GENERAL MAINTENANCE LOG – EQUIPMENT TAG : | | | | | |
|---|---|---|---|---|---|
| **Date** | **Time** | **Problem[1]** | **Task Performed** | **Remarks** | **Initials** |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Notes: 1. Was this repair planned or unscheduled? Is it a recurring event?

# SECTION 7 - DRAWINGS AND DIAGRAMS

## 7.1 - PIPING AND INSTRUMENTATION DIAGRAMS (P&IDS)

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DRAWING REVISION

| REV | DATE | REVISION DESCRIPTION | DRAWN | CHKD | ENG | APPVD |
|---|---|---|---|---|---|---|
| 1 | 22/10/2014 | FIRST DESIGN SUBMITTAL MINOR REVISIONS | D.M. | D.O.N. | D.O.N. | D.O.N. |
| 0 | 10/15/2014 | FIRST DESIGN SUBMITTAL | M.P. | D.O.N. | D.O.N. | M.B. |

h2o innovation
knowledge to where it matters

UNLESS NOTED OTHERWISE
INTERPRETATION PER Y14.5
TOLERANCES
FRACTIONS ±1/64
DECIMALS X.X ±0.030
X.XX ±0.010
X.XXX ±0.005
ANGLES ±1°
HOLE SIZES ±1/64
HOLE CENTERS ±1/64
DO NOT SCALE PRINTS

GEORGE MASON UNIVERSITY
FAIRFAX COUNTY, VA
ICAR WASTEWATER TREATMENT PLANT

TITLE:
PROCESS FLOW DIAGRAM

| SCALE: | DRAWING NUMBER: | REVISION |
|---|---|---|
| N/A | U16185 C11 0001 | 01 |
| | SHEET: 1 1 | |

## VALVE SYMBOLS

| N.OPEN | N.CLOSED | |
|---|---|---|
| | | BALL |
| | | V-BALL |
| | | BUTTERFLY |
| | | DIAPHRAGM |
| | | GATE |
| | | GLOBE |
| | | NEEDLE |
| | | PLUG |
| | | SAMPE/DRAIN |
| | | CHECK |
| | | BACKFLOW PREVENTER |
| | | 3-WAY, 4-WAY |
| | | PRESSURE REGULATING |
| | | BACK PRESSURE REGULATING |
| | | FLOW CONTROL |
| | | 2-WAY SOLENOID |
| | | 3-WAY SOLENOID |
| | | 4-WAY SOLENOID |
| | | AIR RELEASE |
| | | PRESSURE RELEASE |
| | | SLUICE GATE/WEIR |

## VALVE ACTUATOR SYMBOLS

- PNEUMATIC (FAIL LAST POSITION)
- F.C. PNEUMATIC FAIL CLOSE
- F.O. PNEUMATIC FAIL OPEN
- ELECTRIC
- DIAPHRAGM
- POSITIONER (ANY ACTUATOR TYPE)
- HAND OVERRIDE (ANY ACTUATOR TYPE)
- TRAVEL STOPS (ANY ACTUATOR TYPE)

## FLOWMETER SYMBOLS

INTEGRAL / CLOSE COUPLED / REMOTE

- MAGNETIC
- PADDLE
- VORTEX
- DP/ORIFICE
- THERMAL
- ROTAMETER

## INSTRUMENTATION SYMBOLS

| LOCALLY MOUNTED | IN MAIN CONTROL PANEL | IN REMOTE CONTROL PANEL | |
|---|---|---|---|
| X | X | X | DISCRETE INSTRUMENT |
| | X | X | PRIMARY PLC OR DCS SHARED CONTROL |
| | X | X | SECONDARY PLC OR DCS SHARED CONTROL |
| | X | X | COMPUTER FUNCTION |

### INSTRUMENT FUNCTIONS

- K — SIGNAL PROCESSING FUNCTION
- A/M — AUTO/MANUAL
- Σ — ADDITION/SUMMATION
- Δ — DIFFERENTIAL
- I — INTERLOCK LOGIC FUNCTION
- ⅀/n — AVERAGING

### INSTRUMENT CONNECTIONS

- FLANGED
- SOCKETWELD
- THREADED
- WELDED

## PIPING SYMBOLS

- FLANGED CONNECTION
- BLIND FLANGE
- QUICK DISCONNECT VICTAULIC
- QUICK DISCONNECT CAMLOK
- CAPPED PIPE END
- UNION
- EXPANSION/FLEXIBLE/ ISOLATION JOINT
- DOUBLE CONTAINMENT
- X" INSULATION THICKNESS INSULATION
- X" INSULATION THICKNESS HEAT TRACING E=ELECTRIC S=STEAM G=GLYCOL
- DRAIN OUTLET
- REDUCER

## PIPING ABBREVIATIONS

| | |
|---|---|
| 316 SS | 316 STAINLESS STEEL |
| 304 SS | 304 STAINLESS STEEL |
| 316L SS | LOW CARBON 316 STAINLESS STEEL |
| 304L SS | LOW CARBON 304 STAINLESS STEEL |
| CPVC | CHLORINATED POLYVINYL CHLORIDE |
| CS | CARBON STEEL |
| DI | DUCTILE IRON |
| HDPE | HIGH-DENSITY POLYETHYLENE |
| PE | POLYETHYLENE |
| PVC | POLYVINYL CHLORIDE |
| RLCS | RUBBER LINED CARBON STEEL |
| SCH. | SCHEDULE |
| SDR | STANDARD DIMENSION RATIO |

## LINE SYMBOLOGY

- MAIN PROCESS LINE
- SECONDARY PROCESS LINE
- PROCESS LINE, BY OTHERS
- COMM LINK (EX. PLC TO HMI)
- COMM LINK (EX. PLC TO DCS)
- ELECTRIC SIGNAL
- PNEUMATIC LINE
- LINE JUMPER
- PIPE DISCONTINUATION
- FLOW DIRECTION ARROWS
- 4" 316 SS SCH.10 — LINES SIZE/ MATERIAL IDENTIFIER
- SKID BOUNDARY — SKID BY $H_2O$ Innovation / BY OTHERS
- REVISION
- LINES TO/FROM OTHER SHEETS — DESCRIPTION — C01-0001 SHT 1 — DESTINATION

## PUMP SYMBOLS

- CENTRIFUGAL
- CHEMICAL METERING
- DIAPHRAGM
- POSITIVE DISPLACEMENT
- VACUUM
- SUBMERSIBLE OR FLOATING

## MISCELLANEOUS EQUIPMENT SYMBOLS

- CARTRIDGE FILTER HOUSING
- AUTOMATIC STRAINER
- SILENCER
- MIXER
- STATIC MIXER
- RESIN TRAP
- MOTOR
- EDUCTOR OR VENTURI
- Y STRAINER
- CONICAL OR TEMPORARY STRAINER
- PULSATION DAMPENER
- DIAPHRAGM
- FLOW ORIFICE
- AIR COMPRESSOR
- AIR COMPRESSOR W/ RECEIVER TANK
- RUPTURE DISK (PRESSURE)
- RUPTURE DISK (VACUUM)
- SPECTACLE BLIND (NORMALLY OPEN, NORMALLY CLOSED)
- IMMERSED HEATER
- IN-LINE HEATER
- IMMERSED ULTRASONIC LEVEL TRANSMITTER
- IMMERSED FLOAT-STYLE LEVEL TRANSMITTER
- CHEMICAL CONTAINMENT
- CALIBRATION COLUMN
- MEMBRANE
- UV STERILIZER
- DIFFUSERS:
- COARSE BUBBLE
- FINE BUBBLE
- ROTARY BLOWER
- REGENERATIVE BLOWER
- CENTRIFUGAL BLOWER
- TURBOCHARGER
- BIO-WHEEL

## FLOW INSTRUMENTS

| | |
|---|---|
| FAH | FLOW ALARM HIGH |
| FAL | FLOW ALARM LOW |
| FCV | SELF REGULATING FLOW VALVE |
| FE | FLOW ELEMENT |
| FI | FLOW INDICATOR |
| FIC | FLOW INDICATING CONTROLLER |
| FIT | FLOW INDICATING TRANSMITTER |
| FR | FLOW RECORDING |
| FSH | FLOW SWITCH HIGH |
| FSL | FLOW SWITCH LOW |
| FV | FLOW CONTROL OR ON/OFF VALVE |
| FQ | FLOW TOTALIZER |
| FY | FLOW SIGNAL CONVERT, I/P, OR SOLN |

## PRESSURE INSTRUMENTS

| | |
|---|---|
| PAH | PRESSURE ALARM HIGH |
| PAL | PRESSURE ALARM LOW |
| PC | PRESSURE CONTROLLER |
| PCV | SELF REG PRESS CONTROL VALVE |
| PDH | DIFFERENTIAL PRESSURE HIGH |
| PDI | DIFFERENTIAL PRESSURE INDICATOR |
| PDIT | DIFF PRESS INDICATING TRANSMITTER |
| PDSH | DIFFERENTIAL PRESS SWITCH HIGH |
| PG | PRESSURE GAUGE |
| PI | PRESSURE INDICATOR |
| PIC | PRESSURE INDICATING CONTROLLER |
| PIT | PRESSURE INDICATING TRANSMITTER |
| PSH | PRESSURE SWITCH HIGH |
| PSL | PRESSURE SWITCH LOW |
| PSV | SELF REG PRESS SAFETY VALVE |
| PT | PRESSURE TRANSMITTER |
| PY | PRESS SIGNAL CONVERT, I/P, OR SOLN |

## LEVEL INSTRUMENTS

| | |
|---|---|
| LAH | LEVEL ALARM HIGH |
| LAL | LEVEL ALARM LOW |
| LCV | SELF REG LEVEL CONTROL VALVE |
| LE | LEVEL ELEMENT |
| LG | LEVEL GAUGE |
| LI | LEVEL INDICATOR |
| LIC | LEVEL INDICATING CONTROLLER |
| LIT | LEVEL INDICATING TRANSMITTER |
| LSH | LEVEL SWITCH HIGH |
| LSL | LEVEL SWITCH LOW |
| LT | LEVEL TRANSMITTER |
| LV | LEVEL CONTROL OR ON/OFF VALVE |
| LY | LEVEL SIGNAL CONVERT, I/P, OR SOLN |

## TEMPERATURE INSTRUMENTS

| | |
|---|---|
| TAH | TEMPERATURE ALARM HIGH |
| TAL | TEMPERATURE ALARM LOW |
| TC | TEMPERATURE CONTROLLER |
| TE | TEMPERATURE ELEMENT |
| TG | TEMPERATURE GAUGE |
| TI | TEMPERATURE INDICATOR |
| TIC | TEMP INDICATING CONTROLLER |
| TIT | TEMP INDICATING TRANSMITTER |
| TSH | TEMPERATURE SWITCH HIGH |
| TSL | TEMPERATURE SWITCH LOW |
| TT | TEMPERATURE TRANSMITTER |
| TV | TEMP CONTROL OR ON/OFF VALVE |
| TY | TEMP SIGNAL CONVERT, I/P, OR SOLN |

## ANALYTICAL INSTRUMENTS

| | |
|---|---|
| AAH | ANALYTICAL ALARM HIGH |
| AAL | ANALYTICAL ALARM LOW |
| AE | ANALYTICAL ELEMENT |
| AI | ANALYTICAL INDICATOR |
| AIC | ANAL INDICATING CONTROLLER |
| AIT | ANAL INDICATING TRANSMITTER |
| ASH | ANALYTICAL SWITCH HIGH |
| ASL | ANALYTICAL SWITCH LOW |
| AT | ANALYTICAL TRANSMITTER |
| AY | ANAL SIGNAL CONVERT, I/P, OR SOLN |

## MISCELLANEOUS INSTRUMENTS

| | |
|---|---|
| HS | HAND SWITCH |
| HI | HAND SWITCH POSITION INDICATOR |
| II | CURRENT INDICATOR |
| QQI | TOTALIZER INDICATOR |
| SC | SPEED CONTROLLER |
| SI | SPEED INDICATOR |
| YA | MOTOR ALARM |
| YC | MOTOR CONTROL |
| YI | MOTOR ON/OFF INDICATOR |
| ZIC | SWITCH CLOSE INDICATOR |
| ZIO | SWITCH OPEN INDICATOR |
| ZSC | POSITION SWITCH CLOSED |
| ZSO | POSITION SWITCH OPEN |
| ZT | POSITION TRANSMITTER |

## VALVES & EQUIPMENT

| | |
|---|---|
| AC | AIR COMPRESSOR |
| ARV | AIR RELEASE VALVE |
| AS | AIR SUPPLY |
| B | BLOWER |
| BT | BULK TOTE |
| CBD | COARSE BUBBLE DIFFUSER |
| CV | CHECK VALVE |
| ED | EDUCTOR |
| F | FILTER |
| FBD | FINE BUBBLE DIFFUSER |
| FL | FAIL LAST (DEFAULT IF NOT SHOWN) |
| FC | FAIL CLOSED |
| FO | FAIL OPEN |
| FQG | CALIBRATION COLUMN |
| H | HEATER |
| HCV | HAND CONTROL VALVE |
| HTR | HEATER |
| HV | HAND VALVE |
| M | MOTOR |
| MX | MIXER |
| P | PUMP |
| RT | RESIN TRAP |
| STR | STRAINER |
| T | TANK |
| UV | ULTRAVIOLET |

## OTHER ABBREVIATIONS

| | |
|---|---|
| CAP | CAPACITANCE |
| CIP | CLEAN-IN-PLACE |
| COND | CONDUCTIVITY |
| DO | DISSOLVED OXYGEN |
| ESP | EMERGENCY STOP |
| HOA | HAND-OFF-AUTO |
| IA | INSTRUMENT AIR |
| I/P | CURRENT TP PNEUMATIC CONVERTER |
| ORP | OXIDATION REDUCTION POTENTIAL |
| pH | HYDROGEN ION |
| RES | RESISTIVITY |
| RTD | RESISTANCE TEMP DETECTOR |
| SOLN | SOLENOID |
| SP | SET POINT |
| uS | MICROSIEMENS |
| VFD | VARIABLE FREQUENCY DIVE |



### DRAWING REVISION

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GEORGE MASON UNIVERSITY
FAIRFAX COUNTY, VA

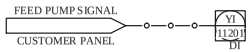
ICAR WASTEWATER TREATMENT PLANT

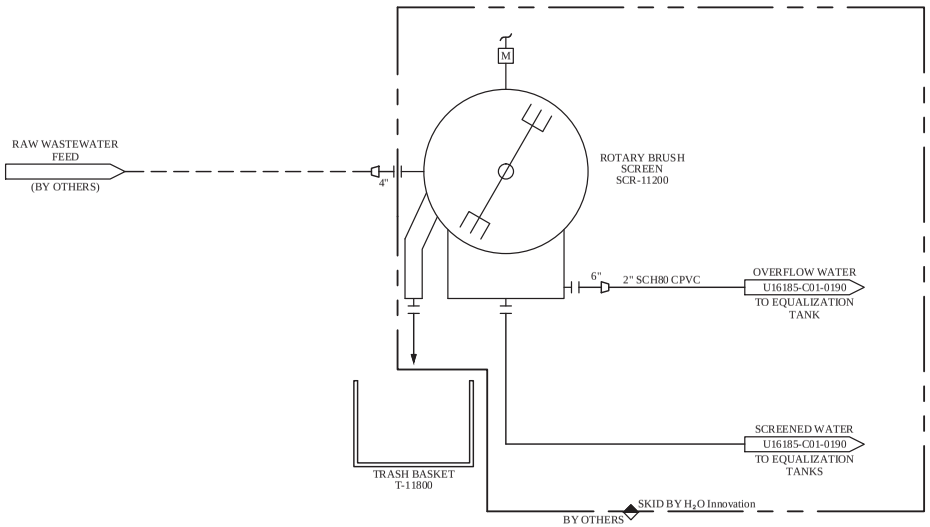
TITLE: PROCESS AND INSTRUMENTION DIAGRAM LEGEND

SCALE: N/A

DRAWING NUMBER: U16185 C01 0001
SHEET: 1 1

REVISION: 0

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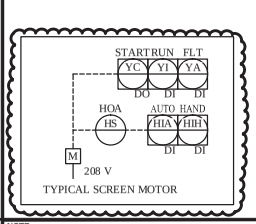


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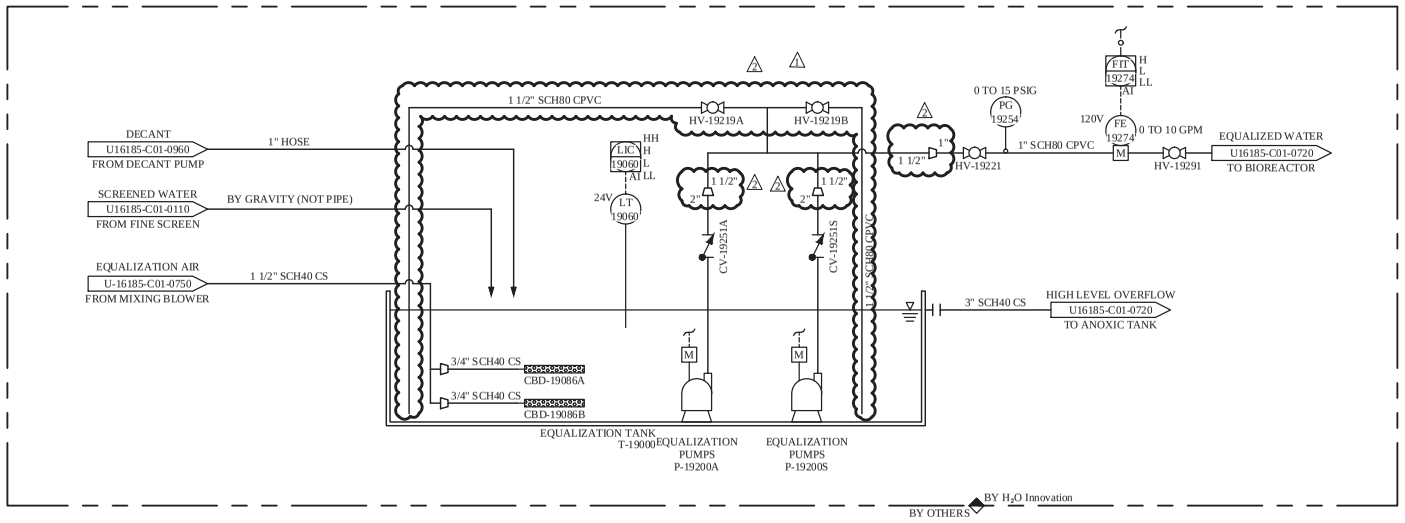


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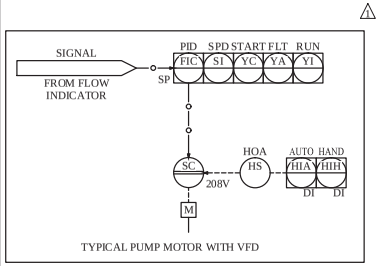


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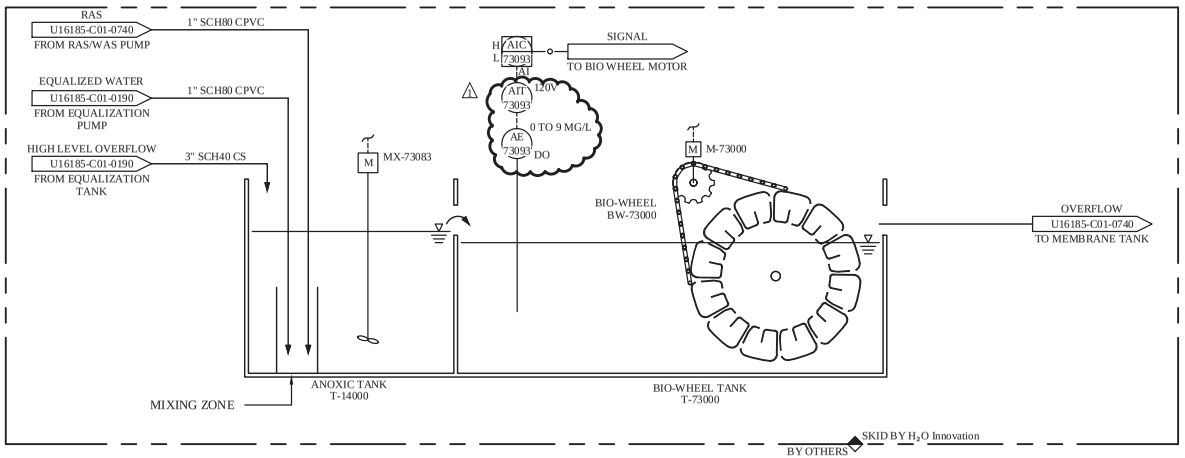


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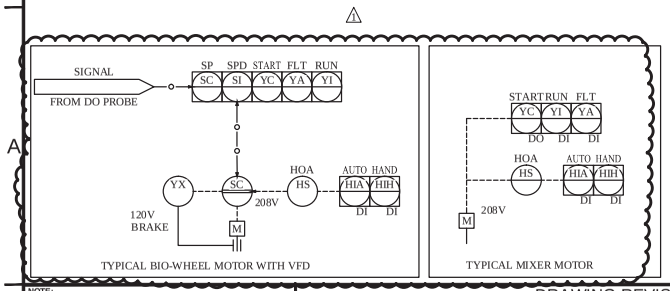


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TITLE:
ANOXIC TANK BIO WHEEL TANK
PROCESS INSTRUMENTATION DIAGRAM

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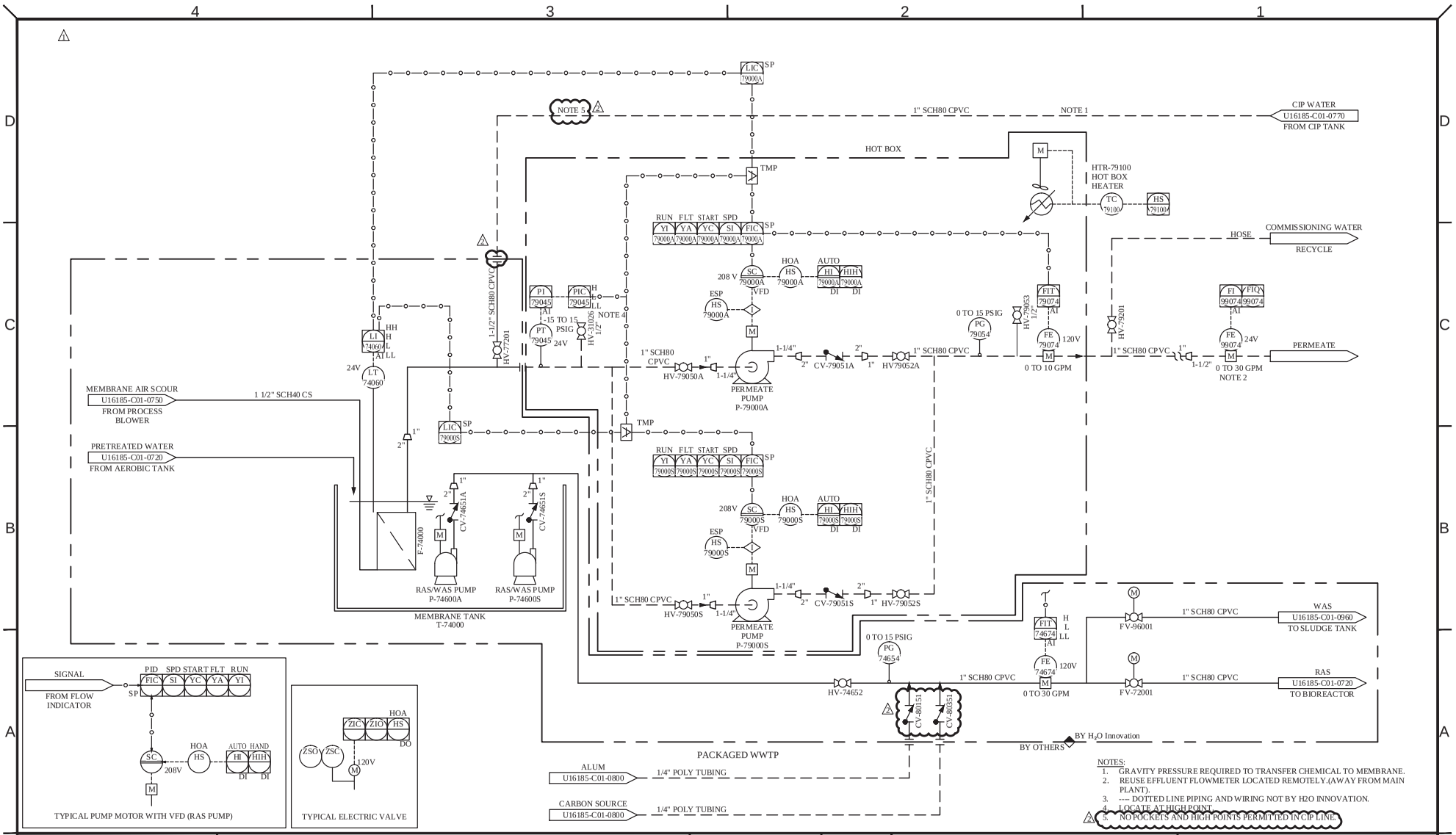


NOTES:
1. GRAVITY PRESSURE REQUIRED TO TRANSFER CHEMICAL TO MEMBRANE.
2. REUSE EFFLUENT FLOWMETER LOCATED REMOTELY.(AWAY FROM MAIN PLANT).
3. ---- DOTTED LINE PIPING AND WIRING NOT BY H2O INNOVATION.
4. LOCATE AT HIGH POINT.
5. NO POCKETS AND HIGH POINTS PERMITTED IN CIP LINE.

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TITLE:
MEMBRANE FILTRATION PROCESS INSTRUMENTATION DIAGRAM

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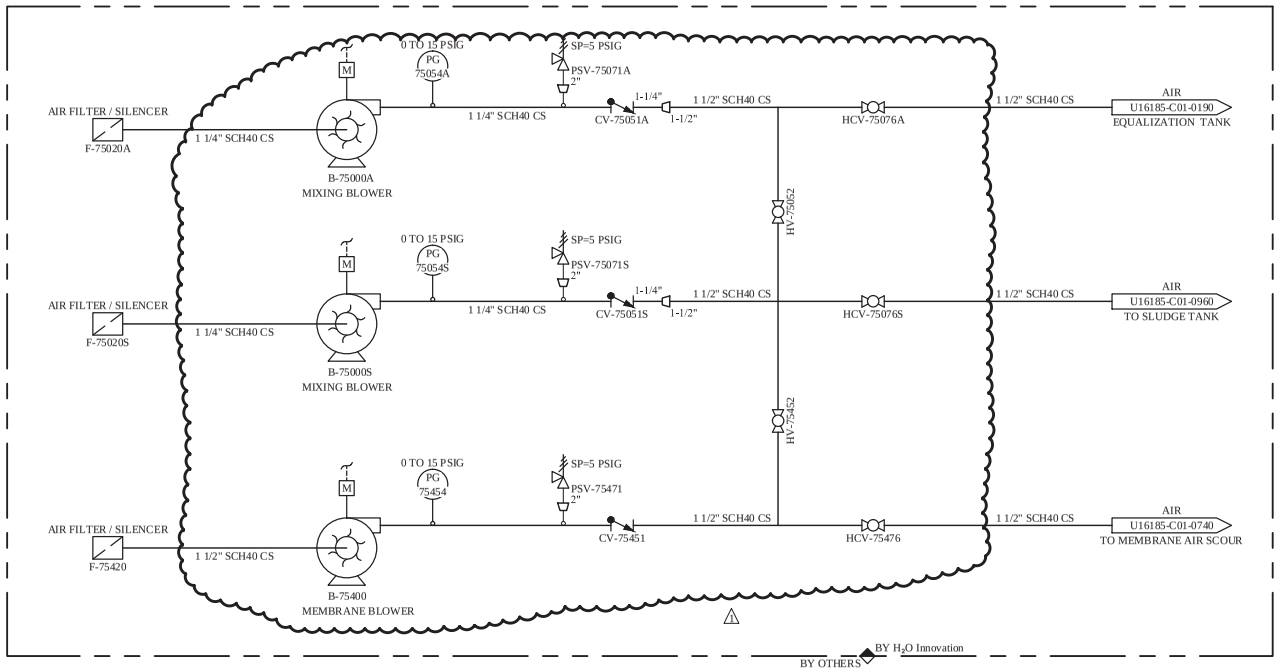


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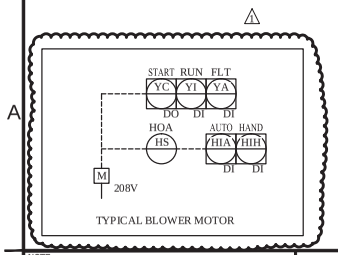


TYPICAL BLOWER MOTOR

NOTES:

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0.00X: ±0.5°
ANGLES: ±
HOLES (DIA): ±
HOLE CENTERS: ±
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TITLE:
BLOWERS FOR BIO BRANE SYSTEM
PROCESS INSTRUMENTATION DIAGRAM

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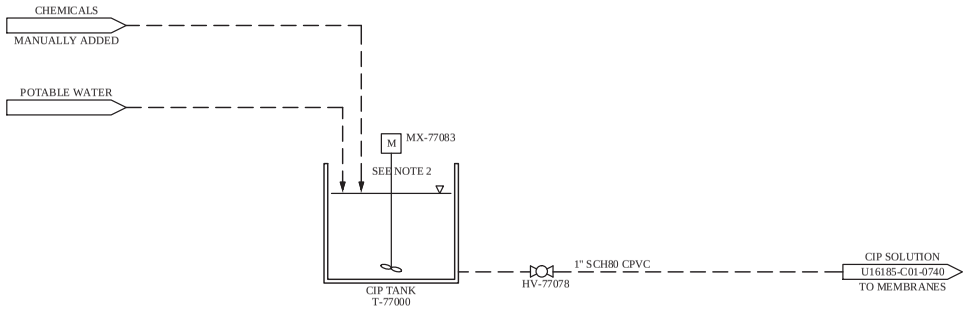


NOTES:

1. --- DOTTED LINE PIPING AND WIRING NOT BY H2O INNOVATION.
2. LOCAL RECEPTACLE REQUIRED FOR MIXER.
3. DO NOT MIX CHLORINE SOLUTIONS WITH ANY ACID BASED CLEANER.



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FRACTIONS: ±
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0.0X: ±0.010
ANGLES: ±0.5°
HOLES (DIA): ±
HOLE CENTERS: ±
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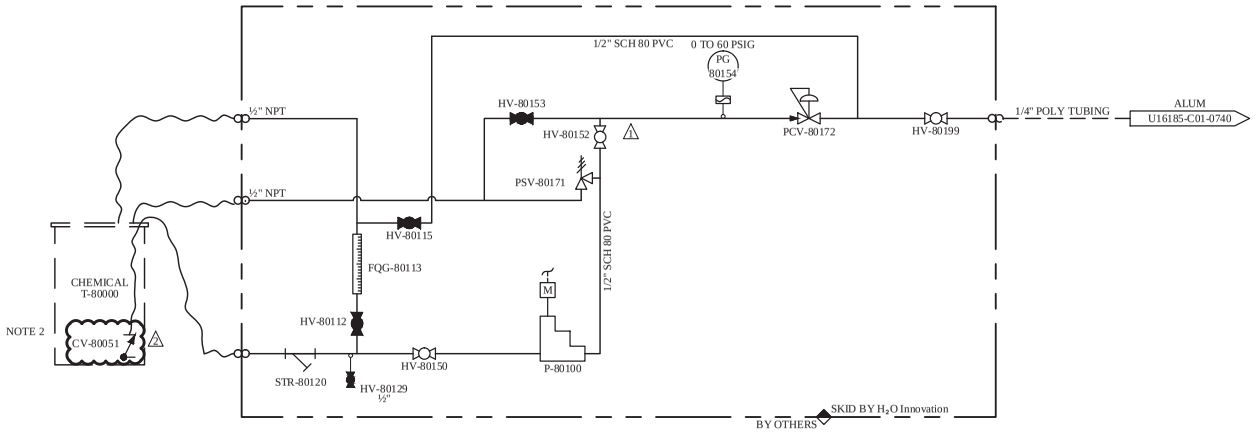
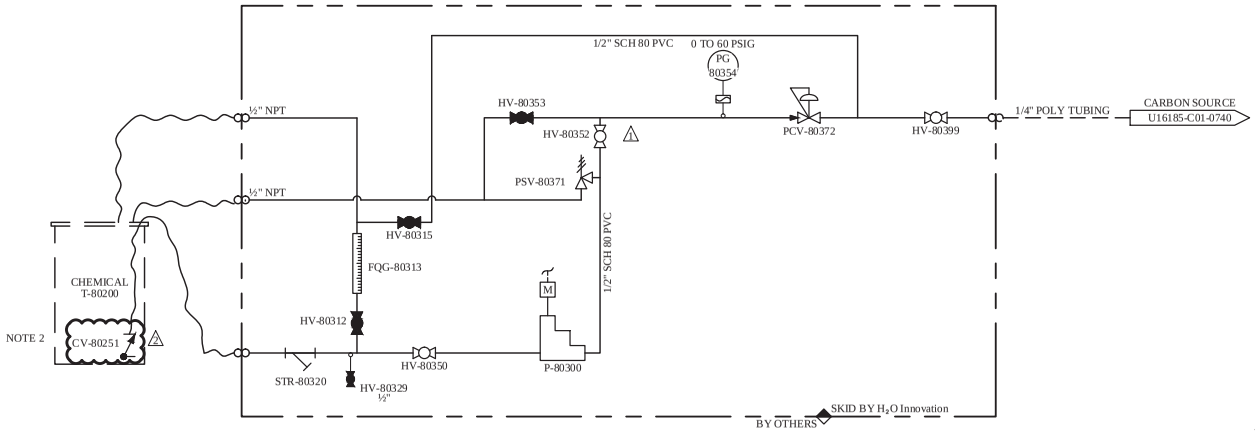
ICAR WASTEWATER TREATMENT PLANT

TITLE:
CIP TANK
PROCESS INSTRUMENTATION DIAGRAM

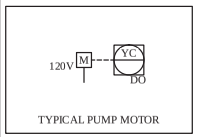
SCALE: N/A
DRAWING NUMBER: U16185 C01 0770
SHEET: 1 1
REVISION: 01




CHEMICAL DOSING SYSTEM-ALUM




CHEMICAL DOSING SYSTEM-CARBON SOURCE




TYPICAL PUMP MOTOR

NOTES:

1. --- DOTTED LINE PIPING AND WIRING NOT BY H2O INNOVATION.
2. CHEMICAL CONTAINER PROVIDED BY CHEMICAL SUPPLIER.



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0.XXX: ±0.5°
HOLES (DIA): ±
HOLE CENTERS: ±
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ICAR WASTEWATER TREATMENT PLANT

TITLE:
DOSING SKIDS ALUM CARBON
PROCESS INSTRUMENTATION DIAGRAM

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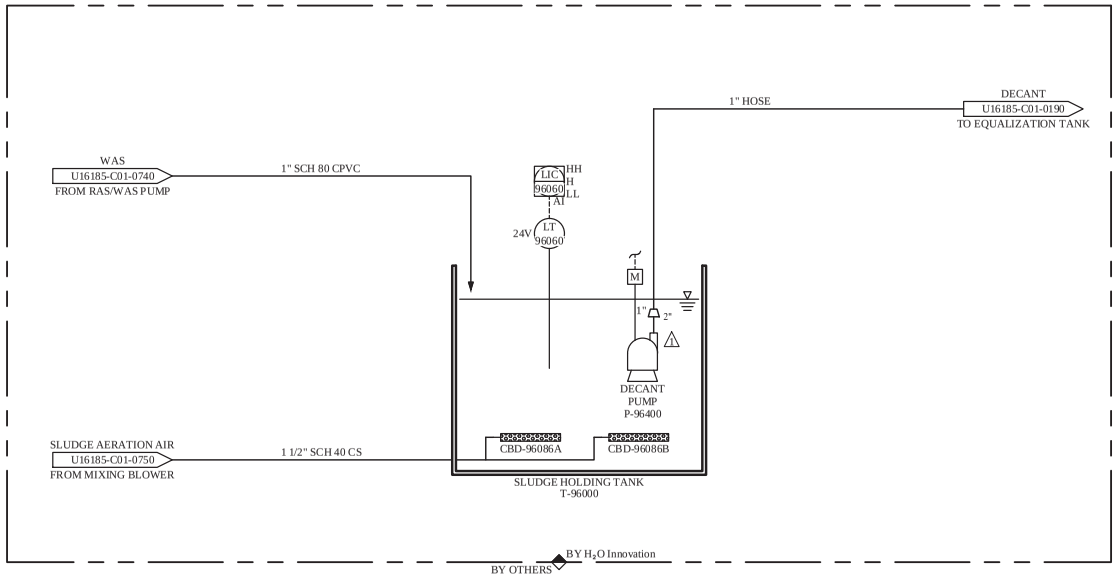


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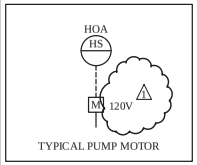


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TOLERANCES
FRACTIONS: ±
DECIMALS 0.X: ±0.03
0.0X: ±0.01
ANGLES: ±0.5°
HOLES (DIES): ±
HOLE CENTERS: ±
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ICAR WASTEWATER TREATMENT PLANT

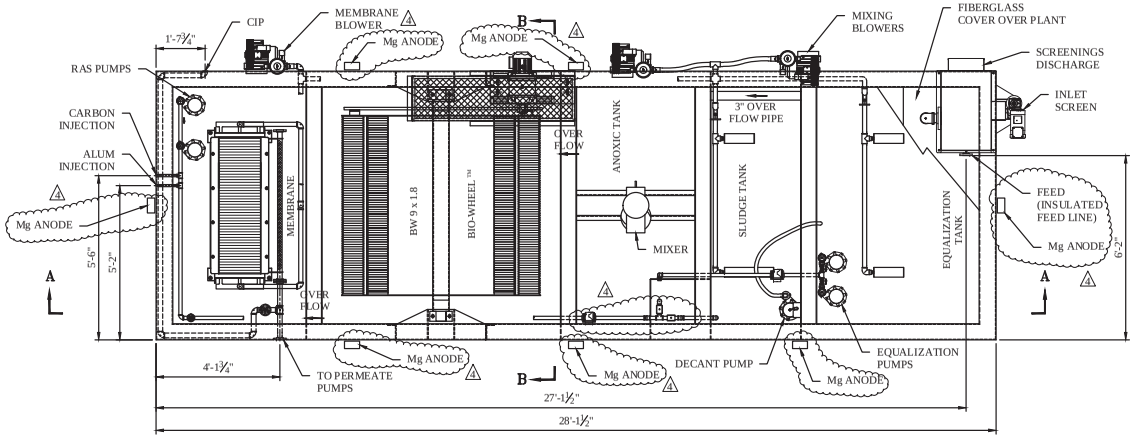
TITLE:
SLUDGE HANDLING SYSTEM
PROCESS INSTRUMENTATION DIAGRAM

SCALE: N/A
DRAWING NUMBER: U16185 C01 0960
SHEET: 1 1
REVISION: 02

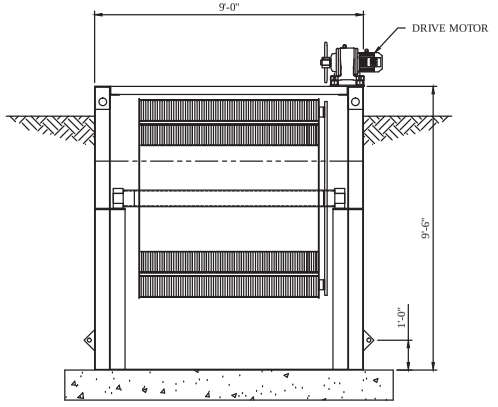
## 7.2 - GENERAL ARRANGEMENT AND ASSEMBLY DRAWINGS

NOTES:

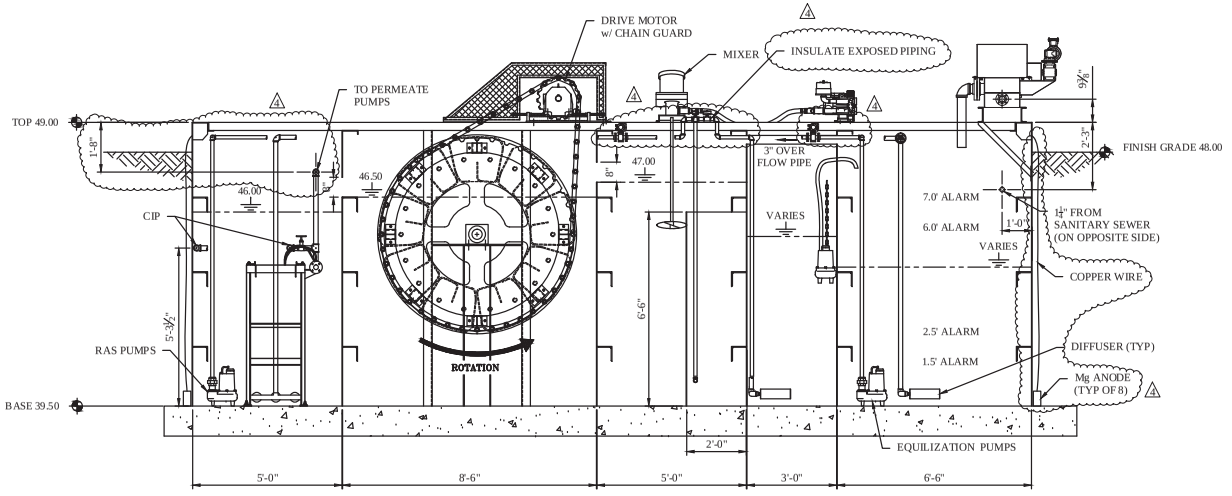
1. EQUIPMENT SELECTIONS YET TO BE FINALIZED.
2. LIFTING AND ANCHORING DETAILS NOT FINALIZED.
3. CIP FILL CUP MUST BE <39 INCHES ABOVE MEMBRANE TANK WATER LEVEL DURING CIP CYCLE.
4. THE NET UP LIFT FORCE ON THE TIE DOWN SYSTEM IS 132,388 LBS. THIS IS CALCULATED CONSIDERING SATURATED SOIL AT GRADE LEVEL (NO FLOODING ABOVE GRADE) AND CONSISTS OF A PURE HYDROSTATIC UPLIFT AND A COMPONENT OF THE SUBMERGED SOIL COLUMN. ESTIMATED AS 375 PSF DUE TO WATER AND 255 PSF DUE TO SUBMERGED SOIL COLUMN; TOTAL = 639 PSF ACTING ON THE FLOOR OF THE TANK = 630 X 252 SF = 158,500 LBS UPLIFT MINUS DEAD LOAD OF EMPTY TANK (26,120 LBS) = 132,388 LBS NET UPLIFT.
5. RECOMMENDED MINIMUM TWENTY CAST IN PLACE $\frac{3}{4}$ INCH ANCHOR BOLTS EMBEDDED 10 INCHES IN THE FOUNDATION SLAB. SIXTEEN OF THESE ARE ON THE SIDE AND TWO ARE ON EACH 9 FOOT END DIMENSION. THE AVERAGE UPLIFT FORCE ON EACH BOLT IS 6620 LBS AND THE SAFETY FACTOR ON THE ANCHOR BOLTS IS 3+. THE SPACING OF THE BOLTS ON THE SIDE OF THE TANK IS 42 INCHES WITH THE CORNER BOLTS INSET HALF THAT DISTANCE FROM THE CORNERS. THE END BOLTS SHOULD BE PLACED AT THE $\frac{1}{3}$ POINTS (36 INCHES FROM THE CORNERS).
6. THE WEIGHT ON THE SLAB WHEN THE SYSTEM IS FULL, DISTRIBUTED UNIFORMLY ON THE TANK FOOT PRINT, IS APPROXIMATELY 160,342 LBS OR 636 PSF ON THE SLAB (FOR BENDING STRESS PURPOSES IN THE FOUNDATION SLAB). WHEN EMPTY, THE UPLIFT FORCES OF THE TANK ON THE BOLTS WILL TEND TO BEND THE SLAB THE OTHER WAY (THE OTHER EXTREME CONDITION).
7. AN UPLIFT FORCE AS NOTED ABOVE WILL BE RESISTED BY THE DEAD LOAD OF 34 YARDS OF CONCRETE WHICH IS A SLAB 2.5 FEET THICK FOR A SAFETY FACTOR OF 1.0 AND A SLAB FOOT PRINT OF 30 FEET X 11 FEET. A SAFETY FACTOR OF NO LESS THAN 2.0 ON UPLIFT IS RECOMMENDED SO A LARGER FOOT PRINT AND A SLAB LESS THAN 2.5 FEET THICK CAN BE CONSTRUCTED SO THAT SOIL SURCHARGE ON THE LARGER SLAB FOOT PRINT OUTSIDE THE FOOT PRINT OF THE VESSEL WILL INCREASE THE UPLIFT SAFETY FACTOR SIGNIFICANTLY. STEEL DESIGN WILL ACCOUNT FOR THE REVERSE LOADS. CAST IN PLACE ANCHORS SHOULD BE INTEGRATED INTO THE STEEL PLACEMENT GEOMETRY AND HELD SECURELY TO MATCH THE VESSEL ANCHOR DEVICE GEOMETRY. POST INSTALLED CHEMICAL ANCHORS ARE NOT RECOMMENDED FOR THIS APPLICATION.
8. THE FLAT SIDES OF THE TANK WALL NEEDS TO RESIST OUT OF PLANE FORCES DUE TO HYDROSTATIC AND SUBMERGED SOIL THAT ARE EQUIVALENT TO 4400 LBS/FT ACTING 2.83 FEET ABOVE THE BASE OF THE TANK WALL. THIS IS DUE TO SUBMERGED SOIL AND WATER AT GRADE LEVEL. THIS WILL BE INCORPORATED INTO THE TANK DESIGN.
9. DO NOT SHIM TANK TO BRING TO LEVEL.
10. CONCRETE SLAB TO HAVE A CLASS A-2 FINISH (FLATNESS OF < $\frac{3}{16}$ INCH BELOW A 10 FEET STRAIGHT EDGE IN ANY LOCATION).
11. CONCRETE SLAB TO BE LEVEL WITHIN $\frac{1}{4}$ INCH IN ANY 10 FEET OF LENGTH AND NO MORE THAN $\frac{3}{4}$ INCH ALONG THE FULL LENGTH.
12. ALL ESTIMATES PROVIDED WITH THIS DRAWING ARE PRELIMINARY AND SUBJECT TO CONFIRMATION THROUGH DETAILED ENGINEERING.




PLAN VIEW




SECTION B-B




SECTION A-A

| NOTE: | DRAWING REVISION | | | | | |
|---|---|---|---|---|---|---|
| THE INFORMATION, SPECIFICATIONS AND DATA SHOWN ON THIS PRINT ARE FURNISHED BY AND ARE TO REMAIN THE PROPERTY OF $H_2O$ INNOVATION. | REV | DATE (DD/MM/YY) | REVISION DESCRIPTION | DRAWN | CHKD | ENG | APPVD |
| | 4 | 13/01/2015 | DRAWING REISSUE | G.B. | D.O.N. | D.O.N. | M.B. |
| | 3 | 24/11/2014 | DRAWING REISSUE | G.B. | D.O.N. | D.O.N. | M.B. |
| | 2 | 27/10/2014 | THIRD DESIGN SUBMITTAL | G.B. | D.O.N. | D.O.N. | M.B. |
| | 1 | 23/10/2014 | SECOND DESIGN SUBMITTAL | G.B. | D.O.N. | D.O.N. | M.B. |
| | 0 | 10/10/2014 | FIRST DESIGN SUBMITTAL | G.B. | D.O.N. | D.O.N. | M.B. |



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INTERPRETATION: ANSI Y 14.5
TOLERANCES: FRACTIONS ±; DECIMALS X.X ±0.030, X.XX ±0.010, ANGLES ±1°, HOLE SIZES ±; HOLE CENTERS ±
DO NOT SCALE PRINTS

GEORGE MASON UNIVERSITY

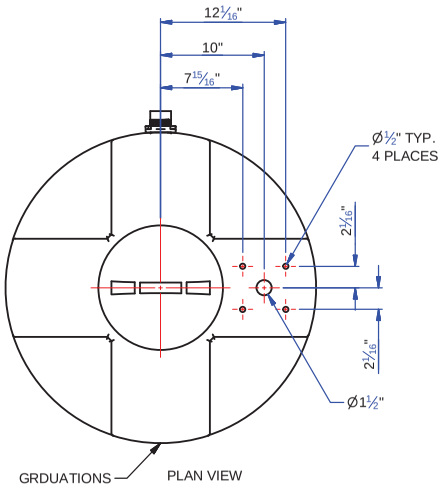
BW 9 X 1.8 5,000 GPD
WASTEWATER TREATMENT PLANT

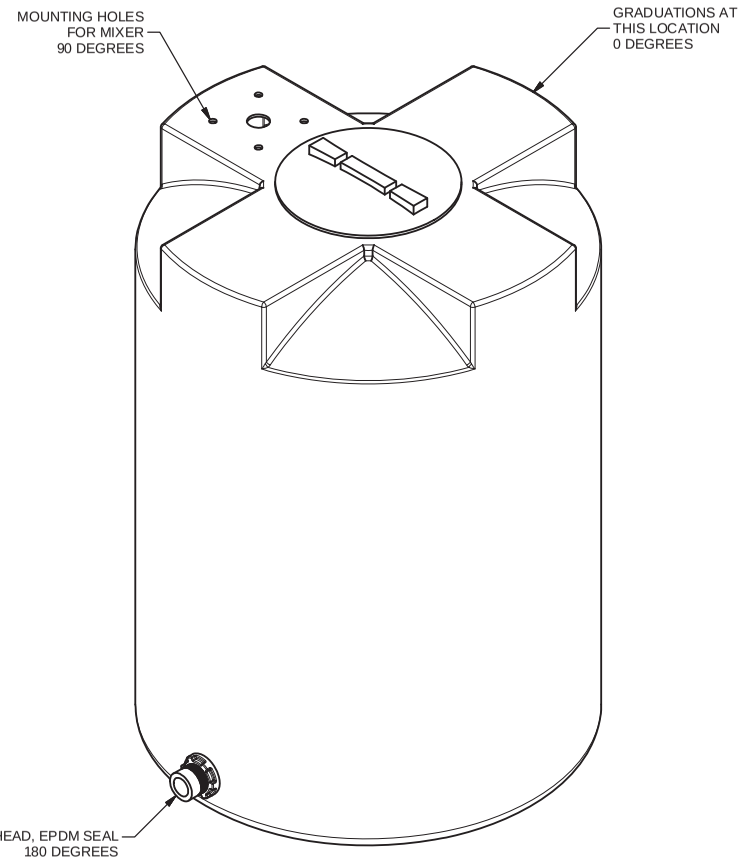
TITLE: GENERAL ARRANGEMENT

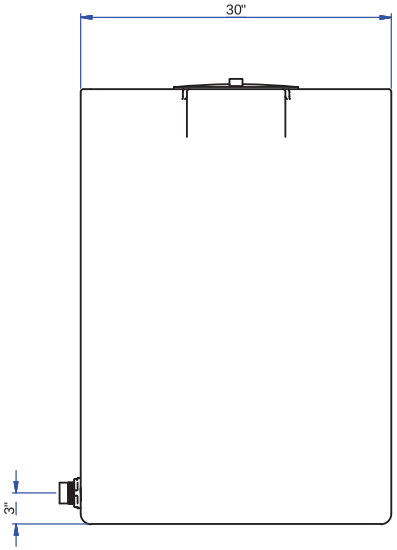
SCALE: N.T.S.

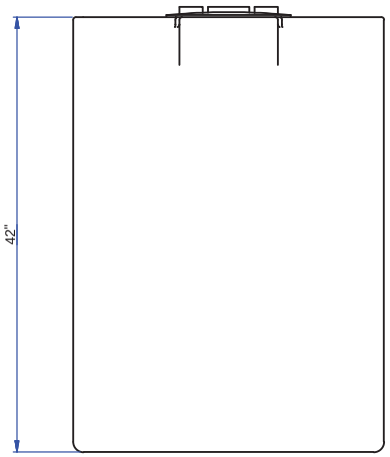
DRAWING NUMBER: U16185 B01 0001 SHEET: 1 1

REVISION: 4

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DRAWING REVISION

| REV | DATE (DD/MM/YYYY) | REVISION DESCRIPTION | DRAWN | CHKD | ENG | APPVD |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| 00 | 1/6/2015 | INITIAL RELEASE | G.J. | D.O.N. | D.O.N. | M.B. |

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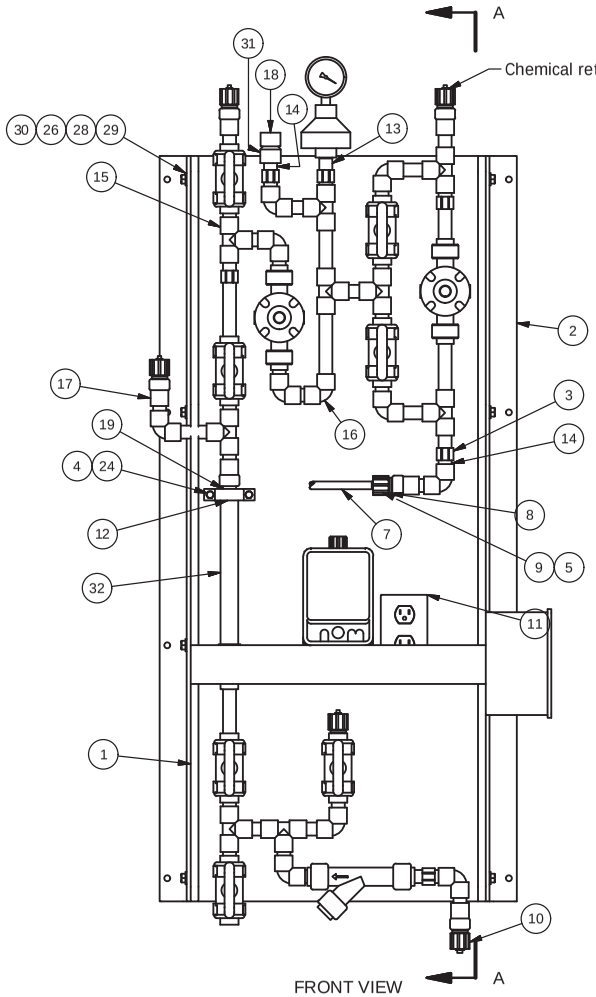
TOLERANCES
FRACTIONS: ±1/--
DECIMALS: 0.X: ±0.03, 0.XX: ±0.01, 0.XXX: ±0.005
ANGLES: ±0.5°
HOLE SIZES: ±1/--
HOLE CENTERS: ±1/--
DO NOT SCALE PRINTS

GEORGE MASON UNIVERSITY
FAIRFAX COUNTY, VA

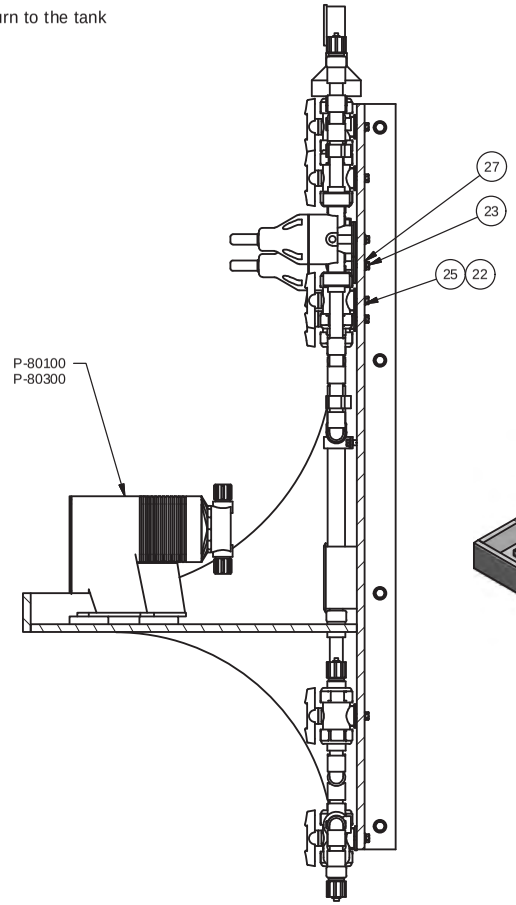
ICAR WASTEWATER TREATMENT PLANT

TITLE:
CIP TANK
DETAILED FABRICATION DRAWING

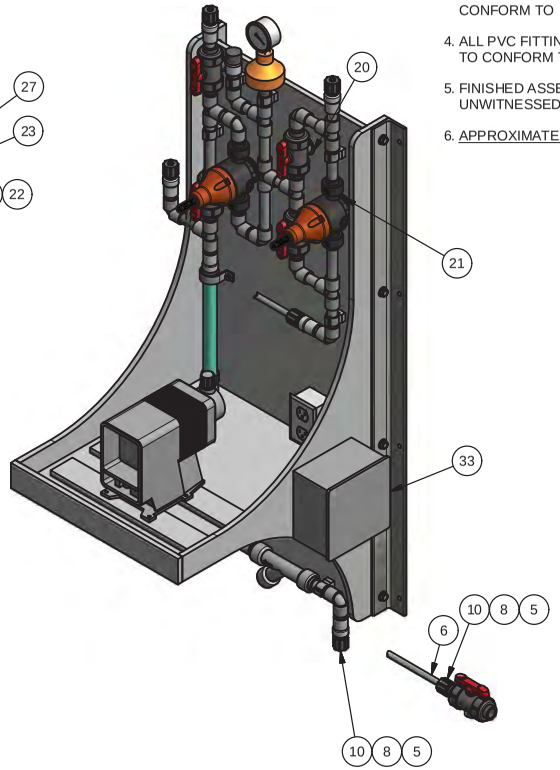
| SCALE: | DRAWING NUMBER: | REVISION |
|---|---|---|
| N.T.S. | U16185-D06-0770-01 SHEET: 1 OF 1 | 00 |




FRONT VIEW




SECTION A-A




**NOTES**:

1. REFERENCE P&ID #U16185-C01-0800.
2. BOLTS AND NUTS ARE STAINLESS STEEL TYPE 304.
   WASHERS AND LOCK WASHERS ARE STAINLESS STEEL TYPE 304.
   DIMENSIONS PER ASME B18.2.1.
   MECHANICAL PROPERTIES PER CONDITION CW OF ASTM F593.
   THREADS PER ANSI B1.1 CLASS 2A.
3. ALL PVC PIPE TO BE SCHEDULE 80, GRAY, U.N.O.
   PIPE MATERIAL TO CONFORM TO ASTM D-1784.
   PHYSICAL DIMENSIONS, SCHEDULES, AND TOLERANCES TO CONFORM TO ASTM D-1785.
4. ALL PVC FITTINGS TO BE SCHEDULE 80, GRAY. SOCKET FITTINGS TO CONFORM TO ASTM D-2467.
5. FINISHED ASSEMBLY MUST BE HYDROSTATICALLY TESTED TO 100 psi. UNWITNESSED TEST REPORT MUST BE PROVIDED.
6. APPROXIMATE WEIGHT: ***86 LBS.***

| TOTAL QUANTITY REQUIRED FOR THE PROJECT: | 2 |
|---|---|



DRAWING REVISION

| REV | DATE (YYYY-MM-DD) | REVISION DESCRIPTION | DRAWN | CHKD | ENG | APPVD |
|---|---|---|---|---|---|---|
| 0 | 2014-10-31 | FOR MANUFACTURING | Y.D. | M.B. | M.B. | M.B. |

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TOLERANCES
FRACTIONS: ±1/--
DECIMALS: X.X: ±0.03, X.XX: ±0.01, X.XXX: ±0.005
ANGLES: ±0.5°
HOLE SIZES: ±1/--
HOLE CENTERS: ±1/--
DO NOT SCALE PRINTS

GEORGE MASON UNIVERSITY
FAIRFAX COUNTY, VA

CHEMICAL DOSING SKID

TITLE:
DOSING SKIDS -SIMPLEX PUMP SKID
DRAWING DETAILS

| SCALE: | DRAWING NUMBER: | REVISION: |
|---|---|---|
| 0.125:1 | U16185-D06-0800 SHEET: 1 OF 3 | 00 |

## 7.3 - EQUIPMENT LIST

# Customer Equipment List

| | |
|---|---|
| **PROJECT:** | George Mason University |
| **PROJECT NUMBER:** | U16185 |
| **PROJECT MANAGER:** | Mike Humphries |
| **DOCUMENT NUMBER:** | U16185-C05-0001 |
| **REVISION:** | 2 |
| **REVISION DATE:** | 2015-01-09 |
| | (YYYY-MM-DD) |

| Revision | Tag | Functional Description | Quantity | Model | Manufacturer | Item Description | Wetted Material | Process Fluid | Mechanical Characteristics | Electrical Characteristics | Inlet Connection Size (in) | Outlet Connection Size (in) | Connection Type | P&ID Sheet | Datasheet |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | P-19200A/S | EQ / FEED PUMPS | 2 | WS0511BF | GOULDS | SUBMERSIBLE SEWAGE PUMP, 0.5 HP, 2", CAST IRON, GOULDS, PT# WS0511BF | CAST IRON | SEWAGE | 120 GPM MAX, 25 FT MAX | 0.5 HP, 208 VAC, 3 PH, 60 HZ, 1750 RPM | N/A | 2" | FNPT | C01-0190 | C06-0001 |
| 0 | P-74600A/S | RAS PUMPS | 2 | WS0738BF | GOULDS | SUBMERSIBLE SEWAGE PUMP, 0.75 HP, 2", CAST IRON, GOULDS, PT# WS0738BF | CAST IRON | SEWAGE | 140 GPM MAX, 28 FT MAX | 0.75 HP, 208 VAC, 3 PH, 60 HZ, 1750 RPM | N/A | 2" | FNPT | C01-0740 | C06-0001 |
| 0 | P-96400 | DECANT PUMP | 1 | WS0311BF | GOULDS | SUBMERSIBLE SEWAGE PUMP, 0.33 HP, 2", CAST IRON, GOULDS, PT# WS0311BF | CAST IRON | SEWAGE | 80 GPM MAX, 18 FT MAX | 0.33 HP, 115 VAC, 1 PH, 60 HZ, 1750 RPM | N/A | 2" | FNPT | C01-0960 | C06-0001 |
| 0 | P-79000A/S | PERMEATE PUMP | 2 | 285P-95 | AMT (GORMAN-RUPP) | SELF-PRIMING CENTRIFUGAL PUMP, 0.75 HP TEFC, 1.25", CAST IRON, AMT (GORMAN-RUPP), PT# 285P-95 | CAST IRON | FILTRATE | 60 GPM MAX, 55 FT MAX | 0.75 HP, 208 VAC, 3 PH, 60 HZ, 3450 RPM | 1.25" | 1.25" | FNPT | C01-0740 | C06-0002 |
| 0 | SCR-11200 | FINE SCREEN | 1 | ODS2 | OR-TEC | 2 MM FINE FEED ROTATING BRUSH SCREEN, PUNCH PLATE, 0.5 HP TEFC, 4", 304 SS, OR-TEC, PT# ODS2 | 304SS | SEWAGE | 60 GPM MAX | 0.5 HP, 208 VAC, 1 3PH, 60 HZ | 4" | CHUTE | FLANGE | C01-0110 | C06-0003 |
| 0 | B-75000A/S | BLOWERS - MIXING | 2 | R20-MD | FPZ | REGENERATIVE BLOWER, 1.5 HP TEFC, 1.25", ALUMINIUM, FPZ, PT# R20-MD | ALUMINIUM | AIR | 40 SCFM MAX | 1.5 HP, 208 VAC, 3 PH, 60 HZ, 3500 RPM | 1.25" | 1.25" | FNPT | C01-0750 | C06-0004 |
| 0 | B-75400 | BLOWERS - MEMBRANE | 1 | 30DH-MD | FPZ | REGENERATIVE BLOWER, 2 HP TEFC, 1.5", ALUMINIUM, FPZ, PT#30DH-MD | ALUMINIUM | AIR | 70 SCFM MAX | 2 HP, 208 VAC, 3 PH, 60 HZ, 3500 RPM | 1.5" | 1.5" | FNPT | C01-0750 | C06-0005 |
| 0 | F-75020A/S | BLOWER - MIXING, FILTER | 2 | FS-19P-125 | FPZ | FILTER FOR REGENERATIVE BLOWER, 1.25", FPZ, PT# FS-19P-125 | CARBON STEEL | AIR | 40 SCFM MAX | N/A | N/A | 1.25" | MNPT | C01-0750 | C06-0006 |
| 0 | F-754020 | BLOWER - MEMBRANE, FILTER | 1 | FS-19P-150 | FPZ | FILTER FOR REGENERATIVE BLOWER, 1.5", FPZ, PT# FS-19P-150 | CARBON STEEL | AIR | 70 SCFM MAX | N/A | N/A | 1.5" | MNPT | C01-0750 | C06-0006 |
| 0 | F-74000 | MEMBRANES | 1 | TMR090-100S | TORAY | MEMBRANE MODULE CONTAINING 100 ELEMENTS, 304SS FRAME, EPDM FINE BUBBLE DIFFUSER, TORAY, PT# TMR090-100S | PVDF | SEWAGE | 10,000 GPD MAX | N/A | 1.5" FNPT AIR | 2" ANSI FLANGE WATER | N/A | C01-0740 | C06-0007 |
| 0 | CBD-19086A/B | COARSE BUBBLE AERATORS, EQ TANK | 2 | MAXAIR SS-12" | EDI | COARSE BUBBLE AERATOR 12" LONG, 316SS, 0.75", EDI, PT# MAXAIR SS-12" | 316SS | AIR | 30 SCFM MAX | N/A | 0.75" | N/A | FNPT | C01-0190 | C06-0008 |
| 0 | CBD-96086A/B | COARSE BUBBLE AERATORS, SLUDGE TANK | 2 | MAXAIR SS-12" | EDI | COARSE BUBBLE AERATOR 12" LONG, 316SS, 0.75", EDI, PT# MAXAIR SS-12" | 316SS | AIR | 30 SCFM MAX | N/A | 0.75" | N/A | FNPT | C01-0960 | C06-0008 |
| 1 | P-80100, CV-80051, CV-80151 | ALUM DOSING PUMP | 1 | CNPA1000PPE200D01 | PROMINENT | METERING PUMP, PP, EPDM, 0.74 LPH, 115 VAC, PROMINENT, FOOT VALVE, INJECTION QUILL, PT# CNPA1000PPE200D01 | PP, EPDM | ALUM | 0.74 LPH MAX | 115 VAC, 1 PH, 60 HZ | 0.25" | 0.25" | OD TUBING | C01-0800 | C06-0009 |
| 1 | P-80300, CV-80251, CV-80351 | CARBON SOURCE DOSING PUMP | 1 | CNPA0704PPE000D01 | PROMINENT | METERING PUMP, PP, EPDM, 3.9 LPH, 115 VAC, PROMINENT, FOOT VALVE, INJECTION QUILL, PT# CNPA0704PPE000D01 | PP, EPDM | MICRO C | 3.9 LPH MAX | 115 VAC, 1 PH, 60 HZ | 0.25" | 0.25" | OD TUBING | C01-0800 | C06-0009 |
| 0 | T-77000 | CIP TANK | 1 | CT-100-CH | ACO CONTAINERS | HDPE TANK, 120 USGAL, 30" DIA X 43" HIGH, ACO, PT# CT-100-CH | HDPE | CIP CHEMICALS | 120 USGAL | N/A | N/A | N/A | N/A | C01-0770 | C06-0010 |
| 0 | T-19000, T-96000, T-14000, T-73000, T-74000 | STEEL TANK ASSEMBLY | 1 | BW-9X1,8 | MEMCO | BIOWHEEL TANK, EQUALIZATION TANK, CLARIFIER TANK AND STRUCTURES, COATED CARBON STEEL | PAINTED STEEL | SEWAGE | 5000 GPD | N/A | N/A | N/A | N/A | C01-0190, 0720, 0740, 0960 | B01-0001 |
| 0 | N/A | BIO-WHEEL MEDIA PLATES | 684 | DCNWWP-2 | H2O INNOVATION | BIOWHEEL MEDIA: BLACK POLYPROPYLENE PLASTIC PLATES 21-3/4" X 18-1/2" USING 2 HOLE MOLD # WWP-2 | PP | SEWAGE | 2 HOLES | N/A | N/A | N/A | N/A | C01-0720 | N/A |
| 0 | N/A | BIO-WHEEL GEARBOX MOTOR | 1 | R87DRE90L4BE2HR/DH | SEW-EURODRIVE | SEW-EURODRIVE GEAR MOTOR, 2 HP, 208 VAC, 3 PH, RATIO 155.34, 11 RPM OUTPUT, 2.125" SHAFT, BREAK 120 VAC, PT# R87DRE90L4BE2HR/DH | PAINTED STEEL | SEWAGE | 155,34 RATIO, 11 RPM OUTPUT | 2 HP, 208 VAC, 3 PH, 60 HZ MAIN DRIVE 120 VAC, 1 PH, 60 HZ BRAKE | N/A | N/A | N/A | C01-0720 | C06-0011 |
| 0 | N/A | BIO-WHEEL CHAIN | 30 FT | WH-720-S | RENOLD JEFFERY | WELDED STEEL CHAIN , 6,00" PITCH, FOR 720S SPROCKET PT#WH-720-S | STEEL | SEWAGE | 6,00" PITCH | N/A | N/A | N/A | N/A | C01-0720 | C06-0011 |
| 0 | N/A | BIO-WHEEL SPROCKET | 1 | WH-720-CS 15 HT | RENOLD JEFFERY | HUB DRIVE SPROCKET, 15 TEETH, HARDENED STEEL, PITCH 6,00", 2,125" BORE, DRAWING # 279E793,RENOLD, PT#WH720-CS-15HT-2,125 | HARDENED STEEL | SEWAGE | 15 TEETH, TH, 6,00" PITCH, 2,125" BORE | N/A | N/A | N/A | N/A | C01-0720 | C06-0011 |
| 0 | FQG-80113, FQG-80313 | CALIBRATION COLUMNS | 2 | PV2-100 | PRIMARY FLUID SYSTEMS | CALIBRATION COLUMN, 0.5" FNPT, PVC, ACCUDRAW, PRIMARY FLUID SYSTEMS, PT# PV2-100 | PVC | ALUM / MICRO C | 100 ML | N/A | 0.5" | 0.5" | FNPT | C01-0800 | C06-0012 |
| 0 | STR-80120, STR-80320 | CHEMICAL STRAINERS | 2 | YSA005ES | CHEMLINE | Y-STRAINERS, 0.5" SOCKET, PVC, EPDM, CHEMLINE, PT# YSA005ES | PVC | ALUM / MICRO C | 690 MICRON, 15.4% OPEN AREA | N/A | 0.5" | 0.5" | SOCKET | C01-0800 | C06-0013 |

# Customer Equipment List

| | |
|---|---|
| **PROJECT:** | George Mason University |
| **PROJECT NUMBER:** | U16185 |
| **PROJECT MANAGER:** | Mike Humphries |
| **DOCUMENT NUMBER:** | U16185-C05-0001 |
| **REVISION:** | 2 |
| **REVISION DATE:** | 2015-01-09 |

(YYYY-MM-DD)

| Revision | Tag | Functional Description | Quantity | Model | Manufacturer | Item Description | Wetted Material | Process Fluid | Mechanical Characteristics | Electrical Characteristics | Inlet Connection Size (in) | Outlet Connection Size (in) | Connection Type | P&ID Sheet | Datasheet |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | MX-73083 | ANOXIC MIXER | 1 | GMX 1-32-1 | DYNAMIX | MIXER, 3 BLADE (30" DIA), 11" PLATE MOUNT, 90" LONG, 208 VAC, DYNAMIX, PT# GMX 1-32-1 | CS | SEWAGE | 3 BLADE (30" DIA), 90" LONG | 1 HP, 208 VAC, 3 PH, 60 HZ | N/A | N/A | N/A | C01-0720 | C06-0014 |
| 0 | MX-77083 | CHEMICAL TANK MIXER | 1 | MMX-21O5D-9F7E | DYNAMIX | MIXER, 3 BLADE (5" DIA), 11" FLANGE MOUNT, 38" LONG, 120 VAC, DYNAMIX, PT# MMX-21O5D-9F7E | SS | CIP CHEMICALS | 3 BLADE (5" DIA), 38" LONG | 0.5 HP, 120 VAC, 3 PH, 60 HZ | N/A | N/A | N/A | C01-0770 | C06-0015 |
| 0 | HTR-79100 | HOT BOX | 1 | HB6N | HUBBELL | HOT BOX, 39"X108"X54.5", 1900W HEATER, ALUMINIUM, HUBBELL, PT# HB6N | ALUMINIUM | AIR | TWO PART BOX, 39"X108"X54.5" | 120 VAC, 1 PH, 60 HZ | N/A | N/A | N/A | C01-0740 | C06-0016 |
| 0 | N/A | TANK COVERS | 14 | PEF GY | STRONGWELL | COMPOSOLITE PANELS, PEF GY, 94" LONG, ~23.8" WIDE, LENGTH TOLERANCE +/-0.125", OUT OF SQUARE TOLERANCE +/- 0.25". MEDIUM URETHANE GRIT SURFACE ONE SIDE, STRONGWELL, PT# PEF GY | FRP | N/A | 94"X ~23.8" PANELS | N/A | N/A | N/A | N/A | N/A | C06-0017 |
| 2 | N/A | SACRIFICIAL ANODES | 8 | 17D4 | CORPRO | ANODE: 17# MAGNESIUM, PACKAGED W/10' #12TW SOL CU WIRE SOLID BLACK | MG | N/A | 17 LB | N/A | N/A | N/A | N/A | N/A | C06-0018 |

## 7.5 - INSTRUMENT LIST

# Customer Instrument List

| | |
|---|---|
| **PROJECT:** | George Mason University |
| **PROJECT NUMBER:** | U16185 |
| **PROJECT MANAGER:** | Mike Humphries |
| **DOCUMENT NUMBER:** | U16185-C14-0001 |
| **REVISION:** | 1 |
| **REVISION DATE:** | 2015-01-13 |
| | (YYYY-MM-DD) |

| Revision | Tag | Functional Description | Quantity | Model | Manufacturer | Item Description | Wetted Material | Process Fluid | Mechanical Characteristics | Electrical Characteristics | Inlet Connection Size (in) | Connection Type | Meas. Range | Meas. Unit | P&ID Sheet | Loop Drawing | Datasheet |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | LIT-19060 | EQ TANK LEVEL TRANSMITTER | 1 | FMX167-D1BFC1B7 | E&H | CABLE LEVEL TRANSMITTER, 4-20 MA OUTPUT, 316 SS PROBE, PE CABLE, FOR WASTEWATER, E&H, PT# FMX167-D1BFC1B7 | 316SS, PE | SEWAGE | 10 M CABLE | 4-20 MA OUTPUT, 24 VDC | N/A | N/A | | | C01-0190 | | C15-0001 |
| 0 | LIT-74060 | MEMBRANE TANK LEVEL TRANSMITTER | 1 | FMX167-D1BFC1B7 | E&H | CABLE LEVEL TRANSMITTER, 4-20 MA OUTPUT, 316 SS PROBE, PE CABLE, FOR WASTEWATER, E&H, PT# FMX167-D1BFC1B7 | 316SS, PE | SEWAGE | 10 M CABLE | 4-20 MA OUTPUT, 24 VDC | N/A | N/A | | | C01-0740 | | C15-0001 |
| 0 | LIT-96060 | SLUDGE TANK LEVEL TRANSMITTER | 1 | FMX167-D1BFC1B7 | E&H | CABLE LEVEL TRANSMITTER, 4-20 MA OUTPUT, 316 SS PROBE, PE CABLE, FOR WASTEWATER, E&H, PT# FMX167-D1BFC1B7 | 316SS, PE | SEWAGE | 10 M CABLE | 4-20 MA OUTPUT, 24 VDC | N/A | N/A | | | C01-0960 | | C15-0001 |
| 0 | PG-80154, PG-80354 | CHEMICAL SYSTEM PRESSURE GAUGES | 2 | SGA05002P-025060SS | CHEMLINE | CHEMICAL GAUGE ISOLATORS AND GAUGE, 60 PSI GAUGE, 0.5" FNPT CONNECTION, PVC/316SS, CHEMLINE PT#SGA05002P-025060SS | PVC, SS | ALUM, CARBON SOURCE | 2.5 IN GAUGE | N/A | 0.5" | FNPT | | | C01-0800 | | C15-0002 |
| 0 | PG-19254 | EQ PUMP GAUGE | 1 | 233.53 | WIKA | PRESSURE GAUGE, 233.53, WIKA, 2.5 DIAL, 1/4 IN LM, 0-15 PSI PT# 233.53 | SS | SEWAGE | 2.5 IN GAUGE | N/A | 0.25" | MNPT | | | C01-0190 | | C15-0003 |
| 0 | PG-79054 | PERMEATE PUMP GAUGE | 1 | 233.53 | WIKA | PRESSURE GAUGE, 233.53, WIKA, 2.5 DIAL, 1/4 IN LM, 0-15 PSI PT# 233.53 | SS | FILTRATE | 2.5 IN GAUGE | N/A | 0.25" | MNPT | | | C01-0740 | | C15-0003 |
| 0 | PG-74654 | RAS PUMP GAUGE | 1 | 233.53 | WIKA | PRESSURE GAUGE, 233.53, WIKA, 2.5 DIAL, 1/4 IN LM, 0-15 PSI PT# 233.53 | SS | RAS | 2.5 IN GAUGE | N/A | 0.25" | MNPT | | | C01-0740 | | C15-0003 |
| 0 | PG-75054A/S, PG-75471 | BLOWER GAUGES | 3 | 233.53 | WIKA | PRESSURE GAUGE, 233.53, WIKA, 2.5 DIAL, 1/4 IN LM, 0-15 PSI PT# 233.53 | SS | AIR | 2.5 IN GAUGE | N/A | 0.25" | MNPT | | | C01-0750 | | C15-0003 |
| 1 | FE/FIT-19274 | EQ PUMP FLOW METER | 1 | 10D25-6LGA1RG0B4AA | E&H | FLOW TRANSMITTER, MAGNETIC, PROMAG D, REMOTE MOUNT, 1" WAFER, 4-20 MA OUT, 120 VAC, E&H, CL 1 DIV 1, PT# 10D25-6LGA1RG0B4AA | PA / 316L SS | SEWAGE | REMOTE MOUNT VERSION | 120 VAC POWER, 4-20 MA OUTPUT, CLASS 1 DIV 2 | 1" | WAFER | | | C01-0190 | | C15-0004 |
| 1 | FE/FIT-79074 | PERMEATE PUMP FLOW METER | 1 | 10D25-6LGA1RG0B4AA | E&H | FLOW TRANSMITTER, MAGNETIC, PROMAG D, REMOTE MOUNT, 1" WAFER, 4-20 MA OUT, 120 VAC, E&H, CL 1 DIV 1, PT# 10D25-6LGA1RG0B4AA | PA / 316L SS | FILTRATE | REMOTE MOUNT VERSION | 120 VAC POWER, 4-20 MA OUTPUT, CLASS 1 DIV 2 | 1" | WAFER | | | C01-0740 | | C15-0004 |
| 1 | FE/FIT-74674 | RAS PUMP FLOW METER | 1 | 10D25-6LGA1RG0B4AA | E&H | FLOW TRANSMITTER, MAGNETIC, PROMAG D, REMOTE MOUNT, 1" WAFER, 4-20 MA OUT, 120 VAC, E&H, CL 1 DIV 1, PT# 10D25-6LGA1RG0B4AA | PA / 316L SS | SEWAGE | REMOTE MOUNT VERSION | 120 VAC POWER, 4-20 MA OUTPUT, CLASS 1 DIV 2 | 1" | WAFER | | | C01-0740 | | C15-0004 |
| 0 | FE/FIT-99074 | REUSE EFFLUENT FLOW METER | 1 | NET4HR7G7, SP-N60366460 | NEPTUNE | FLOW TRANSMITTER, 1.5" FLANGE, TURBINE, HP TURBINE PRO, PT# NET4HR7G7, 4-20 MA OUTPUT, TRICON E3 TRANSMITTER, PT# SP-N60366460, 1 ½" FLANGE KIT PT# M7610F KITJ | COPPER | FILTRATE | COMPACT VERSION | 24 VDC POWER, 4-20 MA OUTPUT | 1.5" | FLANGE | | | C01-0740 | | C15-0005 |
| 0 | PIT-79045 | TMP PRESSURE TRANSMITTER | 1 | PMC131-A22E1V6N | E&H | PRESSURE TRANSMITTER, -15 TO 15 PSIG, 316L SS, 4-20 MA OUTPUT, 0.5" NPT, E&H, PT# PMC131-A22E1V6N | 316 SS | FILTRATE | N/A | 24 VDC POWER, 4-20 MA OUTPUT | 0.5" | MNPT | | | C01-0740 | | C15-0006 |
| 0 | AE-73093 | DISSOLVED OXYGEN SENSOR | 1 | 9020000 | HACH | HACH ASSY, PROBE, LDO MODEL 2, PN: 9020000 | 316 SS / POLY | SEWAGE | N/A | SENSOR CONNECTS DIRECTLY TO CONTROLLER | N/A | N/A | | | C01-0720 | | C15-0007 |
| 0 | AIT-73093 | DISSOLVED OXYGEN TRANSMITTER | 1 | LXV404.99.00502 | HACH | HACH SC200 CONTROLLER, 1 CHANNEL, DIGITAL | ALUMINIUM | N/A | N/A | 24 VDC POWER, 4-20 MA OUTPUT | N/A | N/A | | | C01-0720 | | C15-0008 |

# VDPES Permit Application

## PUBLIC NOTICE BILLING INFORMATION

I hereby authorize the Department of Environmental Quality to have the cost of publishing a public notice billed to the Agent/Department shown below. The public notice will be published once a week for two consecutive weeks in accordance with 9VAC25-31-290.C.2.

Agent/Department to be billed: GEORGE MASON UNIVERSITY

Owner: POINT OF VIEW (NANCY PICKENS)

Applicant's Address: 4400 UNIVERSITY DRIVE
MSN 1E4
FAIRFAX, VA 22030

Agent's Telephone Number: 703-993-2644

Authorizing Agent: N J S.T.P
*Signature*

VPDES Permit No. VA0090221
Point of View WWTP

Please return to:

Alison Thompson
VA-DEQ, NRO
13901 Crown Court
Woodbridge, VA 22193-1453
Fax: (703)583-3821

# Disclaimer

This is an updated PDF document that allows you to type your information directly into the form and to save the completed form. This form is the most updated form currently available.

Note: This form can be viewed and saved only using Adobe Acrobat Reader version 7.0 or higher, or if you have the full Adobe Professional version.

Instructions:

1. Type in your information
2. Save file (if desired)
3. Print the completed form
4. Sign and date the printed copy
5. Mail it to the directed contact.

United States
Environmental Protection
Agency

Office of
Enforcement
Washington, DC 20460

EPA Form 3510-1
Revised August 1990

Permits Division

EPA

# Application Form 1 – General Information

## Consolidated Permits Program

This form must be completed by all persons applying for a permit under EPA's Consolidated Permits Program. See the general instructions to Form 1 to determine which other application forms you will need.

## DESCRIPTION OF CONSOLIDATED PERMIT APPLICATION FORMS

The Consolidated Permit Application Forms are:

Form 1 – General Information (*included in this part*);

Form 2 – Discharges to Surface Water (*NPDES Permits*):

2A. Publicly owned Treatment Works (*Reserved - not included in this package*),

2B. Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities (not included in this package),

2C. Existing Manufacturing, Commercial, Mining, and Silvicultural Operations (*not included in this package*), and

2D. New Manufacturing, Commercial, Mining, and Silvicultural Operations (*Reserved - not included in this package*);

Form 3 – Hazardous Waste Application Form (*RCRA Permits - not included in this package*);

Form 4 – Underground Injection of Fluids (*UIC Permits - Reserved - not included in this package*); and

Form 5 – Air Emissions in Attainment Areas (*PSD Permits - Reserved - not included in this package*).

## FORM 1 PACKAGE TABLE OF CONTENTS



## SECTION A – GENERAL INSTRUCTIONS

**Who Must Apply**

With the exceptions described in Section C of these instructions, Federal laws prohibit you from conducting any of the following activities without a permit.

NPDES (*National Pollutant Discharge Elimination System Under the Clean Water Act, 33 U.S.C. 1251*). Discharge of pollutants into the waters of the United States.

RCRA (*Resource Conservation and Recovery Act, 42 U.S.C. 6901*). Treatment, storage, or disposal of hazardous wastes.

UIC (*Underground Injection Control Under the Safe Drinking Water Act, 42 U.S.C. 300f*). Injection of fluids underground by gravity flow or pumping.

PSD (*Prevention of Significant Deterioration Under the Clean Air Act, 72 U.S.C 7401*). Emission of an air pollutant by a new or modified facility in or near an area which has attained the National Ambient Air Quality Standards for that pollutant.

Each of the above permit programs is operated in any particular State by either the United States Environmental Protection Agency (*EPA*) or by an approved State agency. You must use this application form to apply for a permit for those programs administered by EPA. For those programs administered by approved states, contact the State environmental agency for the proper forms.

If you have any questions about whether you need a permit under any of the above programs, or if you need information as to whether a particular program is administered by EPA or a State agency, or if you need to obtain application forms, contact your EPA Regional office (*listed in Table 1*).

Upon your request, and based upon information supplied by you, EPA will determine whether you are required to obtain a permit for a particular facility. Be sure to contact EPA if you have a question, because Federal laws provide that you may be heavily penalized if you do not apply for a permit when a permit is required.

Form 1 of the EPA consolidated application forms collects general information applying to all programs. You must fill out Form 1 regardless of which permit you are applying for. In addition, you must fill out one of the supplementary forms (*Forms 2 – 5)* for each permit needed under each of the above programs. Item II of Form 1 will guide you to the appropriate supplementary forms.

You should note that there are certain exclusions to the permit requirements listed above. The exclusions are described in detail In Section C of these instructions. If your activities are excluded from permit requirements then you do not need to complete and return any forms.

NOTE: Certain activities not listed above also are subject to EPA administered environmental permit requirements. These include permits for ocean dumping, dredged or fill material discharging, and certain types of air emissions. Contact your EPA Regional office for further information.

**Table 1. Addresses of EPA Regional Contacts and States Within the Regional Office Jurisdictions**

**REGION 1**

Permit Contact, Environmental and Economic Impact Office, U.S. Environmental Protection Agency, 1 Congress St., Suite 1100, Boston, MA 02114-2023, Phone: (617) 918-1111, Fax: (617) 918-1809, Toll free within Region 1: (888) 372-7341, http://www.epa.gov/region01/.
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

**REGION 2**

Permit Contact, Permits Administration Branch, U.S. Environmental Protection Agency, 290 Broadway, New York, NY 10007-1866, Phone: (212) 637-3000, Fax: (212) 637-3526, http://www.epa.gov/region02/.
New Jersey, New York, Virgin Islands, and Puerto Rico.

**REGION 3**

Permit Contact (*3 EN 23*), U.S. Environmental Protection Agency, 1650 Arch Street, Philadelphia, PA 19103-2029, Phone: (215) 814-5000, Fax: (215) 814-5103, Toll free: (800) 438-2474, http://www.epa.gov/region03/.
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.

**REGION 4**

Permit Contact, Permits Section, U.S. Environmental Protection Agency, Atlanta Federal Center, 61 Forsyth Street, SW, Atlanta, GA 30303-3104, Phone: (404) 562-9900, Fax: (404) 562-8174, Toll free: (800) 241-1754, http://www.epa.gov/region04/.
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

**REGION 5**

Permit Contact (*5EP*), U.S. Environmental Protection Agency, 77 West Jackson Boulevard, Chicago, IL 60604-3507, Phone: (312) 353-2000, Fax: (312) 353-4135, Toll free within Region 5: (800) 621-8431, http://www.epa.gov/region5/.
Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

**REGION 6**

Permit Contact (*6AEP*), U.S. Environmental Protection Agency, Fountain Place 12th Floor, Suite 1200, 1445 Ross Avenue, Dallas, TX 75202-2733, Phone: (214) 665-2200, Fax: (214) 665-7113, Toll free within Region 6: (800) 887-6063, http://www.epa.gov/region06/.
Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

**REGION 7**

Permit Contact, Permits Branch, U.S. Environmental Protection Agency, 901 North 5th Street, Kansas City, KS 66101, Phone: (913) 551-7003, Toll free: (800) 223-0425, http://www.epa.gov/region07/.
Iowa, Kansas, Missouri, and Nebraska.

**REGION 8**

Permit Contact (*8E-WE*), U.S. Environmental Protection Agency, 999 18th Street, Suite 500, Denver, CO 80202-2466, Phone: (303) 312-6312, Fax: (303) 312-6339, Toll free: (800) 227-8917, http://www.epa.gov/region08/.
Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

**REGION 9**

Permit Contact, Permits Branch (*E-4*), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, CA 94105, Phone: (415) 947-8000, Fax: (415) 947-3553, Toll free within Region 9: (866) EPA-WEST, http://www.epa.gov/region09/.
Arizona, California, Hawaii, Nevada, Guam, American Samoa, and Trust Territories.

**REGION 10**

Permit Contact (*M/S 521*), U.S. Environmental Protection Agency, 1200 Sixth Avenue, Seattle, WA 98101, Phone: (206) 553-1200, Fax: (206) 553-2955, Toll free: (800) 424-4372, http://www.epa.gov/region10/.
Alaska, Idaho, Oregon, and Washington.

### Where to File

The application forms should be mailed to the EPA Regional office whose Region includes the State in which the facility is located (*see Table 1*).

If the State in which the facility is located administers a Federal permit program under which you need a permit, you should contact the appropriate State agency for the correct forms. Your EPA Regional office (*Table 1*) can tell you to whom to apply and can provide the appropriate address and phone number.

### When to File

Because of statutory requirements, the deadlines for filing applications vary according to the type of facility you operate and the type of permit you need. These deadlines are as follows:[1]

**Table 2. Filing Dates for Permits**

| FORM (*permit*) | WHEN TO FILE |
|---|---|
| 2A (*NPDES*) | 180 days before your present NPDES permit expires. |
| 2B (*NPDES*) | 180 days before your present NPDES permit expires[2], or 180 days prior to startup if you are a new facility. |
| 2C (*NPDES*) | 180 days before your present NPDES permit expires[2]. |
| 2D (*NPDES*) | 180 days prior to startup. |
| 3 (*Hazardous Waste*) | Existing facility: Six months following publication of regulations listing hazardous wastes.<br>New facility: 180 days before commencing physical construction. |
| 4 (*UIC*) | A reasonable time prior to construction for new wells; as directed by the Director for existing wells. |
| 5 (*PSD*) | Prior to commencement of construction. |

[1] Please note that some of these forms are not yet available for use and are listed as "Reserved" at the beginning of these instructions. Contact your EPA Regional office for information on current application requirements and forms.

[2] If your present permit expires on or before November 30, 1980, the filing date is the date on which your permit expires. If your permit expires during the period December 1, 1980–May 31, 1981, the filing date is 90 days before your permit expires.

Federal regulations provide that you may not begin to construct a new source in the NPDES program, a new hazardous waste management facility, a new injection well, or a facility covered by the PSD program before the issuance of a permit under the applicable program. Please note that if you are required to obtain a permit before beginning construction, as described above, you may need to submit your permit application well in advance of an applicable deadline listed in Table 2.

### Fees

The U.S. EPA does not require a fee for applying for any permit under the consolidated permit programs. (*However, some States which administer one or more of these programs require fees for the permits which they issue.*)

### Availability of Information to Public

Information contained in these application forms will, upon request, be made available to the public for inspection and copying. However, you may request confidential treatment for certain information which you submit on certain supplementary forms. The specific instructions for each supplementary form state what information on the form, if any, may be claimed as confidential and what procedures govern the claim. No information on Forms 1 and 2A through 2D may be claimed as confidential.

### Completion of Forms

Unless otherwise specified in instructions to the forms, each item in each form must be answered. To indicate that each item has been considered, enter "NA," for not applicable, if a particular item does not fit the circumstances or characteristics of your facility or activity.

If you have previously submitted information to EPA or to an approved State agency which answers a question, you may either repeat the information in the space provided or attach a copy of the previous submission. Some items in the form require narrative explanation. If more space is necessary to answer a question, attach a separate sheet entitled "Additional Information."

### Financial Assistance for Pollution Control

There are a number of direct loans, loan guarantees, and grants available to firms and communities for pollution control expenditures. These are provided by the Small Business Administration, the Economic Development Administration, the Farmers Home Administration, and the Department of Housing and Urban Development, Each EPA Regional office (*Table 1*) has an economic assistance coordinator who can provide you with additional information.

EPA's construction grants program under Title II of the Clean Water Act is an additional source of assistance to publicly owned treatment works. Contact your EPA Regional office for details.

## SECTION B – FORM 1 LINE BY LINE INSTRUCTIONS

**This form must be completed by all applicants.**

### Completing This Form

Please type or print in the unshaded areas only. Some items have small graduation marks in the fill-in spaces. These marks indicate the number of characters that may be entered into our data system. The marks are spaced at 1/6" intervals which accommodate elite type (*12 characters per inch*). If you use another type you may ignore the marks. If you print, place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response.

### Item I

Space is provided at the upper right hand corner of Form 1 for insertion of your EPA Identification Number. If you have an existing facility, enter your Identification Number. If you don't know your EPA Identification Number, please contact your EPA Regional office (*Table 1),* which will provide you with your number. If your facility is new *(not yet constructed*), leave this item blank.

### Item II

Answer each question to determine which supplementary forms you need to fill out. Be sure to check the glossary in Section D of these instructions for the legal definitions of the **bold faced words**. Check Section C of these instructions to determine whether your activity is excluded from permit requirements.

If you answer "no" to every question, then you do not need a permit, and you do not need to complete and return any of these forms.

If you answer "yes" to any question, then you must complete and file the supplementary form by the deadline listed in Table 2 along with this form. (*The applicable form number follows each question and is enclosed in parentheses.*) You need not submit a supplementary form if you already have a permit under the appropriate Federal program, unless your permit is due to expire and you wish to renew your permit.

Questions (I) and (J) of Item II refer to major new or modified sources subject to Prevention of Significant Deterioration (*PSD*) requirements under the Clean Air Act. For the purpose of the PSD program, major sources are defined as: (A) Sources listed in Table 3 which have the potential to emit 100 tons or more per year emissions; and (B) All other sources with the potential to emit 250 tons or more per year. See Section C of these instructions for discussion of exclusions of certain modified sources.

**Table 3. 28 Industrial Categories Listed In Section 169(1) of the Clean Air Act of 1977**

Fossil fuel-fired steam generators of more than 250 million BTU per hour heat input;
Coal cleaning plants (*with thermal dryers*);
Kraft pulp mills;
Portland cement plants;
Primary zinc smelters;
Iron and steel mill plants;
Primary aluminum ore reduction plants;
Primary copper smelters;
Municipal incinerators capable of charging more than 250 tons of refuse per day;
Hydrofluoric acid plants;
Nitric acid plants;
Sulfuric acid plants;
Petroleum refineries;
Lime plants;
Phosphate rock processing plants;
Coke oven batteries;
Sulfur recovery plants;
Carbon black plants (*furnace process*);
Primary lead smelters;
Fuel conversion plants;
Sintering plants;
Secondary metal production plants;
Chemical process plants;
Fossil fuel boilers (*or combination thereof*) totaling more than 250 million BTU per hour heat input;

**Table 3 (continued)**

Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
Taconite ore processing plants;
Glass fiber processing plants; and
Charcoal production plants.

### Item III

Enter the facility's official or legal name. Do not use a colloquial name.

### Item IV

Give the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by reviewing offices if necessary.

### Item V

Give the complete mailing address of the office where correspondence should be sent. This often is not the address used to designate the location of the facility or activity.

### Item VI

Give the address or location of the facility identified in Item III of this form. If the facility lacks a street name or route number, give the most accurate alternative geographic information (*e.g., section number or quarter section number from county records or at intersection of Rts. 425 and 22*).

### Item VII

List, in descending order of significance, the four 4-digit standard industrial classification (*SIC*) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the discharge, air emissions, or hazardous wastes.

SIC code numbers are descriptions which may be found in the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual. If you have any questions concerning the appropriate SIC code for your facility, contact your EPA Regional office (*see Table 1*).

### Item VIII-A

Give the name, as it is legally referred to, of the person, firm, public organization, or any other entity which operates the facility described in this application. This may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation rather than the plant or site manager. Do not use a colloquial name.

### Item VIII-B

Indicate whether the entity which operates the facility also owns it by marking the appropriate box.

### Item VIII-C

Enter the appropriate letter to indicate the legal status of the operator of the facility. Indicate "public" for a facility solely owned by local government(s) such as a city, town, county, parish, etc.

### Items VIII-D-H

Enter the telephone number and address of the operator identified in Item VIII-A.

### Item IX

Indicate whether the facility is located on Indian Lands.

### Item X

Give the number of each presently effective permit issued to the facility for each program or, if you have previously filed an application but have not yet received a permit, give the number of the application, if any. Fill in the unshaded area only. If you have more than one currently effective permit for your facility under a particular permit program, you may list additional permit numbers on a separate sheet of paper. List any relevant environmental Federal (*e.g., permits*

*under the Ocean Dumping Act, Section 404 of the Clean Water Act or the Surface Mining Control and Reclamation Act), State (e.g., State permits for new air emission sources in nonattainment areas under Part D of the Clean Air Act or State permits under Section 404 of the Clean Water Act*), or local permits or applications under "other."

**Item XI**

Provide a topographic map or maps of the area extending at least to one mile beyond the property boundaries of the facility which clearly show the following:

The legal boundaries of the facility;

The location and serial number of each of your existing and proposed intake and discharge structures;

All hazardous waste management facilities;

Each well where you inject fluids underground; and

All springs and surface water bodies in the area, plus all drinking water wells within 1/4 mile of the facility which are identified in the public record or otherwise known to you.

If an intake or discharge structure, hazardous waste disposal site, or injection well associated with the facility is located more than one mile from the plant, include it on the map, if possible. If not, attach additional sheets describing the location of the structure, disposal site, or well, and identify the U.S. Geological Survey (*or other*) map corresponding to the location.

On each map, include the map scale, a meridian arrow showing north, and latitude and longitude at the nearest whole second. On all maps of rivers, show the direction of the current, and in tidal waters, show the directions of the ebb and flow tides. Use a 7-1/2 minute series map published by the U.S. Geological Survey, which may be obtained through the U.S. Geological Survey Offices listed below. If a 7-1/2 minute series map has not been published for your facility site, then you may use a 15 minute series map from the U.S. Geological Survey. If neither a 7-1/2 nor 15 minute series map has been published for your facility site, use a plat map or other appropriate map, including all the requested information; in this case, briefly describe land uses in the map area (*e.g., residential, commercial*).

You may trace your map from a geological survey chart, or other map meeting the above specifications. If you do, your map should bear a note showing the number or title of the map or chart it was traced from. Include the names of nearby towns, water bodies, and other prominent points. An example of an acceptable location map is shown in Figure 1-1 of these instructions. (*NOTE: Figure 1-1 is provided for purposes of illustration only, and does not represent any actual facility.)*

| U.S.G.S. OFFICES | AREA SERVED |
|---|---|
| Eastern Mapping Center<br>National Cartographic Information Center<br>U.S.G.S.<br>536 National Center<br>Reston, VA 22092<br>Phone No. (703) 860-6336 | Ala., Conn., Del., D.C., Fla., Ga., Ind., Ky., Maine, Md., Mass., N.H., N.J., N.Y., N.C., S.C., Ohio, Pa., Puerto Rico, R.I., Tenn., Vt., Va., W. Va., and Virgin Islands |
| Mid Continent Mapping Center<br>National Cartographic Information Center<br>U.S.G.S.<br>1400 Independence Road<br>Rolla, MO 65401<br>Phone No. (314) 341-0851 | Ark.. Ill., Iowa, Kans., La., Mich., Minn., Miss., Mo., N. Dak., Nebr., Okla., S. Dak., and Wis. |
| Rocky Mountain Mapping Center<br>National Cartographic Information Center<br>U.S.G.S.<br>Stop 504, Box 25046 Federal Center<br>Denver, CO 80225<br>Phone No. (303) 234-2326 | Alaska, Colo., Mont., N. Mex., Tex., Utah, and Wyo. |
| Western Mapping Center<br>National Cartographic Information Center<br>U.S.G.S.<br>345 Middlefield Road<br>Menlo Park, CA 94025<br>Phone No. (415) 323-8111 | Ariz., Calif., Hawaii, Idaho, Nev., Oreg., Wash., American Samoa, Guam, and Trust Territories |

**Item XII**

Briefly describe the nature of your business (*e.g., products produced or services provided*).

**Item XIII**

Federal statues provide for severe penalties for submitting false information on this application form.

18 U.S.C. Section 1001 provides that "Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes or uses any false writing or document knowing some to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both."

Section 309(c)(2) of the Clean Water Act and Section 113(c)(2) of the Clean Air Act each provide that "Any person who knowingly makes any false statement, representation, or certification in any application, . . . shall upon conviction, be punished by a fine of no more than $10,000 or by imprisonment for not more than six months, or both."

In addition, Section 3008(d)(3) of the Resource Conservation and Recovery Act provides for a fine up to $25,000 per day or imprisonment up to one year, or both, for a first conviction for making a false statement in any application under the Act, and for double these penalties upon subsequent convictions.

FEDERAL REGULATIONS REQUIRE THIS APPLICATION TO BE SIGNED AS FOLLOWS:

A. For a corporation, by a principal executive officer of at least the level of vice president. However, if the only activity in Item II which is marked "yes" is Question G, the officer may authorize a person having responsibility for the overall operations of the well or well field to sign the certification. In that case, the authorization must be written and submitted to the permitting authority.

B. For partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

C. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

## SECTION C – ACTIVITIES WHICH DO NOT REQUIRE PERMITS

**1. National Pollutant Discharge Elimination System Permits Under the Clean Water Act.** You are not required to obtain an NPDES permit if your discharge is in one of the following categories, as provided by the Clean Water Act (*CWA*) and by the NPDES regulations (*40 CFR Parts 122-125*). However, under Section 510 of CWA a discharge exempted from the federal NPDES requirements may still be regulated by a State authority; contact your State environmental agency to determine whether you need a State permit.

A. DISCHARGES FROM VESSELS. Discharges of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink wastes, and any other discharge incidental to the normal operation of a vessel do not require NPDES permits. However, discharges of rubbish, trash, garbage, or other such materials discharged overboard require permits, and so do other discharges when the vessel is operating in a capacity other than as a means of transportation, such as when the vessel is being used as an energy or mining facility, a storage facility, or a seafood processing facility, or is secured to the bed of the ocean, contiguous zone, or waters of the United States for the purpose of mineral or oil exploration or development.

B. DREDGED OR FILL MATERIAL. Discharges of dredged or fill material into waters of the United States do not need NPDES permits if the dredging or filling is authorized by a permit issued by the U.S. Army Corps of Engineers or an EPA approved State under Section 404 of CWA.

C. DISCHARGES INTO PUBLICLY OWNED TREATMENT WORKS (*POTW*), The introduction of sewage, industrial wastes, or other pollutants into a POTW does not need an NPDES permit. You must comply with all applicable pretreatment standards promulgated under Section 307(b) of CWA, which may be included in the permit issued to the POTW. If you have a plan or an agreement to switch to a POTW in the future, this does not relieve you of the obligation to apply for and receive an NPDES permit until you have stopped discharging pollutants into waters of the United States.

*(NOTE: Dischargers into privately owned treatment works do not have to apply for or obtain NPDES permits except as otherwise required by the EPA Regional Administrator. The owner or operator of the treatment works itself, however, must apply for a permit and identify all users in its application. Users so identified will receive public notice of actions taken on the permit for the treatment works.)*

D. DISCHARGES FROM AGRICULTURAL AND SILVICULTURAL ACTIVITIES. Most discharges from agricultural and silvicultural activities to waters of the United States do not require NPDES permits. These include runoff from orchards, cultivated crops, pastures, range lands, and forest lands. However, the discharges listed below do require NPDES permits. Definitions of the terms listed below are contained in the Glossary section of these instructions.

1. Discharges from Concentrated Animal Feeding Operations. (*See Glossary for definitions of "animal feeding operations" and "concentrated animal feeding operations." Only the latter require permits.*)

2. Discharges from Concentrated Aquatic Animal Production Facilities. (*See Glossary for size cutoffs.*)

3. Discharges associated with approved Aquaculture Projects.

4. Discharges from Silvicultural Point Sources. (*See Glossary for the definition of "silvicultural point source."*) Nonpoint source silvicultural activities are excluded from NPDES permit requirements. However, some of these activities, such as stream crossings for roads, may involve point source discharges of dredged or fill material which may require a Section 404 permit. See 33 CFR 209.120.

E. DISCHARGES IN COMPLIANCE WITH AN ON-SCENE COORDINATOR'S INSTRUCTIONS.

**II. Hazardous Waste Permits Under the Resource Conservation and Recovery Act.** You may be excluded from the requirement to obtain a permit under this program if you fall into one of the following categories:

Generators who accumulate their own hazardous waste on-site for less than 90 days as provided in 40 CFR 262.34;

Farmers who dispose of hazardous waste pesticide from their own use as provided in 40 CFR 262.51;

Certain persons treating, storing, or disposing of small quantities of hazardous waste as provided in 40 CFR 261.4 or 261.5; and

Owners and operators of totally enclosed treatment facilities as defined in 40 CFR 260.10.

Check with your Regional office for details. Please note that even if you are excluded from permit requirements, you may be required by Federal regulations to handle your waste in a particular manner.

**III. Underground Injection Control Permits Under the Safe Drinking Water Act.** You are not required to obtain a permit under this program if you:

Inject into existing wells used to enhance recovery of oil and gas or to store hydrocarbons (*note, however, that these underground injections are regulated by Federal rules*); or

Inject into or above a stratum which contains, within 1/4 mile of the well bore, an underground source of drinking water (*unless your injection is the type identified in Item II-H, for which you do need a permit*). However, you must notify EPA of your injection and submit certain required information on forms supplied by the Agency, and your operation may be phased out if you are a generator of hazardous wastes or a hazardous waste management facility which uses wells or septic tanks to dispose of hazardous waste.

**IV. Prevention of Significant Deterioration Permits Under the Clean Air Act.** The PSD program applies to newly constructed or modified facilities (*both of which are referred to as "new sources"*) which increase air emissions. The Clean Air Act Amendments of 1977 exclude small new sources of air emissions from the PSD review program. Any new source in an industrial category listed in Table 3 of these instructions whose potential to emit is less than 100 tons per year is not required to get a PSD permit. In addition, any new source in an industrial category not listed in Table 3 whose potential to emit is less than 250 tons per year is exempted from the PSD requirements.

Modified sources which increase their net emissions (*the difference between the total emission increases and total emission decreases at the source*) less than the significant amount set forth in EPA regulations are also exempt from PSD requirements. Contact your EPA Regional office (*Table 1*) for further information.

## SECTION D – GLOSSARY

NOTE: This Glossary includes terms used in the instructions and in Forms 1, 2B, 2C, and 3. Additional terms will be included in the future when other forms are developed to reflect the requirements of other parts of the Consolidated Permits Program. If you have any questions concerning the meaning of any of these terms, please contact your EPA Regional office (*Table 1*)

ALIQUOT means a sample of specified volume used to make up a total composite sample.

ANIMAL FEEDING OPERATION means a lot or facility (*other than an aquatic animal production facility*) where the following conditions are met;

A. Animals (*other than aquatic animals*) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period; and

B. Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Two or more animal feeding operations under common ownership are a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes.

ANIMAL UNIT means a unit of measurement for any animal feeding operation calculated by adding the following numbers: The number of slaughter and feeder cattle multiplied by 1.0; Plus the number of mature dairy cattle multiplied by 1.4; Plus the number of swine weighing over 25 kilograms (*approximately 55 pounds*) multiplied by 0.4; Plus the number of sheep multiplied by 0.1; Plus the number of horses multiplied by 2.0.

APPLICATION means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in approved States, including any approved modifications or revisions. For RCRA, "application" also means "Application, Part B."

APPLICATION, PART A means that part of the Consolidated Permit Application forms which a RCRA permit applicant must complete to qualify for interim status under Section 3005(e) of RCRA and for consideration for a permit. Part A consists of Form 1 (*General Information*) and Form 3 (*Hazardous Waste Application Form*).

APPLICATION, PART B means that part of the application which a RCRA permit applicant must complete to be issued a permit. (*NOTE: EPA is not developing a specific form for Part B of the permit application, but an instruction booklet explaining what Information must be supplied is available from the EPA Regional office.*)

APPROVED PROGRAM or APPROVED STATE means a State program which has been approved or authorized by EPA under 40 CFR Part 123.

AQUACULTURE PROJECT means a defined managed water area which uses discharges of pollutants into that designated area for the maintenance or production of harvestable freshwater, estuarine, or marine plants or animals. "Designated area" means the portions of the waters of the United States within which the applicant plans to confine the cultivated species, using a method of plan or operation (*including, but not limited to, physical confinement*) which, on the basis of reliable scientific evidence, is expected to ensure the specific individual organisms comprising an aquaculture crop will enjoy increased growth attributable to the discharge of pollutants and be harvested within a defined geographic area.

AQUIFER means a geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

AREA OF REVIEW means the area surrounding an injection which is described according to the criteria set forth in 40 CFR Section 146.06.

AREA PERMIT means a UIC permit applicable to all or certain wells within a geographic area, rather than to a specified well, under 40 CFR Section 122.37.

ATTAINMENT AREA means, for any air pollutant, an area which has been designated under Section 107 of the Clean Air Act as having ambient air quality levels better than any national primary or secondary ambient air quality standard for that pollutant. Standards have been set for sulfur oxides, particulate matter, nitrogen dioxide, carbon monoxide, ozone, lead, and hydrocarbons. For purposes of the Glossary, "attainment area" also refers to "unclassifiable area," which means, for any pollutants, an area designated under Section 107 as unclassifiable with respect to that pollutant due to insufficient Information.

BEST MANAGEMENT PRACTICES (*BMP*) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMP's include treatment requirements, operation procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

BIOLOGICAL MONITORING TEST means any test which includes the use of aquatic algal, invertebrate, or vertebrate species to measure acute or chronic toxicity, and any biological or chemical measure of bioaccumulation.

BYPASS means the intentional diversion of wastes from any portion of a treatment facility.

CONCENTRATED ANIMAL FEEDING OPERATION means an animal feeding operation which meets the criteria set forth in either (A) or (B) below or which the Director designates as such on a case-by-case basis:

A. More than the numbers of animals specified in any of the following categories are confined:

1. 1,000 slaughter or feeder cattle,

2. 700 mature dairy cattle (*whether milked or dry cows*),

3. 2,500 swine each weighing over 25 kilograms (*approximately 55 pounds*),

4. 500 horses,

5. 10,000 sheep or lambs,

6. 55,000 turkeys,

7. 100,000 laying hens or broilers (*if the facility has a continuous overflow watering*),

8. 30,000 laying hens or broilers (*if the facility has a liquid manure handling system*),

9. 5,000 ducks, or

10. 1,000 animal units; or

B. More than the following numbers and types of animals are confined:

1. 300 slaughter or feeder cattle,

2. 200 mature dairy cattle (*whether milked or dry cows*),

3. 750 swine each weighing over 25 kilograms (*approximately 55 pounds*),

4. 150 horses,

5. 3,000 sheep or lambs,

6.16,500 turkeys,

7. 30,000 laying hens or broilers (*if the facility has continuous overflow watering*),

8. 9,000 laying hens or broilers (*if the facility has a liquid manure handling system*),

9. 1,500 ducks, or

10. 300 animal units; AND

Either one of the following conditions are met: Pollutants are discharged into waters of the United States through a manmade ditch, flushing system or other similar manmade device (*"man-made" means constructed by man and used for the purpose of transporting wastes*); or Pollutants are discharged directly into waters of the Unites States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

Provided, however, that no animal feeding operation is a concentrated animal feeding operation as defined above if such animal feeding operation discharges only in the event of a 25 year, 24 hour storm event.

CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY means a hatchery, fish farm, or other facility which contains, grows or holds aquatic animals in either of the following categories, or which the Director designates as such on a case-by-case basis:

A. Cold water fish species or other cold water aquatic animals including, but not limited to, the Salmonidae family of fish (*e.g., trout and salmon*) in ponds, raceways or other similar structures which discharge at least 30 days per year but does not include:

1. Facilities which produce less than 9,090 harvest weight kilograms (*approximately 20,000 pounds*) of aquatic animals per year; and

2. Facilities which feed less than 2,272 kilograms (*approximately 5,000 pounds*) of food during the calendar month of maximum feeding.

B. Warm water fish species or other warm water aquatic animals including, but not limited to, the Ameiuridae, Cetrarchiclae, and Cyprinidae families of fish (*e.g., respectively, catfish, sunfish, and minnows*) in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include;

1. Closed ponds which discharge only during periods of excess runoff; or

2. Facilities which produce less than 45,454 harvest weight kilograms (*approximately 100,000 pounds*) of aquatic animals per year.

CONTACT COOLING WATER means water used to reduce temperature which comes into contact with a raw material, intermediate product, waste product other than heat, or finished product.

CONTAINER means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

CONTIGUOUS ZONE means the entire zone established by the United States under article 24 of the convention of the Territorial Sea and the Contiguous Zone.

CWA means the Clean Water Act (*formerly referred to the Federal Water Pollution Control Act*) Pub. L. 92-500, as amended by Pub. L. 95-217 and Pub. L. 95-576, 33 U.S.C. 1251 *et seq*.

DIKE means any embankment or ridge of either natural or manmade materials used to prevent the movement of liquids, sludges, solids, or other materials.

DIRECT DISCHARGE means the discharge of a pollutant as defined below.

DIRECTOR means the EPA Regional Administrator or the State Director as the context requires.

DISCHARGE (*OF A POLLUTANT*) means:

A. Any addition of any pollutant or combination of pollutants to waters of the United States from any point source; or

B. Any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes discharges into waters of the United States from: Surface runoff which is collected or channelled by man; Discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to POTW's; and Discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

DISPOSAL (*in the RCRA program*) means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous waste into or on any land or water so that the hazardous waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters, including ground water.

DISPOSAL FACILITY means a facility or part of a facility at which hazardous waste is intentionally placed into or on land or water, and at which hazardous waste will remain after closure.

EFFLUENT LIMITATION means any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the continguous zone, or the ocean.

EFFLUENT LIMITATION GUIDELINE means a regulation published by the Administrator under Section 304(b) of the Clean Water Act to adopt or revise effluent limitations.

ENVIRONMENTAL PROTECTION AGENCY (*EPA*) means the United States Environmental Protection Agency.

EPA IDENTIFICATION NUMBER means the number assigned by EPA to each generator, transporter, and facility.

EXEMPTED AQUIFER means an aquifer or its portion that meets the criteria in the definition of USDW, but which has been exempted according to the procedures in 40 CFR Section 122.35(b).

EXISTING HWM FACILITY means a Hazardous Waste Management facility which was in operation, or for which construction had commenced, on or before October 21, 1976. Construction had commenced if (A) the owner or operator had obtained all necessary Federal, State, and local preconstruction approvals or permits, and either (B1) a continuous on-site, physical construction program had begun, or (B2) the owner or operator had entered into contractual obligations, which could not be cancelled or modified without substantial loss, for construction of the facility to be completed within a reasonable time.

*(NOTE: This definition reflects the literal language of the statute. However, EPA believes that amendments to RCRA now in conference will shortly be enacted and will change the date for determining when a facility is an "existing facility" to one no earlier than May of 1980; indications are the conferees are considering October 30, 1980. Accordingly, EPA encourages every owner or operator of a facility which was built or under construction as of the promulgation date of the RCRA program regulations to file Part A of its permit application so that it can be quickly processed for interim status when the change in the law takes effect. When those amendments are enacted, EPA will amend this definition.)*

EXISTING SOURCE or EXISTING DISCHARGER (*in the NPDES program*) means any source which is not a new source or a new discharger.

EXISTING INJECTION WELL means an injection well other than a new injection well.

FACILITY means any HWM facility, UIC underground injection well, NPDES point source, PSD stationary source, or any other facility or activity (*including land or appurtenances thereto*) that is subject to regulation under the RCRA, UIC, NPDES, or PSD programs.

FLUID means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

GENERATOR means any person by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261.

GROUNDWATER means water below the land surface in a zone of saturation.

HAZARDOUS SUBSTANCE means any of the substances designated under 40 CFR Part 116 pursuant to Section 311 of CWA. *(NOTE: These substances are listed in Table 2c-4 of the instructions to Form 2C.)*

HAZARDOUS WASTE means a hazardous waste as defined in 40 CFR Section 261.3 published May 19, 1980.

HAZARDOUS WASTE MANAGEMENT FACILITY (*HWM facility*) means all contiguous land, structures, appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous wastes. A facility may consist of several treatment, storage, or disposal operational units (*for example, one or more landfills, surface impoundments, or combinations of them*).

IN OPERATION means a facility which is treating, storing, or disposing of hazardous waste.

INCINERATOR (*in the RCRA program*) means an enclosed device using controlled flame combustion, the primary purpose of which is to thermally break down hazardous waste. Examples of incinerators are rotary kiln, fluidized bed, and liquid injection incinerators.

INDIRECT DISCHARGER means a nondomestic discharger introducing pollutants to a publicly owned treatment works.

INJECTION WELL means a well into which fluids are being injected.

INTERIM AUTHORIZATION means approval by EPA of a State hazardous waste program which has met the requirements of Section 3006(c) of RCRA and applicable requirements of 40 CFR Part 123, Subparts A, B, and F.

LANDFILL means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

LAND TREATMENT FACILITY (*in the RCRA program*) means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

LISTED STATE means a State listed by the Administrator under Section 1422 of SDWA as needing a State UIC program.

MGD means millions of gallons per day.

MUNICIPALITY means a city, village, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (*NPDES*) means the national program for issuing modifying, revoking and reissuing, terminating, monitoring, and enforcing permits and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA. The term includes an approved program.

NEW DISCHARGER means any building, structure, facility, or installation: (A) From which there is or may be a new or additional discharge of pollutants at a site at which on October 18, 1972, it had never discharged pollutants; (B) Which has never received a finally effective NPDES permit for discharges at that site; and (C) Which is not a "new source." This definition includes an indirect discharger which commences discharging into waters of the United States. It also includes any existing mobile point source, such as an offshore oil drilling rig, seafood processing vessel, or aggregate plant that begins discharging at a location for which it does not have an existing permit.

NEW HWM FACILITY means a Hazardous Waste Management facility which began operation or for which construction commenced after October 21, 1976.

NEW INJECTION WELL means a well which begins injection after a UIC program for the State in which the well is located is approved.

NEW SOURCE (*in the NPDES program*) means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

A. After promulgation of standards of performance under Section 306 of CWA which are applicable to such source; or

B. After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NON-CONTACT COOLING WATER means water used to reduce temperature which does not come into direct contact with any raw material, intermediate product, waste product (*other than heat*), or finished product.

OFF-SITE means any site which is not "on-site".

ON-SITE means on the same or geographically contiguous property which may be divided by public or private right(s)-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along, the right(s)-of-way. Non-contiguous properties owned by the same person, but connected by a right-of-way which the person controls and to which the public does not have access, is also considered on-site property.

OPEN BURNING means the combustion of any material without the following characteristics;

A. Control of combustion air to maintain adequate temperature for efficient combustion;

B. Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

C. Control of emission of the gaseous combustion products.

*(See also "incinerator" and "thermal treatment").*

OPERATOR means the person responsible for the overall operation of a facility.

OUTFALL means a point source.

OWNER means the person who owns a facility or part of a facility.

PERMIT means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR Parts 122, 123, and 124.

PHYSICAL CONSTRUCTION (*in the RCRA program*) means excavation, movement of earth, erection of forms or structures, or similar activity to prepare a HWM facility to accept hazardous waste.

PILE means any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage.

POINT SOURCE means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

POLLUTANT means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials (*except those regulated under the Atomic Energy Act of 1954, as amended [42 U.S.C. Section 2011 et seq.]*), heat, wrecked or discarded equipment, rocks, sand, cellar dirt and Industrial, municipal, and agriculture waste discharged into water. It does not mean:

A. Sewage from vessels; or

B. Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

*(NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator produced isotopes. See Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1 [1976].)*

PREVENTION OF SIGNIFICANT DETERIORATION (*PSD*) means the national permitting program under 40 CFR 52.21 to prevent emissions of certain pollutants regulated under the Clean Air Act from significantly deteriorating air quality in attainment areas.

PRIMARY INDUSTRY CATEGORY means any industry category listed in the NRDC Settlement Agreement (*Natural Resources Defense Council v. Train, 8 ERC 2120 [D.D.C. 1976], modified 12 ERC 1833 [D.D.C. 1979]*).

PRIVATELY OWNED TREATMENT WORKS means any device or system which is: (A) Used to treat wastes from any facility whose operator is not the operator of the treatment works; and (B) Not a POTW.

PROCESS WASTEWATER means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

PUBLICLY OWNED TREATMENT WORKS or POTW means any device or system used in the treatment (*including recycling and reclamation*) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality. This definition includes any sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

RENT means use of another's property in return for regular payment.

RCRA means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (*Pub. L. 94-580, as amended by Pub. L. 95-609, 42 U.S.C. Section 6901 at seq.*).

ROCK CRUSHING AND GRAVEL WASHING FACILITIES are facilities which process crushed and broken stone, gravel, and riprap (*see 40 CFR Part 436, Subpart B, and the effluent limitations guidelines for these facilities*).

SDWA means the Safe Drinking Water Act (*Pub. L 95-523, as amended by Pub. L. 95-1900, 42 U.S.C. Section 300[f] et seq.*).

SECONDARY INDUSTRY CATEGORY means any industry category which is not a primary industry category.

SEWAGE FROM VESSELS means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes that are discharged from vessels and regulated under Section 312 of CWA, except that with respect to commercial vessels on the Great Lakes this term includes graywater. For the purposes of this definition, "graywater" means galley, bath, and shower water,

SEWAGE SLUDGE means the solids, residues, and precipitate separated from or created in sewage by the unit processes of a POTW. "Sewage" as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a publicly owned treatment works.

SILVICULTURAL POINT SOURCE means any discernable, confined, and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the United States. This term does not include nonpoint source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff. However, some of these activities (*such as stream crossing for roads*) may involve point source discharges of dredged or fill material which may require a CWA Section 404 permit. "Log sorting and log storage facilities" are facilities whose discharges result from the holding of unprocessed wood, e.g., logs or roundwood with bark or after removal of bark in self-contained bodies of water (*mill ponds or log ponds*) or stored on land where water is applied intentionally on the logs (*wet decking*). (*See 40 CFR Part 429, Subpart J, and the effluent limitations guidelines for these facilities.*)

STATE means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands (*except in the case of RCRA*), and the Commonwealth of the Northern Mariana Islands (*except in the case of CWA*).

STATIONARY SOURCE (*in the PSD program*) means any building, structure, facility, or installation which emits or may emit any air pollutant regulated under the Clean Air Act. "Building, structure, facility, or installation" means any grouping of pollutant-emitting activities which are located on one or more contiguous or adjacent properties and which are owned or operated by the same person (*or by persons under common control*).

STORAGE (*in the RCRA program*) means the holding of hazardous waste for a temporary period at the end of which the hazardous waste is treated, disposed, or stored elsewhere.

STORM WATER RUNOFF means water discharged as a result of rain, snow, or other precipitation.

SURFACE IMPOUNDMENT or IMPOUNDMENT means a facility or part of a facility which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (*although it may be lined with manmade materials*), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

TANK (*in the RCRA program*) means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (*e.g., wood, concrete, steel, plastic*) which provide structural support.

THERMAL TREATMENT (*in the RCRA program*) means the treatment of hazardous waste in a device which uses elevated temperature as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. (*See also "incinerator" and "open burning"*).

TOTALLY ENCLOSED TREATMENT FACILITY (*in the RCRA program*) means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

TOXIC POLLUTANT means any pollutant listed as toxic under Section 307(a)(1) of CWA.

TRANSPORTER (*in the RCRA program*) means a person engaged in the off-site transportation of hazardous waste by air, rail, highway, or water.

TREATMENT (*in the RCRA program*) means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

UNDERGROUND INJECTION means well injection.

UNDERGROUND SOURCE OF DRINKING WATER or USDW means an aquifer or its portion which is not an exempted aquifer and:

A. Which supplies drinking water for human consumption; or

B. In which the ground water contains fewer than 10,000 mg/l total dissolved solids.

UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

## SECTION D – GLOSSARY

WATERS OF THE UNITED STATES means:

A. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

B. All interstate waters, including interstate wetlands;

C. All other waters such as intrastate lakes, rivers, streams (*including intermittent streams*), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds, the use, degradation, or destruction of which would or could affect interstate or foreign commerce including any such waters;

1. Which are or could be used by interstate or foreign travelers for recreational or other purposes,

2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce,

3. Which are used or could be used for industrial purposes by industries in interstate commerce;

D. All impoundments of waters otherwise defined as waters of the United States under this definition;

E. Tributaries of waters identified in paragraphs (A) – (D) above;

F. The territorial sea; and

G. Wetlands adjacent to waters (*other than waters that are themselves wetlands*) identified in paragraphs (A) – (F) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet requirement of CWA (*other than cooling ponds as defined In 40 CFR Section 423.11(m) which also meet the criteria of this definition*) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (*such as a disposal area in wetlands*) nor resulted from the impoundments of waters of the United States.

WELL INJECTION or UNDERGROUND INJECTION means the subsurface emplacement of fluids through a bored, drilled, or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension.

WETLANDS means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

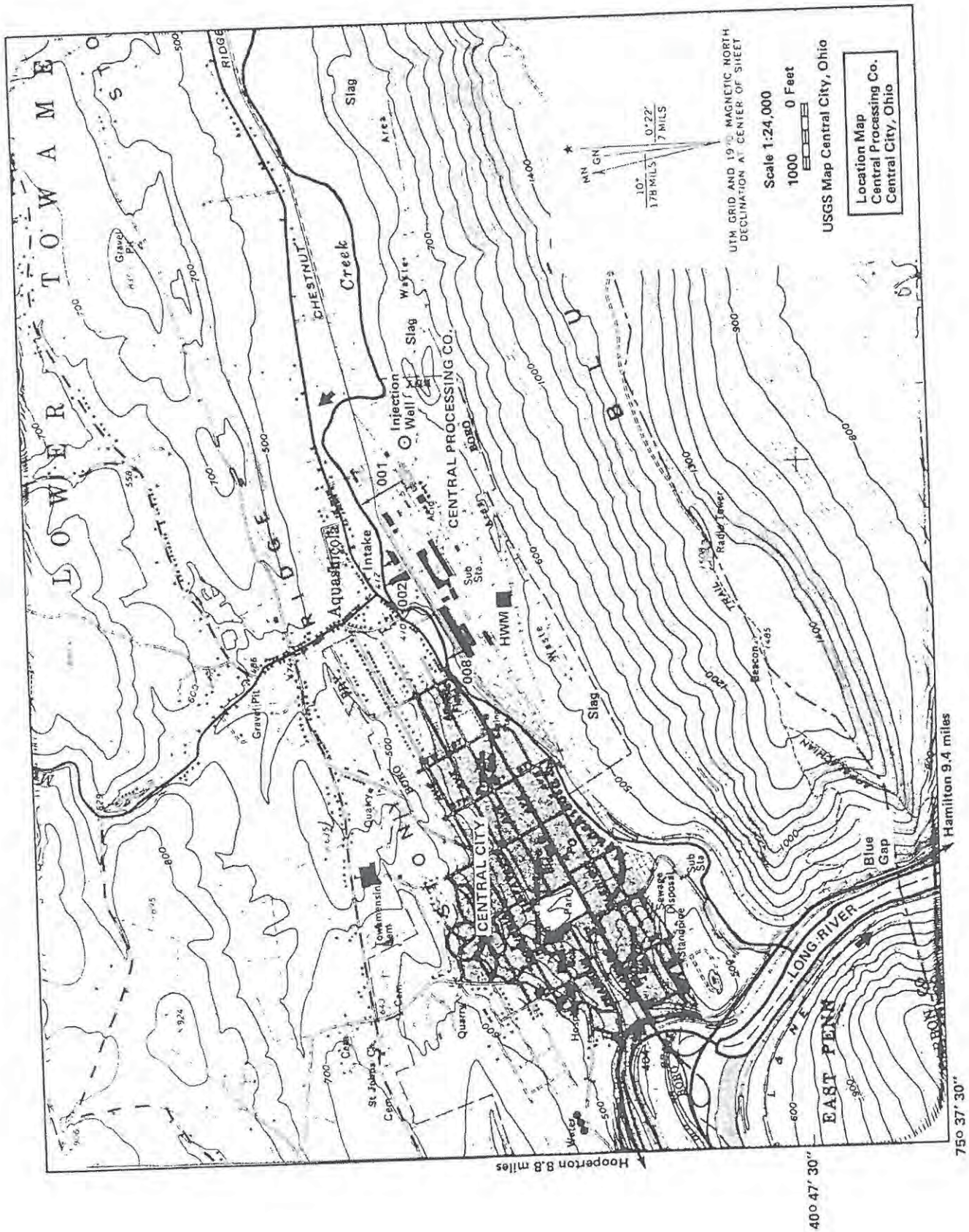


FIGURE 1-1

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
**GENERAL INFORMATION**
*Consolidated Permits Program*
*(Read the "General Instructions" before starting.)*

I. EPA I.D. NUMBER

| S | | T/A | C |
|---|---|---|---|
| F | | | D |
| 1 2 | 13 | 14 | 15 |

LABEL ITEMS

I. EPA I.D. NUMBER
III. FACILITY NAME
V. FACILITY MAILING ADDRESS
VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

## II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

| SPECIFIC QUESTIONS | Mark "X" YES | NO | FORM ATTACHED |
|---|---|---|---|
| A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A) | X (16) | (17) | (18) |
| B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B) | (19) | X (20) | (21) |
| C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C) | (22) | X (23) | (24) |
| D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D) | (25) | X (26) | (27) |
| E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3) | (28) | X (29) | (30) |
| F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4) | (31) | X (32) | (33) |
| G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4) | (34) | X (35) | (36) |
| H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4) | (37) | X (38) | (39) |
| I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5) | (40) | X (41) | (42) |
| J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5) | (43) | X (44) | (45) |

## III. NAME OF FACILITY

C 1 SKIP: Point of View WWTP (15 | 16 – 29 | 30 – 69)

## IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: C 2 Zhongyan Xu, Manager, Civil and Environmental Engineerin (15 | 16 – 45)

B. PHONE *(area code & no.)*: (703) 993-4051 (46 | 48 | 48 | 49 – 51 | 52 – 55)

## V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX: C 3 4400 University Dr., MS 1E4 (15 | 16 – 45)

B. CITY OR TOWN: C 4 Fairfax (15 | 16 – 40)

C. STATE: VA (41 | 42)

D. ZIP CODE: 22030 (47 – 51)

## VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: C 5 End of Route 601, Belmont Blvd (15 | 16 – 45)

B. COUNTY NAME: Fairfax (46 – 70)

C. CITY OR TOWN: C 6 Lorton (15 | 16 – 40)

D. STATE: VA (41 | 42)

E. ZIP CODE: 22079 (47 – 51)

F. COUNTY CODE *(if known)* (52 – 54)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

**VII. SIC CODES** *(4-digit, in order of priority)*

| A. FIRST | B. SECOND |
|---|---|
| 4952 (specify) Wastewater Treatment Plant | (specify) |
| **C. THIRD** | **D. FOURTH** |
| (specify) | (specify) |

**VIII. OPERATOR INFORMATION**

A. NAME: TBD

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

(specify)

D. PHONE *(area code & no.)*

A

E. STREET OR P.O. BOX

F. CITY OR TOWN: B

G. STATE

H. ZIP CODE

**IX. INDIAN LAND**

Is the facility located on Indian lands? ☐ YES ☐ NO

**X. EXISTING ENVIRONMENTAL PERMITS**

| A. NPDES *(Discharges to Surface Water)* | D. PSD *(Air Emissions from Proposed Sources)* |
|---|---|
| 9 N VA0090221 | 9 P |
| **B. UIC** *(Underground Injection of Fluids)* | **E. OTHER** *(specify)* |
| 9 U | 9 (specify) |
| **C. RCRA** *(Hazardous Wastes)* | **E. OTHER** *(specify)* |
| 9 R | 9 (specify) |

**XI. MAP**

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

**XII. NATURE OF BUSINESS** *(provide a brief description)*

Conference Center Facility for School for Conflict Analysis and Resolution at Point of View which owner uses to schedule events for clients. The space has capacity for 100 people. The wastewater discharge is from the acaedmic and residential buildings.

**XIII. CERTIFICATION** *(see instructions)*

*I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.*

| A. NAME & OFFICIAL TITLE *(type or print)* | B. SIGNATURE | C. DATE SIGNED |
|---|---|---|
| Thomas G. Calhoun | Thomas G. Calhoun | 7/21/2015 |

**COMMENTS FOR OFFICIAL USE ONLY**

C

# Disclaimer

This is an updated PDF document that allows you to type your information directly into the form and to save the completed form. This form is the most updated form currently available.

Note: This form can be viewed and saved only using Adobe Acrobat Reader version 7.0 or higher, or if you have the full Adobe Professional version.

Instructions:

1. Type in your information
2. Save file (if desired)
3. Print the completed form
4. Sign and date the printed copy
5. Mail it to the directed contact.

FACILITY NAME AND PERMIT NUMBER:
Point of View WWTP VA0090221

Form Approved 1/14/99
OMB Number 2040-0086

FORM 2A NPDES

# NPDES FORM 2A APPLICATION OVERVIEW

## APPLICATION OVERVIEW

**Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.**

### BASIC APPLICATION INFORMATION:

A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.

B. **Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.

C. **Certification.** All applicants must complete Part C (Certification).

### SUPPLEMENTAL APPLICATION INFORMATION:

D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to provide the information.

E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to submit results of toxicity testing.

F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:

1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
2. Any other industrial user that:
   a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
   b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
   c. Is designated as an SIU by the control authority.

G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

## ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

FACILITY NAME AND PERMIT NUMBER:
Point of View WWTP VA0090221

Form Approved 1/14/99
OMB Number 2040-0086

# BASIC APPLICATION INFORMATION

## PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

**All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.**

**A.1. Facility Information.**

Facility name: Point of View WWTP

Mailing Address: 4400 University Dr., MS 1E4, Fairfax, VA 22030

Contact person: Thomas G. Calhoun

Title: Vice President, George Mason University

Telephone number: (703) 993-9467

Facility Address (not P.O. Box): End of Route 601, Belmont Blvd, Lorton, VA 22079

**A.2. Applicant Information.** If the applicant is different from the above, provide the following:

Applicant name:

Mailing Address:

Contact person:

Title:

Telephone number:

**Is the applicant the owner or operator (or both) of the treatment works?**

✓ owner ____ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

____ facility ✓ applicant

**A.3. Existing Environmental Permits.** Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES VA 0090221
UIC
RCRA
PSD
Other
Other

**A.4. Collection System Information.** Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

| Name | Population Served | Type of Collection System | Ownership |
|---|---|---|---|
| N/A | 100 (Estimated) | Separate | Public |
| | | | |
| | | | |

**Total population served** 100

**A.5. Indian Country.**

a. Is the treatment works located in Indian Country?

_____ Yes ✓ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

_____ Yes ✓ No

**A.6. Flow.** Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate 0.005 mgd

| | Two Years Ago | Last Year | This Year |
|---|---|---|---|
| b. Annual average daily flow rate | N/A | N/A | 0.005 (After 09/2015) mgd |
| c. Maximum daily flow rate | N/A | N/A | 0.005 (After 09/2015) mgd |

**A.7. Collection System.** Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

✓ Separate sanitary sewer 100 %

_____ Combined storm and sanitary sewer _____ %

**A.8. Discharges and Other Disposal Methods.**

a. Does the treatment works discharge effluent to waters of the U.S.? ✓ Yes _____ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent 100%

ii. Discharges of untreated or partially treated effluent 0

iii. Combined sewer overflow points 0

iv. Constructed emergency overflows (prior to the headworks) 0

v. Other _____ 0

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? _____ Yes ✓ No

If yes, provide the following for each surface impoundment:

Location: _____

Annual average daily volume discharged to surface impoundment(s) _____ mgd

Is discharge _____ continuous or _____ intermittent?

c. Does the treatment works land-apply treated wastewater? _____ Yes ✓ No

If yes, provide the following for each land application site:

Location: _____

Number of acres: _____

Annual average daily volume applied to site: _____ Mgd

Is land application _____ continuous or _____ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? _____ Yes ✓ No

If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter name: N/A

Mailing Address:

Contact person:

Title:

Telephone number:

For each treatment works that receives this discharge, provide the following:

Name: N/A

Mailing Address:

Contact person:

Title:

Telephone number:

If known, provide the NPDES permit number of the treatment works that receives this discharge.

Provide the average daily flow rate from the treatment works into the receiving facility. mgd

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? ____ Yes ✓ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

Annual daily volume disposed of by this method:

Is disposal through this method ____ continuous or ____ intermittent?

**WASTEWATER DISCHARGES:**

**If you answered "yes" to question A.8.a**, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a**, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

**A.9. Description of Outfall.**

a. Outfall number: 001

b. Location: Lorton (City or town, if applicable); 22079 (Zip Code)
Fairfax (County); VA (State)
(Latitude); (Longitude)

c. Distance from shore (if applicable): N/A ft.

d. Depth below surface (if applicable): N/A ft.

e. Average daily flow rate: 0.005 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ____ Yes ✓ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: ____

Average duration of each discharge: ____

Average flow per discharge: ____ mgd

Months in which discharge occurs: ____

g. Is outfall equipped with a diffuser? ____ Yes ✓ No

**A.10. Description of Receiving Waters.**

a. Name of receiving water: Belmont Bay, VA

b. Name of watershed (if known): Occoquan River

United States Soil Conservation Service 14-digit watershed code (if known): ____

c. Name of State Management/River Basin (if known): Potomac River

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): ____

d. Critical low flow of receiving stream (if applicable):
acute ____ cfs chronic ____ cfs

e. Total hardness of receiving stream at critical low flow (if applicable): ____ mg/l of $CaCO_3$

**FACILITY NAME AND PERMIT NUMBER:**
Point of View WWTP VA0090221

*Form Approved 1/14/99*
*OMB Number 2040-0086*

**A.11. Description of Treatment.**

a. What levels of treatment are provided? Check all that apply.

✓ Primary ✓ Secondary
✓ Advanced _____ Other. Describe: _____

b. Indicate the following removal rates (as applicable):

| | |
|---|---|
| Design $BOD_5$ removal or Design $CBOD_5$ removal | 97.9 % |
| Design SS removal | 97.9 % |
| Design P removal | 98.4 % |
| Design N removal | 95 % |
| Other _____ | _____ % |

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Ultraviolet

If disinfection is by chlorination, is dechlorination used for this outfall? _____ Yes _____ No

d. Does the treatment plant have post aeration? ✓ Yes _____ No

**A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.**

Outfall number: 001

| PARAMETER | MAXIMUM DAILY VALUE | | AVERAGE DAILY VALUE | | |
|---|---|---|---|---|---|
| | Value | Units | Value | Units | Number of Samples |
| pH (Minimum) | 6.0 | s.u. | | | |
| pH (Maximum) | 9.0 | s.u. | | | |
| Flow Rate | NL | | | | |
| Temperature (Winter) | NL | | | | |
| Temperature (Summer) | NL | | | | |

* For pH please report a minimum and a maximum daily value

| POLLUTANT | | MAXIMUM DAILY DISCHARGE | | AVERAGE DAILY DISCHARGE | | | ANALYTICAL METHOD | ML / MDL |
|---|---|---|---|---|---|---|---|---|
| | | Conc. | Units | Conc. | Units | Number of Samples | | |
| **CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.** | | | | | | | | |
| BIOCHEMICAL OXYGEN | BOD-5 | | | | | | | |
| DEMAND (Report one) | CBOD-5 | 7.5 | mg/l | 5.0 | mg/l | 5D/W | 24HC | |
| FECAL COLIFORM | | | | | | | | |
| TOTAL SUSPENDED SOLIDS (TSS) | | 9.0 | mg/l | 6.0 | mg/l | 5D/W | 24HC | |

**END OF PART A.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

# BASIC APPLICATION INFORMATION

## PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

**B.1. Inflow and Infiltration.** Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

0 gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

The new PVC collection system and manholes will be tested watertight prior to acceptance.

**B.2. Topographic Map.** Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

a. The area surrounding the treatment plant, including all unit processes.

b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.

c. Each well where wastewater from the treatment plant is injected underground.

d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.

e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.

f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

**B.3. Process Flow Diagram or Schematic.** Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g, chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

**B.4. Operation/Maintenance Performed by Contractor(s).**

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ✓ Yes ____ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: TBD

Mailing Address: _____

_____

Telephone Number: _____

Responsibilities of Contractor: _____

**B.5. Scheduled Improvements and Schedules of Implementation.** Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

N/A

b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

____ Yes ____ No

c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

_____

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

| Implementation Stage | Schedule MM / DD / YYYY | Actual Completion MM / DD / YYYY |
|---|---|---|
| – Begin construction | __/__/____ | __/__/____ |
| – End construction | __/__/____ | __/__/____ |
| – Begin discharge | __/__/____ | __/__/____ |
| – Attain operational level | __/__/____ | __/__/____ |

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ___Yes ✓ No

Describe briefly: _____

_____

**B.6. EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY).**

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | AVERAGE DAILY DISCHARGE | | | ANALYTICAL METHOD | ML / MDL |
|---|---|---|---|---|---|---|---|
| | Conc. | Units | Conc. | Units | Number of Samples | | |
| **CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.** | | | | | | | |
| AMMONIA (as N) | | | | | | | |
| CHLORINE (TOTAL RESIDUAL, TRC) | | | | | | | |
| DISSOLVED OXYGEN | | | | | | | |
| TOTAL KJELDAHL NITROGEN (TKN) | | | | | | | |
| NITRATE PLUS NITRITE NITROGEN | | | | | | | |
| OIL and GREASE | | | | | | | |
| PHOSPHORUS (Total) | | | | | | | |
| TOTAL DISSOLVED SOLIDS (TDS) | | | | | | | |
| OTHER | | | | | | | |

**END OF PART B.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

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# BASIC APPLICATION INFORMATION

## PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

**Indicate which parts of Form 2A you have completed and are submitting:**

✓ Basic Application Information packet

Supplemental Application Information packet:

_____ Part D (Expanded Effluent Testing Data)

_____ Part E (Toxicity Testing: Biomonitoring Data)

_____ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

_____ Part G (Combined Sewer Systems)

**ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title: Thomas G. Calhoun, Vice President, George Mason University

Signature: Thomas G. Calhoun

Telephone number: (703) 993-8738

Date signed: 7/21/2015

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

**SEND COMPLETED FORMS TO:**

FACILITY NAME AND PERMIT NUMBER:
Point of View WWTP VA0090221

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# SUPPLEMENTAL APPLICATION INFORMATION

## PART D. EXPANDED EFFLUENT TESTING DATA

**Refer to the directions on the cover page to determine whether this section applies to the treatment works.**

**Effluent Testing: 1.0 mgd and Pretreatment Treatment Works.** If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/ MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| **METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.** | | | | | | | | | | | |
| ANTIMONY | | | | | | | | | | | |
| ARSENIC | | | | | | | | | | | |
| BERYLLIUM | | | | | | | | | | | |
| CADMIUM | | | | | | | | | | | |
| CHROMIUM | | | | | | | | | | | |
| COPPER | | | | | | | | | | | |
| LEAD | | | | | | | | | | | |
| MERCURY | | | | | | | | | | | |
| NICKEL | | | | | | | | | | | |
| SELENIUM | | | | | | | | | | | |
| SILVER | | | | | | | | | | | |
| THALLIUM | | | | | | | | | | | |
| ZINC | | | | | | | | | | | |
| CYANIDE | | | | | | | | | | | |
| TOTAL PHENOLIC COMPOUNDS | | | | | | | | | | | |
| HARDNESS (AS $CaCO_3$) | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other metals requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/ MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| **VOLATILE ORGANIC COMPOUNDS.** | | | | | | | | | | | |
| ACROLEIN | | | | | | | | | | | |
| ACRYLONITRILE | | | | | | | | | | | |
| BENZENE | | | | | | | | | | | |
| BROMOFORM | | | | | | | | | | | |
| CARBON TETRACHLORIDE | | | | | | | | | | | |
| CLOROBENZENE | | | | | | | | | | | |
| CHLORODIBROMO-METHANE | | | | | | | | | | | |
| CHLOROETHANE | | | | | | | | | | | |
| 2-CHLORO-ETHYLVINYL ETHER | | | | | | | | | | | |
| CHLOROFORM | | | | | | | | | | | |
| DICHLOROBROMO-METHANE | | | | | | | | | | | |
| 1,1-DICHLOROETHANE | | | | | | | | | | | |
| 1,2-DICHLOROETHANE | | | | | | | | | | | |
| TRANS-1,2-DICHLORO-ETHYLENE | | | | | | | | | | | |
| 1,1-DICHLOROETHYLENE | | | | | | | | | | | |
| 1,2-DICHLOROPROPANE | | | | | | | | | | | |
| 1,3-DICHLORO-PROPYLENE | | | | | | | | | | | |
| ETHYLBENZENE | | | | | | | | | | | |
| METHYL BROMIDE | | | | | | | | | | | |
| METHYL CHLORIDE | | | | | | | | | | | |
| METHYLENE CHLORIDE | | | | | | | | | | | |
| 1,1,2,2-TETRACHLORO-ETHANE | | | | | | | | | | | |
| TETRACHLORO-ETHYLENE | | | | | | | | | | | |
| TOLUENE | | | | | | | | | | | |

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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/ MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| 1,1,1-TRICHLOROETHANE | | | | | | | | | | | |
| 1,1,2-TRICHLOROETHANE | | | | | | | | | | | |
| TRICHLORETHYLENE | | | | | | | | | | | |
| VINYL CHLORIDE | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| **ACID-EXTRACTABLE COMPOUNDS** | | | | | | | | | | | |
| P-CHLORO-M-CRESOL | | | | | | | | | | | |
| 2-CHLOROPHENOL | | | | | | | | | | | |
| 2,4-DICHLOROPHENOL | | | | | | | | | | | |
| 2,4-DIMETHYLPHENOL | | | | | | | | | | | |
| 4,6-DINITRO-O-CRESOL | | | | | | | | | | | |
| 2,4-DINITROPHENOL | | | | | | | | | | | |
| 2-NITROPHENOL | | | | | | | | | | | |
| 4-NITROPHENOL | | | | | | | | | | | |
| PENTACHLOROPHENOL | | | | | | | | | | | |
| PHENOL | | | | | | | | | | | |
| 2,4,6-TRICHLOROPHENOL | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| **BASE-NEUTRAL COMPOUNDS.** | | | | | | | | | | | |
| ACENAPHTHENE | | | | | | | | | | | |
| ACENAPHTHYLENE | | | | | | | | | | | |
| ANTHRACENE | | | | | | | | | | | |
| BENZIDINE | | | | | | | | | | | |
| BENZO(A)ANTHRACENE | | | | | | | | | | | |
| BENZO(A)PYRENE | | | | | | | | | | | |

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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/ MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| 3,4 BENZO-FLUORANTHENE | | | | | | | | | | | |
| BENZO(GHI)PERYLENE | | | | | | | | | | | |
| BENZO(K)FLUORANTHENE | | | | | | | | | | | |
| BIS (2-CHLOROETHOXY) METHANE | | | | | | | | | | | |
| BIS (2-CHLOROETHYL)-ETHER | | | | | | | | | | | |
| BIS (2-CHLOROISO-PROPYL) ETHER | | | | | | | | | | | |
| BIS (2-ETHYLHEXYL) PHTHALATE | | | | | | | | | | | |
| 4-BROMOPHENYL PHENYL ETHER | | | | | | | | | | | |
| BUTYL BENZYL PHTHALATE | | | | | | | | | | | |
| 2-CHLORONAPHTHALENE | | | | | | | | | | | |
| 4-CHLORPHENYL PHENYL ETHER | | | | | | | | | | | |
| CHRYSENE | | | | | | | | | | | |
| DI-N-BUTYL PHTHALATE | | | | | | | | | | | |
| DI-N-OCTYL PHTHALATE | | | | | | | | | | | |
| DIBENZO(A,H) ANTHRACENE | | | | | | | | | | | |
| 1,2-DICHLOROBENZENE | | | | | | | | | | | |
| 1,3-DICHLOROBENZENE | | | | | | | | | | | |
| 1,4-DICHLOROBENZENE | | | | | | | | | | | |
| 3,3-DICHLOROBENZIDINE | | | | | | | | | | | |
| DIETHYL PHTHALATE | | | | | | | | | | | |
| DIMETHYL PHTHALATE | | | | | | | | | | | |
| 2,4-DINITROTOLUENE | | | | | | | | | | | |
| 2,6-DINITROTOLUENE | | | | | | | | | | | |
| 1,2-DIPHENYLHYDRAZINE | | | | | | | | | | | |

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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

| POLLUTANT | MAXIMUM DAILY DISCHARGE | | | | AVERAGE DAILY DISCHARGE | | | | | ANALYTICAL METHOD | ML/ MDL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conc. | Units | Mass | Units | Conc. | Units | Mass | Units | Number of Samples | | |
| FLUORANTHENE | | | | | | | | | | | |
| FLUORENE | | | | | | | | | | | |
| HEXACHLOROBENZENE | | | | | | | | | | | |
| HEXACHLOROBUTADIENE | | | | | | | | | | | |
| HEXACHLOROCYCLO-PENTADIENE | | | | | | | | | | | |
| HEXACHLOROETHANE | | | | | | | | | | | |
| INDENO(1,2,3-CD)PYRENE | | | | | | | | | | | |
| ISOPHORONE | | | | | | | | | | | |
| NAPHTHALENE | | | | | | | | | | | |
| NITROBENZENE | | | | | | | | | | | |
| N-NITROSODI-N-PROPYLAMINE | | | | | | | | | | | |
| N-NITROSODI- METHYLAMINE | | | | | | | | | | | |
| N-NITROSODI-PHENYLAMINE | | | | | | | | | | | |
| PHENANTHRENE | | | | | | | | | | | |
| PYRENE | | | | | | | | | | | |
| 1,2,4-TRICHLOROBENZENE | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other base-neutral compounds requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |
| Use this space (or a separate sheet) to provide information on other pollutants (e.g., pesticides) requested by the permit writer. | | | | | | | | | | | |
| | | | | | | | | | | | |

**END OF PART D.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

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# SUPPLEMENTAL APPLICATION INFORMATION

## PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1 0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

**E.1. Required Tests.**

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

____chronic ____acute

**E.2. Individual Test Data.** Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

| | Test number:_____ | Test number:_____ | Test number:_____ |
|---|---|---|---|
| a. Test information. | | | |
| Test species & test method number | | | |
| Age at initiation of test | | | |
| Outfall number | | | |
| Dates sample collected | | | |
| Date test started | | | |
| Duration | | | |
| b. Give toxicity test methods followed. | | | |
| Manual title | | | |
| Edition number and year of publication | | | |
| Page number(s) | | | |
| c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used. | | | |
| 24-Hour composite | | | |
| Grab | | | |
| d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each) | | | |
| Before disinfection | | | |
| After disinfection | | | |
| After dechlorination | | | |

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|---|---|---|---|
| | Test number:_____ | Test number:_____ | Test number:_____ |
| e. Describe the point in the treatment process at which the sample was collected. | | | |
| Sample was collected: | | | |
| f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both. | | | |
| Chronic toxicity | | | |
| Acute toxicity | | | |
| g. Provide the type of test performed. | | | |
| Static | | | |
| Static-renewal | | | |
| Flow-through | | | |
| h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source. | | | |
| Laboratory water | | | |
| Receiving water | | | |
| i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used. | | | |
| Fresh water | | | |
| Salt water | | | |
| j. Give the percentage effluent used for all concentrations in the test series. | | | |
| | | | |
| | | | |
| | | | |
| k. Parameters measured during the test. (State whether parameter meets test method specifications) | | | |
| pH | | | |
| Salinity | | | |
| Temperature | | | |
| Ammonia | | | |
| Dissolved oxygen | | | |
| l. Test Results. | | | |
| Acute: | | | |
| Percent survival in 100% effluent | % | % | % |
| $LC_{50}$ | | | |
| 95% C.I. | % | % | % |
| Control percent survival | % | % | % |
| Other (describe) | | | |



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| | | | |
|---|---|---|---|
| Chronic: | | | |
| NOEC | % | % | % |
| $IC_{25}$ | % | % | % |
| Control percent survival | % | % | % |
| Other (describe) | | | |
| m. Quality Control/Quality Assurance. | | | |
| Is reference toxicant data available? | | | |
| Was reference toxicant test within acceptable bounds? | | | |
| What date was reference toxicant test run (MM/DD/YYYY)? | | | |
| Other (describe) | | | |

**E.3. Toxicity Reduction Evaluation.** Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes____No If yes, describe: _____

_____

_____

**E.4. Summary of Submitted Biomonitoring Test Information.** If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: _____ (MM/DD/YYYY)

Summary of results: (see instructions)

_____

_____

**END OF PART E.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.**

# SUPPLEMENTAL APPLICATION INFORMATION

## PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

**All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.**

### GENERAL INFORMATION:

**F.1. Pretreatment Program.** Does the treatment works have, or is it subject to, an approved pretreatment program?

____Yes____No

**F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs).** Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. _____

b. Number of CIUs. _____

### SIGNIFICANT INDUSTRIAL USER INFORMATION:

**Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.**

**F.3. Significant Industrial User Information.** Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: _____

Mailing Address: _____

_____

**F.4. Industrial Processes.** Describe all of the industrial processes that affect or contribute to the SIU's discharge.

_____

**F.5. Principal Product(s) and Raw Material(s).** Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): _____

Raw material(s): _____

**F.6. Flow Rate.**

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

_____ gpd (_____continuous or _____intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

_____ gpd (_____continuous or _____intermittent)

**F.7. Pretreatment Standards.** Indicate whether the SIU is subject to the following:

a. Local limits ____Yes ____No

b. Categorical pretreatment standards ____Yes ____No

If subject to categorical pretreatment standards, which category and subcategory?

_____

**F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU.** Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes____No If yes, describe each episode.

_____

_____

## RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

**F.9. RCRA Waste.** Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ___No (go to F.12.)

**F.10. Waste Transport.** Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

**F.11. Waste Description.** Give EPA hazardous waste number and amount (volume or mass, specify units).

| EPA Hazardous Waste Number | Amount | Units |
|---|---|---|
| | | |
| | | |
| | | |

## CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

**F.12. Remediation Waste.** Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ____No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

**F.13. Waste Origin.** Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

_____

_____

_____

**F.14. Pollutants.** List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

_____

_____

**F.15. Waste Treatment.**

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

_____

_____

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

_____

**END OF PART F.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**

# SUPPLEMENTAL APPLICATION INFORMATION

## PART G. COMBINED SEWER SYSTEMS

**If the treatment works has a combined sewer system, complete Part G.**

**G.1. System Map.** Provide a map indicating the following: (may be included with Basic Application Information)

a. All CSO discharge points.

b. Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).

c. Waters that support threatened and endangered species potentially affected by CSOs.

**G.2. System Diagram.** Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:

a. Locations of major sewer trunk lines, both combined and separate sanitary.

b. Locations of points where separate sanitary sewers feed into the combined sewer system.

c. Locations of in-line and off-line storage structures.

d. Locations of flow-regulating devices.

e. Locations of pump stations.

### CSO OUTFALLS:

**Complete questions G.3 through G.6 once for each CSO discharge point.**

**G.3. Description of Outfall.**

a. Outfall number _____

b. Location _____
(City or town, if applicable) (Zip Code)

_____
(County) (State)

_____
(Latitude) (Longitude)

c. Distance from shore (if applicable) _____ ft.

d. Depth below surface (if applicable) _____ ft.

e. Which of the following were monitored during the last year for this CSO?

____Rainfall ____CSO pollutant concentrations ____CSO frequency

____CSO flow volume ____Receiving water quality

f. How many storm events were monitored during the last year? _____

**G.4. CSO Events.**

a. Give the number of CSO events in the last year.

_____ events (___ actual or ___ approx.)

b. Give the average duration per CSO event.

_____ hours (____ actual or ____ approx.)

c. Give the average volume per CSO event.

_____ million gallons (_____ actual or _____ approx.)

d. Give the minimum rainfall that caused a CSO event in the last year.

_____ inches of rainfall

**G.5. Description of Receiving Waters.**

a. Name of receiving water: _____

b. Name of watershed/river/stream system: _____

United States Soil Conservation Service 14-digit watershed code (if known): _____

c. Name of State Management/River Basin: _____

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): _____

**G.6. CSO Operations.**

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shell fish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable State water quality standard).

_____

_____

**END OF PART G.**
**REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.**

*Commonwealth of Virginia*

*VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY*

NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 FAX (804) 698-4178
www.deq.virginia.gov

Ann Jennings
Secretary of Natural and Historic Resources

David K. Paylor
Director
(804) 698-4000

Thomas A. Faha
Regional Director

December 9, 2021

By email: fstrike@gmu.edu
***Read Receipt Requested***

Mr. Frank Strike
Vice President – Facilities
George Mason University
4400 University Drive, MS 1E4
Fairfax, VA 22030

Re: Reissuance of VPDES Permit No. VA0090221
Point of View Waste Water Treatment Plant (WWTP)
Fairfax County

Dear Mr. Strike,

The Department of Environmental Quality (DEQ) has approved the enclosed effluent limitations and monitoring requirements for the above-referenced permit. Copies of your permit and fact sheet are enclosed.

A Discharge Monitoring Report (DMR) form is no longer included in the reissuance package since you are already enrolled in DEQ's electronic DMR (e-DMR) program. The first electronic DMR submittal for the month of November 2021 is due by December 10, 2021. Please reference the effluent limits in your permit and report monitoring results in e-DMR to the same number of significant digits as are included in the permit limits for the parameter. The regional contact for e-DMR is Rebecca Vice; she can be reached at (571) 866-6058 or by e-mail at Rebecca.Vice@deq.virginia.gov.

Please note that compliance with the permit's requirements for use and disposal of sewage sludge does not relieve you of your responsibility to comply with federal requirements set forth in 40 CFR Part 503. Until DEQ seeks and is granted authority to administer the Part 503 regulations by EPA, treatment works treating domestic sewage should continue to work directly with EPA to comply with them. For more information, you can call the EPA Region III office in Philadelphia at (215) 814-5735.

Please note that if this permit is to be reissued in five years, there are specific testing requirements associated with the Form 2A reissuance application that are different from the testing requirements in your permit. In order to provide the necessary data for Form 2A you may need to begin additional sampling during the term of this permit prior to receiving a reissuance reminder letter from this agency. Please review Form 2A Tables A, B, C, D, E and F as applicable for the sampling requirements. Please note that DEQ and EPA will no longer accept waiver requests from the sampling or testing requirements in the application forms.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have thirty days from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period.

Alternately, any owner under §§ 62.1-44.16, 62.1-44.17, and 62.1-44.19 of the State Water Control Law aggrieved by any action of the State Water Control Board taken without a formal hearing, or by inaction of the Board, may demand in writing a formal hearing of such owner's grievance, provided a petition requesting such hearing is filed with the Board. Said petition must meet the requirements set forth in §1.23(b) of the Board's Procedural Rule No. 1. In cases involving actions of the Board, such petition must be filed within thirty days after notice of such action is mailed to such owner by certified mail.

A Reliability Class II is assigned to this facility and this facility has Class III licensed operator requirements.

If you have questions about the permit, please contact Ann Zimmerman at (571) 866-6089, or by E-mail at Ann.Zimmerman@deq.virginia.gov.

Respectfully,

Sarah K. Sivers
Regional Water Permits, Planning and Monitoring Manager

Enc.: Permit for VA0090221
Fact Sheet for VA0090221

cc: DEQ-Water, OWPP
EPA-Region III, 3WP12
Department of Health, Culpeper
Water Compliance, NRO

# *COMMONWEALTH of VIRGINIA*

*DEPARTMENT OF ENVIRONMENTAL QUALITY*

Permit No. **VA0090221**
Effective Date: **January 1, 2022**
Expiration Date: **December 31, 2026**

AUTHORIZATION TO DISCHARGE UNDER THE
VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM
AND THE VIRGINIA STATE WATER CONTROL LAW

In compliance with the provisions of the Clean Water Act as amended and pursuant to the State Water Control Law and regulations adopted pursuant thereto, the following owner is authorized to discharge in accordance with the information submitted with the permit application, and with this permit cover page, and Part I and Part II of this permit, as set forth herein.

| | |
|---|---|
| Owner Name: | George Mason University |
| Facility Name: | Point of View WWTP |
| County: | Fairfax |
| Facility Location: | 7301 Old Spring Drive, Lorton, VA 22079 |

The owner is authorized to discharge to the following receiving stream:

| | |
|---|---|
| Stream Name: | Thompson Creek |
| River Basin: | Potomac |
| River Subbasin: | Potomac |
| Section: | 6 |
| Class: | II |
| Special Standards: | b, y |

Thomas Faha
Director, Northern Regional Office
Department of Environmental Quality

12/07/21
Date

## Part I. Effluent Limitations, Monitoring Requirements and Special Conditions

### A. Effluent Limitations and Monitoring Requirements

#### 1. Outfall 001 – 0.005 MGD Facility

a. During the period beginning with the permit's effective date and lasting until issuance of the CTO for the 0.01 MGD facility or the expiration date, whichever occurs first the permittee is authorized to discharge from Outfall Number 001. Such discharges shall be limited and monitored by the permittee as specified below.

b. In additional to any Total Nitrogen or Total Phosphorus concentration limits (or monitoring requirements without associated limits) listed below, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010139, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Dischargers and Nutrient Trading in the Chesapeake Watershed in Virginia.

c. There shall be no discharge of floating solids or visible foam in other than trace amounts.

| Parameter | Discharge Limitations | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|
| | Monthly Average[1] | Weekly Average[1] | Minimum | Maximum[1] | Frequency | Sample Type |
| Flow[2] (MGD) | NL | NA | NA | NL | 1/D | Estimate |
| $cBOD_5$, Influent [3] | NL mg/L | NA | NA | NA | 1/YR | Grab |
| $cBOD_5$, Percent Removal [3] | NA | NA | 85 % | NA | 1/YR | Calculated |
| TSS, Influent [3] | NL mg/L | NA | NA | NA | 1/YR | Grab |
| TSS, Percent Removal [3] | NA | NA | 85 % | NA | 1/YR | Calculated |
| pH | NA | NA | 6.0 S.U. | 9.0 S.U. | 1/D | Grab |
| $cBOD_5$[3] | 5 mg/L 0.095 kg/day | 8 mg/L 0.15 kg/day | NA | NA | 1/M | Grab |
| Total Suspended Solids, TSS [3][4] | 6.0 mg/L 0.11 kg/day | 9.0 mg/L 0.17 kg/day | NA | NA | 1/M | Grab |
| Dissolved Oxygen | NA | NA | 6.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after contact tank) | NA | NA | 1.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after dechlorination) | 0.0020 mg/L | 0.0025 mg/L | NA | NA | 1/D | Grab |
| Ammonia as N (Apr-Oct) | 1.0 mg/L 0.019 kg/day | 1.5 mg/L 0.028 kg/day | NA | NA | 1/M | Grab |
| Ammonia as N (Nov-Mar) | 2.1 mg/L | 2.1 mg/L | NA | NA | 1/M | Grab |
| *E. coli* (Geometric Mean) [5][6] | 126 n/100 mL | NA | NA | NA | 1/W | Grab |
| Total Phosphorus | 0.18 mg/L 0.008 lb/day | 0.27 mg/L 0.011 lb/day | NA | NA | 1/M | Grab |
| Total Kjeldahl Nitrogen (TKN) | NL mg/L | NA | NA | NA | 1/M | Grab |
| Nitrate+Nitrite, as N | NL mg/L | NA | NA | NA | 1/M | Grab |
| Total Nitrogen [7] | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen – Year to Date [8] | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen - Calendar Year [8] | 12.0 mg/L | NA | NA | NA | 1/YR | Calculated |

[1] See Part I.B.

[2] The design flow is 0.005 MGD.

[3] At least 85% removal for $cBOD_5$ and TSS shall be attained. Influent shall be sampled 1/M for one month per year. See Part 1.B.5 for additional requirements related to the demonstration of secondary treatment.

[4] TSS shall be expressed as two significant figures.

[5] Samples shall be collected between 10:00 AM and 4:00 PM.

[6] The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100 mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter. Upon approval, the permittee shall collect four (4) samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period. Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100 mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

[7] Total Nitrogen = Sum of TKN plus Nitrate+Nitrite.

[8] See Part I.B.4 for more information on the Nutrient Calculations.

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
1/D = Once every day.
1/W = Once every week.
1/M = Once every month.
1/YR = Once every calendar year.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.
Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

## A. Effluent Limitations and Monitoring Requirements

### 2. Outfall 001 – 0.01 MGD Facility

a. During the period beginning with the issuance of the CTO for the 0.01 MGD flow tier and lasting until the expiration date, the permittee is authorized to discharge from Outfall Number 001. Such discharges shall be limited and monitored by the permittee as specified below.

b. In additional to any Total Nitrogen or Total Phosphorus concentration limits (or monitoring requirements without associated limits) listed below, this facility has Total Nitrogen and Total Phosphorus calendar year load limits associated with this outfall included in the current Registration List under registration number VAN010139, enforceable under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Dischargers and Nutrient Trading in the Chesapeake Watershed in Virginia.

c. There shall be no discharge of floating solids or visible foam in other than trace amounts.

| Parameter | Discharge Limitations | | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|
| | Monthly Average[1] | Weekly Average[1] | Minimum | Maximum[1] | Frequency | Sample Type |
| Flow[2] (MGD) | NL | NA | NA | NL | 1/D | Estimate |
| $cBOD_5$, Influent [3] | NL mg/L | NA | NA | NA | 1/YR | Grab |
| $cBOD_5$, Percent Removal [3] | NA | NA | 85 % | NA | 1/YR | Calculated |
| TSS, Influent [3] | NL mg/L | NA | NA | NA | 1/YR | Grab |
| TSS, Percent Removal [3] | NA | NA | 85 % | NA | 1/YR | Calculated |
| pH | NA | NA | 6.0 S.U. | 9.0 S.U. | 1/D | Grab |
| $cBOD_5$[3] | 5 mg/L 0.19 kg/day | 8 mg/L 0.30 kg/day | NA | NA | 1/M | Grab |
| Total Suspended Solids, TSS [3][4] | 6.0 mg/L 0.23 kg/day | 9.0 mg/L 0.34 kg/day | NA | NA | 1/M | Grab |
| Dissolved Oxygen | NA | NA | 6.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after contact tank) | NA | NA | 1.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after dechlorination) | 0.0020 mg/L | 0.0025 mg/L | NA | NA | 1/D | Grab |
| Ammonia as N (Apr-Oct) | 1.0 mg/L 0.038 kg/day | 1.5 mg/L 0.057 kg/day | NA | NA | 1/M | Grab |
| Ammonia as N (Nov-Mar) | 2.1 mg/L | 2.1 mg/L | NA | NA | 1/M | Grab |
| *E. coli* (Geometric Mean) [5][6] | 126 n/100 mL | NA | NA | NA | 1/W | Grab |
| Total Phosphorus | 0.18 mg/L 0.015 lb/day | 0.27 mg/L 0.023 lb/day | NA | NA | 1/M | Grab |
| Total Kjeldahl Nitrogen (TKN) | NL mg/L | NA | NA | NA | 1/M | Grab |
| Nitrate+Nitrite, as N | NL mg/L | NA | NA | NA | 1/M | Grab |
| Total Nitrogen [7] | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen – Year to Date [8] | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen - Calendar Year [8] | 12.0 mg/L | NA | NA | NA | 1/YR | Calculated |

[1] See Part I.B.

[2] The design flow is 0.01 MGD.

[3] At least 85% removal for $cBOD_5$ and TSS shall be attained. Influent shall be sampled 1/M for one month per year. See Part 1.B.5 for additional requirements related to the demonstration of secondary treatment.

[4] TSS shall be expressed as two significant figures.

[5] Samples shall be collected between 10:00 AM and 4:00 PM.

[6] The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100 mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter. Upon approval, the permittee shall collect four (4) samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period. Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100 mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

[7] Total Nitrogen = Sum of TKN plus Nitrate+Nitrite.

[8] See Part I.B.4 for more information on the Nutrient Calculations.

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
1/D = Once every day.
1/W = Once every week.
1/M = Once every month.
1/YR = Once every year.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.
Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

**B. Additional Monitoring Requirements, Quantification Levels and Compliance Reporting**

1. Additional Total Residual Chlorine (TRC) Limitations and Monitoring Requirements

   a. The permitee shall monitor the TRC at the outlet of the chlorine contact tank once per day by grab sample.

   b. No more than 3 of the samples taken at the outlet of the chlorine contact tank shall be less than 1.0 mg/L for any one calendar month.

   c. No TRC sample collected at the outlet of the chlorine contact tank shall be less than 0.6 mg/L.

   d. If dechlorination facilities exist the samples above shall be collected prior to dechlorination.

   e. If disinfection is by a method other than chlorination, *E. coli* shall be limited and monitored by the permittee as specified below and this requirement, if applicable, shall substitute for the TRC and *E. coli* requirements delineated elsewhere in Part I of this permit.

| | Discharge Limitations Monthly Average | Monitoring Frequency Requirements | Sample Type |
|---|---|---|---|
| *E. coli* | 126 n/100 mL Geometric Mean | 1/Week | Grab Between 10 AM & 4 PM |

2. Quantification Levels

   a. The quantification levels (QL) shall be less than or equal to the following concentrations:

| Characteristic | Quantification Level |
|---|---|
| TSS | 1.0 mg/L |
| $cBOD_5$ | 2 mg/L |
| Ammonia-N | 0.20 mg/L |
| TRC | 0.10 mg/L |

   b. The QL is defined as the lowest concentration used to calibrate a measurement system in accordance with the procedures published for the method. It is the responsibility of the permittee to ensure that proper quality assurance/quality control (QA/QC) protocols are followed during the sampling and analytical procedures. QA/QC information shall be documented to confirm that appropriate analytical procedures have been used and the required QLs have been attained. The permittee shall use any method in accordance with Part II A of this permit.

3. Compliance Reporting for parameters in Part I.A.

   a. Monthly Average – Compliance with the monthly average limitations and/or reporting requirements for the parameters listed in Part I.B.2.a. of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in Part I.B.2.a above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as it is reported. An arithmetic average shall be calculated using all reported data for the month, including the defined zeros. This arithmetic average shall be reported on the Discharge Monitoring Report (DMR) as calculated. If all data are below the QL used for the analysis, then the average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported monthly average concentration is <QL, then report "<QL" for the quantity. Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the monthly average of the calculated daily quantities.

b. Weekly Average – Compliance with the weekly average limitations and/or reporting requirements for the parameters listed in Part I.B.2.a. of this permit condition shall be determined as follows: All concentration data below the QL used for the analysis (QL must be less than or equal to the QL listed in a. above) shall be treated as zero. All concentration data equal to or above the QL used for the analysis shall be treated as reported. An arithmetic average shall be calculated using all reported data, including the defined zeros, collected within each complete calendar week and entirely contained within the reporting month. The maximum value of the weekly averages thus determined shall be reported on the DMR. If all data are below the QL used for the analysis, then the weekly average shall be reported as "<QL". If reporting for quantity is required on the DMR and the reported weekly average concentration is <QL, then report "<QL" for the quantity. . Otherwise use the reported concentration data (including the defined zeros) and flow data for each sample day to determine the daily quantity and report the maximum weekly average of the calculated daily quantities.

c. Single Datum - Any single datum required shall be reported as "<QL" if it is less than the QL used in the analysis (QL must be less than or equal to the QL listed in Part I.B.2.a above). Otherwise the numerical value shall be reported.

d. Significant Digits - The permittee shall report at least the same number of significant digits as the permit limit for a given parameter. Regardless of the rounding convention used by the permittee (i.e., 5 always rounding up or to the nearest even number), the permittee shall use the convention consistently, and shall ensure that consulting laboratories employed by the permittee use the same convention.

4. Nutrient Reporting Calculations for Part I. A.

a. For each calendar month, the DMR shall show the calendar year-to-date average concentration (mg/L) calculated in accordance with the following formulae:

$MC_{avg}$-YTD = ( $\sum_{(Jan\text{-}current\ month)} MC_{avg}$ ) ÷ ( # of months )

where:
$MC_{avg}$-YTD = calendar year-to-date average concentration (mg/L)
$MC_{avg}$ = monthly average concentration (mg/L) as reported on DMR

b. The total nitrogen and phosphorus average concentrations (mg/L) for each calendar year (AC) shall be shown on the December DMR due January 10th of the following year. These values shall be calculated in accordance with the following formulae:

$AC_{avg}$ = ( $\sum_{(Jan\text{-}Dec)} MC_{avg}$ ) ÷ 12

where:
$AC_{avg}$ = calendar year average concentration (mg/L)
$MC_{avg}$ = monthly average concentration (mg/L) as reported on DMR

c. For Total Phosphorus, all daily concentration data below the quantification level (QL) for the analytical method used should be treated as half the QL. All daily concentration data equal to or above the QL for the analytical method used shall be treated as it is reported.

d. For Total Nitrogen (TN), if none of the daily concentration data for the respective species (i.e., TKN, Nitrates/Nitrites) are equal to or above the QL for the respective analytical methods used, the daily TN concentration value reported shall equal one half of the largest QL used for the respective species. If one of the data is equal to or above the QL, the daily TN concentration value shall be treated as that data point

is reported. If more than one of the data is above the QL, the daily TN concentration value shall equal the sum of the data points as reported.

5. Demonstration of Secondary Treatment

a. The permittee shall monitor and report the influent $cBOD_5$ and TSS concentrations and calculated percent removal on an annual basis. The annual monitoring periods shall be January – December.

b. Influent sampling frequency shall be performed at the same sample frequency as the corresponding effluent samples within a given calendar month. For seasonal $cBOD_5$ and TSS, the month that the percent removal requirement is calculated will be compared to the seasonal requirement effective during that month.

c. The $cBOD_5$ and TSS influent concentrations shall be used to calculate a corresponding percent removal rate for each respective sampling event. If the $cBOD_5$ and/or TSS concentrations for the final effluent are less than the quantification levels (QL) specified in Part I.B.1 of this permit, then the QL shall be used to calculate the percent removal for that sampling event. All influent results and percent removal calculations shall be averaged for the calendar month for reporting purposes. If the sample frequency is only once per month, then report the single sample result and removal calculation. A single monthly average removal percentage of the monthly values shall be reported on the DMR by the 10th day of the month following sampling.

## C. Other Requirements and Special Conditions

1. 95% Capacity Reopener
A written notice and a plan of action for ensuring continued compliance with the terms of this permit shall be submitted to the DEQ-Northern Regional Office (DEQ-NRO) when the monthly average flow influent to the sewage treatment plant reaches 95% of the design capacity authorized in this permit for each month of any three consecutive month period. The written notice shall be submitted within 30 days and the plan of action shall be received at the DEQ-NRO no later than 90 days from the third consecutive month for which the flow reached 95% of the design capacity. The plan shall include the necessary steps and a prompt schedule of implementation for controlling any current or reasonably anticipated problem resulting from high influent flows. Failure to submit an adequate plan in a timely manner shall be deemed a violation of this permit.

2. Indirect Dischargers
The permittee shall provide adequate notice to the Department of the following:
a. Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Section 301 or 306 of Clean Water Act and the State Water Control Law if it were directly discharging those pollutants; and

b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of this permit.

Adequate notice shall include information on (i) the quality and quantity of effluent introduced into the treatment works, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the treatment works.

3. Operation and Maintenance (O&M) Manual Requirement
The permittee shall maintain a current Operations and Maintenance (O&M) Manual for the treatment works that is in accordance with Virginia Pollutant Discharge Elimination System Regulations, 9VAC25-31 and (for sewage treatment plants) Sewage Collection and Treatment Regulations, 9VAC25-790.

The O&M Manual and subsequent revisions shall include the manual effective date and meet Part II.K.2 and Part II.K.4 Signatory Requirements of the permit. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M manual available to Department personnel for review during facility inspections. Within 30 days of a request by DEQ, the current O&M Manual shall be submitted to the DEQ-NRO for review and approval.

The O&M Manual shall detail the practices and procedures which will be followed to ensure compliance with the requirements of this permit. This manual shall include, but not necessarily be limited to, the following items, as appropriate:

a. Permitted outfall locations and techniques to be employed in the collection, preservation, and analysis of effluent, storm water and sludge samples;
b. Procedures for measuring and recording the duration and volume of treated wastewater discharged;
c. Discussion of Best Management Practices, if applicable;
d. Procedures for handling, storing, and disposing of all wastes, fluids, and pollutants that will prevent these materials from reaching state waters. List type and quantity of wastes, fluids, and pollutants (e.g. chemicals) stored at this facility;
e. Discussion of treatment works design, treatment works operation, routine preventative maintenance of units within the treatment works, critical spare parts inventory and record keeping;
f. Plan for the management and/or disposal of waste solids and residues;
g. Hours of operation and staffing requirements for the plant to ensure effective operation of the treatment works and maintain permit compliance;
h. List of facility, local and state emergency contacts; and
i. Procedures for reporting and responding to any spills/overflows/ treatment works upsets.

4. Licensed Operator Requirement

The permittee shall employ or contract at least one Class III licensed wastewater works operator for this facility. The license shall be issued in accordance with Title 54.1 of the Code of Virginia and Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations. The permittee shall notify the Department in writing whenever he is not complying, or has grounds for anticipating he will not comply with this requirement. The notification shall include a statement of reasons and a prompt schedule for achieving compliance.

5. Reliability Class

The permitted treatment works shall meet Reliability Class II.

6. CTC and CTO Requirement

The permittee shall, in accordance with the DEQ Sewage Collection and Treatment Regulation (9VAC25-790), obtain a Certificate to Construct (CTC), and a Certificate to Operate (CTO) from the Department. The request for a CTC or CTO shall be submitted by the design engineer and owner to the DEQ Regional Office prior to constructing the wastewater treatment works and operating the treatment works, respectively. Non-compliance with the CTC or CTO shall be deemed a violation of the permit.

7. Water Quality Criteria Reopener

Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

8. Sludge Reopener

The Board may promptly modify or revoke and reissue this permit if any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act is more stringent than any requirements for sludge use or disposal in this permit, or controls a pollutant or practice not limited in this permit.

9. Sludge Use and Disposal
The permittee shall conduct all sewage sludge use or disposal activities in accordance with the Sludge Management Plan (SMP) approved with the issuance of this permit. Any proposed changes in the sewage sludge use or disposal practices or procedures followed by the permittee shall be documented and submitted for DEQ-NRO approval 90 days prior to the effective date of the changes. Upon approval, the revised SMP becomes an enforceable part of the permit. The permit may be modified or alternatively revoked and reissued to incorporate limitations or conditions necessitated by substantive changes in sewage sludge use or disposal practices.

10. Total Maximum Daily Load (TMDL) Reopener
This permit shall be modified or alternatively revoked and reissued if any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements.

11. Nutrient Offsets
The permittee has elected to offset the annual Total Nitrogen and/or Total Phosphorus loadings above and beyond those permitted prior to July 1, 2005 through the purchase of Total Nitrogen and Total Phosphorus loads from Arlington County. By email dated July 9, 2021, the facility submitted their First Amendment to Chesapeake Bay Nutrient Offset Agreement indicating that they had secured nutrient allocations from Arlington County. For the time period January 1, 2022 through December 31, 2026, allocations of 138 pounds/year for Total Nitrogen and 3 pounds/year Total Phosphorus shall be purchased by George Mason University from Arlington County.

Records of this acquisition shall be maintained on site by the permittee and are subject to field verification by, or on behalf of, the Department. Should the reductions not be verifiable, or should they not be fully achieved, the permittee shall be required to obtain any additional waste load or load reductions necessary to offset the waste load discharged by the permittee in the calendar year for which the load reductions were acquired.

12. E3/E4
The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus are suspended during any calendar year in which the facility is considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level, provided that the following conditions have also been met:

a. The facility has applied for (or renewed) participation, been accepted, maintained a record of sustained compliance and submitted an annual report according to the program guidelines;
b. The facility has demonstrated that they have in place a fully implemented environmental management system (EMS) with an alternative compliance method that includes operation of installed nutrient removal technologies to achieve the annual average concentration limitations; and
c. The E3/E4 designation from DEQ and implementation of the EMS has been in effect for the full calendar year.

The annual average concentration limitations for Total Nitrogen and/or Total Phosphorus, as applicable, are not suspended in any calendar year following a year in which the facility failed to achieve the annual average concentration limitations as required by b. above.

13. Nutrient Reopener
This permit may be modified or, alternatively, revoked and reissued:

a. If any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements;

b. To incorporate technology-based effluent concentration limitations for nutrients in conjunction with the installation of nutrient control technology, whether by new construction, expansion or upgrade, or

c. To incorporate alternative nutrient limitations and/or monitoring requirements, should:
   i. the State Water Control Board adopt new nutrient standards for the water body receiving the discharge, including the Chesapeake Bay or its tributaries, or
   ii. a future water quality regulation or statute require new or alternative nutrient control.

14. Permit Maintenance Fees

Any owner whose permit is effective as of April 1 of a given calendar year (including permits that have been administratively continued) shall pay the applicable permit maintenance fee(s) to the Department by October 1 of that same calendar year. No permit will be reissued or administratively continued without payment of the required fee(s).

Part II. Conditions Applicable To All VPDES Permits

## A. Monitoring

1. Samples and measurements required by this permit shall be taken at the permit designated or approved location and be representative of the monitored activity.
   a. Monitoring shall be conducted according to procedures approved under Title 40 Code of Federal Regulations Part 136 or alternative methods approved by the U.S. Environmental Protection Agency, unless other procedures have been specified in this permit.
   b. The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will insure accuracy of measurements.
   c. Samples taken shall be analyzed in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

2. Any pollutant specifically addressed by this permit that is sampled or measured at the permit designated or approved location more frequently than required by this permit shall meet the requirements in A 1 a through c above and the results of this monitoring shall be included in the calculations and reporting required by this permit.

3. Operational or process control samples or measurements shall not be taken at the designated permit sampling or measurement locations. Operational or process control samples or measurements do not need to follow procedures approved under Title 40 Code of Federal Regulations Part 136 or be analyzed in accordance with 1VAC30-45, Certification for Noncommercial Environmental Laboratories, or 1VAC30-46, Accreditation for Commercial Environmental Laboratories.

## B. Records

1. Records of monitoring information shall include:
   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) and time(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and
   f. The results of such analyses.

2. Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Board.

**C. Reporting Monitoring Results**

1. The permittee shall submit the results of the monitoring required by this permit not later than the 10th day of the month after monitoring takes place, unless another reporting schedule is specified elsewhere in this permit. Monitoring results shall be submitted to:

   Department of Environmental Quality - Northern Regional Office (DEQ-NRO)
   13901 Crown Court
   Woodbridge, VA 22193

2. Monitoring results shall be reported on a Discharge Monitoring Report (DMR) or on forms provided, approved or specified by the Department.

3. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

**D. Duty to Provide Information**

The permittee shall furnish to the Department, within a reasonable time, any information which the Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Board may require the permittee to furnish, upon request, such plans, specifications, and other pertinent information as may be necessary to determine the effect of the wastes from this discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

**E. Compliance Schedule Reports**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

**F. Unauthorized Discharges**

Except in compliance with this permit, or another permit issued by the Board, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances; or
2. Otherwise alter the physical, chemical or biological properties of such state waters and make them detrimental to the public health, or to animal or aquatic life, or to the use of such waters for domestic or industrial consumption, or for recreation, or for other uses.

**G. Reports of Unauthorized Discharges**

Any permittee who discharges or causes or allows a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters in violation of Part II.F.; or who discharges or causes or allows a discharge that may reasonably be expected to enter state waters in violation of Part II.F., shall notify the Department of the discharge immediately upon discovery of the discharge, but in no case later than 24 hours after said discovery. A written report of the unauthorized discharge shall be submitted to the Department, within five days of discovery of the discharge. The written report shall contain:

1. A description of the nature and location of the discharge;
2. The cause of the discharge;
3. The date on which the discharge occurred;
4. The length of time that the discharge continued;
5. The volume of the discharge;
6. If the discharge is continuing, how long it is expected to continue;
7. If the discharge is continuing, what the expected total volume of the discharge will be; and
8. Any steps planned or taken to reduce, eliminate and prevent a recurrence of the present discharge or any future discharges not authorized by this permit.

Discharges reportable to the Department under the immediate reporting requirements of other regulations are exempted from this requirement.

**H. Reports of Unusual or Extraordinary Discharges**

If any unusual or extraordinary discharge including a bypass or upset should occur from a treatment works and the discharge enters or could be expected to enter state waters, the permittee shall promptly notify, in no case later than 24 hours, the Department by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse effects on aquatic life and the known number of fish killed. The permittee shall reduce the report to writing and shall submit it to the Department within five days of discovery of the discharge in accordance with Part II.I.2. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

1. Unusual spillage of materials resulting directly or indirectly from processing operations;
2. Breakdown of processing or accessory equipment;
3. Failure or taking out of service some or all of the treatment works; and
4. Flooding or other acts of nature.

**I. Reports of Noncompliance**

The permittee shall report any noncompliance which may adversely affect state waters or may endanger public health.

1. An oral report shall be provided within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which shall be reported within 24 hours under this paragraph:
   a. Any unanticipated bypass; and
   b. Any upset which causes a discharge to surface waters.

2. A written report shall be submitted within 5 days and shall contain:
   a. A description of the noncompliance and its cause;
   b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
   c. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

   The Board may waive the written report on a case-by-case basis for reports of noncompliance under Part II.I. if the oral report has been received within 24 hours and no adverse impact on state waters has been reported.

3. The permittee shall report all instances of noncompliance not reported under Parts II, I.1.or I.2., in writing, at the time the next monitoring reports are submitted. The reports shall contain the information listed in Part II.I.2.

NOTE: The immediate (within 24 hours) reports required in Parts II, G., H. and I. may be made to the Department's Northern Regional Office at (703) 583-3800 (voice) or online at https://portal.deq.virginia.gov/prep/Report/Create . For reports outside normal working hours, leave a message and this shall fulfill the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

**J. Notice of Planned Changes**

1. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

   a. The permittee plans alteration or addition to any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

      1) After promulgation of standards of performance under Section 306 of Clean Water Act which are applicable to such source; or
      2) After proposal of standards of performance in accordance with Section 306 of Clean Water Act which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal;

   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations nor to notification requirements specified elsewhere in this permit; or

   c. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

2. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

**K. Signatory Requirements**

1. Applications. All permit applications shall be signed as follows:

   a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
      1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or

      2) The manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a public agency includes:

1) The chief executive officer of the agency, or
2) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. Reports, etc. All reports required by permits, and other information requested by the Board shall be signed by a person described in Part II.K.1., or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part II.K.1.;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

c. The written authorization is submitted to the Department.

3. Changes to authorization. If an authorization under Part II.K.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part II.K.2. shall be submitted to the Department prior to or together with any reports, or information to be signed by an authorized representative.

4. Certification. Any person signing a document under Parts II, K.1. or K.2. shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

**L. Duty to Comply**

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the State Water Control Law and the Clean Water Act, except that noncompliance with certain provisions of this permit may constitute a violation of the State Water Control Law but not the Clean Water Act. Permit noncompliance is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act within the time provided in the regulations that establish these

standards or prohibitions or standards for sewage sludge use or disposal, even if this permit has not yet been modified to incorporate the requirement.

**M. Duty to Reapply**

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. All permittees with a currently effective permit shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Board. The Board shall not grant permission for applications to be submitted later than the expiration date of the existing permit.

**N. Effect of a Permit**

This permit does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorize any injury to private property or invasion of personal rights, or any infringement of federal, state or local law or regulations.

**O. State Law**

Nothing in this permit shall be construed to preclude the institution of any legal action under, or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any other state law or regulation or under authority preserved by Section 510 of the Clean Water Act. Except as provided in permit conditions on "bypassing" (Part II.U.), and "upset" (Part II.V.) nothing in this permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

**P. Oil and Hazardous Substance Liability**

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Sections 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

**Q. Proper Operation and Maintenance**

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes effective plant performance, adequate funding, adequate staffing, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

**R. Disposal of Solids or Sludges**

Solids, sludges or other pollutants removed in the course of treatment or management of pollutants shall be disposed of in a manner so as to prevent any pollutant from such materials from entering state waters.

**S. Duty to Mitigate**

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

**T. Need to Halt or Reduce Activity not a Defense**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

**U. Bypass**

1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts II, U.2. and U.3.

2. Notice
   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, prior notice shall be submitted, if possible at least ten days before the date of the bypass.
   b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part II.I.

3. Prohibition of bypass.
   a. Bypass is prohibited, and the Board may take enforcement action against a permittee for bypass, unless:
      1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
      3) The permittee submitted notices as required under Part II.U.2.

   b. The Board may approve an anticipated bypass, after considering its adverse effects, if the Board determines that it will meet the three conditions listed above in Part II.U.3.a.

**V. Upset**

1. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part II.V.2. are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is not a final administrative action subject to judicial review.

2. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the permittee can identify the cause(s) of the upset;
   b. The permitted facility was at the time being properly operated;
   c. The permittee submitted notice of the upset as required in Part II.I.; and
   d. The permittee complied with any remedial measures required under Part II.S.

3. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

W. **Inspection and Entry**

The permittee shall allow the Director, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act and the State Water Control Law, any substances or parameters at any location.

For purposes of this section, the time for inspection shall be deemed reasonable during regular business hours, and whenever the facility is discharging. Nothing contained herein shall make an inspection unreasonable during an emergency.

**X. Permit Actions**

Permits may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

**Y. Transfer of Permits**

1. Permits are not transferable to any person except after notice to the Department. Except as provided in Part II.Y.2., a permit may be transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under the State Water Control Law and the Clean Water Act.

2. As an alternative to transfers under Part II.Y.1., this permit may be automatically transferred to a new permittee if:
   a. The current permittee notifies the Department at least 30 days in advance of the proposed transfer of the title to the facility or property;
   b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and
   c. The Board does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part II.Y.2.b.

**Z. Severability**

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.005 MGD wastewater treatment plant, with an additional flow tier of 0.01 MGD. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective October 8, 2020) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 et seq.

**1.**

| | | | |
|---|---|---|---|
| Facility Name and Mailing Address: | Point of View WWTP<br>4400 University Drive, MS 1E4<br>Fairfax, VA 22030 | SIC Code :<br>NAICS Code: | 4952 WWTP<br>221320 Sewage Treatment Facilities |
| Facility Location: | 7301 Old Spring Drive<br>Lorton, VA 22079 | County: | Fairfax |
| Facility Contact Name: | Zhonghyan Xu, Manager – Civil & Environmental Engineering | Telephone Number: | 703-993-4051 |
| Facility E-mail Address: | Zxu8@gmu.edu | | |

**2.**

| | | | |
|---|---|---|---|
| Permit No.: | VA0090221 | Expiration Date of previous permit: | January 31, 2021 |
| Other VPDES Permits associated with this facility: | | VAN010139 | |
| Other Permits associated with this facility: | | None. | |
| E2/E3/E4 Status: | | Not Applicable. | |

**3.**

| | | | |
|---|---|---|---|
| Owner Name: | George Mason University | | |
| Owner Contact/Title: | Frank Strike, Vice President – Facilities | Telephone Number: | 703-993-9467 |
| Owner E-mail Address: | fstrike@gmu.edu | | |

**4.**

| | | | |
|---|---|---|---|
| Application Complete Date: | August 4, 2020 | | |
| Permit Drafted By: | Ann Zimmerman | Date Drafted: | August 30, 2021 |
| Draft Permit Reviewed By: | Douglas Frasier | Date Reviewed: | September 21, 2021 |
| Permit Technical Review By: | Alison Thompson | Date Reviewed: | October 5, 2021 |
| Public Comment Period : | Start Date: October 30, 2021 | End Date: | November 29, 2021 |

**5.** Receiving Waters Information: See **Attachment 1** for the Flow Frequency Determination

| | | | |
|---|---|---|---|
| Receiving Stream Name : | Thompson Creek | Stream Code: | 1aXIO |
| Drainage Area at Outfall: | 1.35 sq.mi. | River Mile: | 0.46 |
| Stream Basin: | Potomac | Subbasin: | Potomac |
| Section: | 6 | Stream Class: | II |
| Special Standards: | b,y | Waterbody ID: | VAN-A25E |
| | | 6th Order HUC: | PL48 |
| 7Q10 Low Flow: | Tidal Waters | 7Q10 High Flow: | Tidal Waters |
| 1Q10 Low Flow: | Tidal Waters | 1Q10 High Flow: | Tidal Waters |
| 30Q10 Low Flow: | Tidal Waters | 30Q10 High Flow: | Tidal Waters |
| Harmonic Mean Flow: | Tidal Waters | 30Q5 Flow: | Tidal Waters |

**6.** Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- X State Water Control Law
- X Clean Water Act
- X VPDES Permit Regulation
- X EPA NPDES Regulation
- X EPA Guidelines
- X Water Quality Standards
- X Other – Policy for the Potomac River Embayments (9VAC25-415)

**7.** Licensed Operator Requirements: Class III

**8.** Reliability Class: Class II

**9.** Permit Characterization:

| | | | | | |
|---|---|---|---|---|---|
| ___ | Private | X | Effluent Limited | ___ | Possible Interstate Effect |
| ___ | Federal | X | Water Quality Limited | ___ | Compliance Schedule Required |
| X | State | ___ | Whole Effluent Toxicity Program Required | ___ | Interim Limits in Permit |
| ___ | POTW | ___ | Pretreatment Program Required | ___ | Interim Limits in Other Document |
| X | TMDL | X | e-DMR Participant | | |

**10. Wastewater Sources and Treatment Description:**

The facility is a conference center for the School for Conflict Analysis and Resolution at Point of View. The space has capacity for up to 100 people, but to date, it is minimally used and has been operating in "pump and haul" mode since its opening. The wastewater to the wastewater treatment plant (WWTP) is from one academic conference center and one residential building (original cottage on the property). At the time of reissuance, there is one full time resident residing in the cottage and the academic conference center is utilized approximately once per month.

Flow from the academic conference center and the cottage first enters a pump station. Wastewater is then pumped to the treatment plant. Preliminary treatment is provided by pumping raw wastewater through a fine screen. Screened wastewater will then flow into a flow equalization basin and then pumped to secondary biological treatment. Secondary treatment will be performed with a Biowheel IFAS system where nitrification and cBOD removal will occur. Alum can be added to enhance phosphorus removal. Flow from the Biowheel will then be pumped through a membrane prior to tablet chlorination and dechlorination. The owner proposed a Total Nitrogen concentration of 12 mg/L at the 0.005 MGD flow tier. The effluent will then be re-aerated prior to discharge into Thompson Creek.

The facility is currently on pump and haul operations. All wastewater from the pump station is screened and enters the flow equalization basin. Approximately once per month, wastewater is pumped from the flow equalization basin and hauled to Noman Cole Pollution Control Plant (VA0025364). Piping from the flow equalization basin to the secondary treatment unit has been removed at this time.

The facility has also constructed a subsurface disposal field. This permit does not address this portion of the system and only authorizes surface water discharge. Permitting of the subsurface disposal system is done through the Fairfax County Health Department.

The Certificate to Construct (CTC) the 0.005 MGD facility was issued on October 20, 2015 and the Certificate to Operate (CTO) was issued on March 25, 2016 (see **Attachment 2**).

See **Attachment 3** for a facility schematic/diagram.

**TABLE 1 – Outfall Description**

| Outfall Number | Discharge Sources | Treatment | Design Flow(s) | Outfall Latitude and Longitude |
|---|---|---|---|---|
| 001 | Domestic sources. | See Item 10 above. | 0.005 and 0.010 MGD | **38° 39' 31"** N<br>**77° 11' 41"** W |
| See **Attachment 4** for topographic map. | | | | |

**11. Sludge Treatment and Disposal Methods:**

Accumulated solids from the screening will be collected and hauled to the municipal landfill for disposal. Waste sludge from the Biowheel IFAS system will be held and the liquid sludge will then be hauled to Noman Cole Pollution Control Plant (VA0025364) to be blended into their process.

**12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge**

| TABLE 2 – Discharges, Intakes and Monitoring Stations within 6th Order HUC PL48 | | | |
|---|---|---|---|
| **Permit Number** | **Facility Name** | **Permit Type** | **Receiving Stream** |
| VA0002585 | FCWA – Griffith Water Treatment Plant | VPDES IP | Occoquan River<br>Occoquan River-UT<br>Occoquan Reservoir |
| VA0023299 | Gunston Elementary School | VPDES IP | South Branch Massey Creek |
| VA0029416 | Colchester Utilities Inc | VPDES IP | Massey Creek |
| VAG110083 | Virginia Concrete Company – Woodbridge | Concrete Products GP | Occoquan River |
| VAG110085 | Virginia Concrete Company – Lorton | Concrete Products GP | Giles Run-UT |
| VAR051811 | Davis Industries Incorporated | Stormwater Industrial GP | Giles Run-UT |
| VAG110068 | Arban and Carosi Incorporated | Concrete Products GP | Marumsco Creek-UT |
| VAR051076 | Interstate 95 Landfill | Stormwater Industrial GP | Occoquan River-UT<br>Mills Branch |
| VAR051079 | Lorton Construction Landfill | Stormwater Industrial GP | Giles Run<br>Giles Run-UT |
| VAR051071 | Covanta Fairfax LLC | Stormwater Industrial GP | Mills Branch-UT<br>Giles Run-UT |
| VAR051083 | Lopez Trucking II LLC | Stormwater Industrial GP | Giles Run-UT |
| VAR052357 | Northern Virginia Auto Recycling Limited Liability | Stormwater Industrial GP | Giles Run |
| VAR051183 | Hoffmasters Marina | Stormwater Industrial GP | Occoquan River |
| VAR050902 | Virginia Paving Company – Occoquan Plant | Stormwater Industrial GP | Occoquan River |
| VAR050983 | Occoquan Harbor Marina Inc | Stormwater Industrial GP | Occoquan River |
| VAR051081 | Rainwater Landfill | Stormwater Industrial GP | Giles Run-UT |
| VAG840101 | Vulcan Construction Materials – Graham Quarry | Nonmetallic Mineral Mining GP | Occoquan Run-UT<br>Occoquan River-UT |
| VAG406533 | Clarke John Residence | Domestic Sewage GP | Occoquan River-UT |
| VAG406088 | Verizon Virginia LLC | Domestic Sewage GP | Belmont Bay, South Branch-UT |
| VAG406104 | Belmont Bay Associates LC | Domestic Sewage GP | Belmont Bay |
| VAG406093 | Allen Marie M Residence | Domestic Sewage GP | Belmont Bay |
| VAG406551 | Huckins Charles Residence | Domestic Sewage GP | Occoquan River-UT |
| VAG406479 | Mathes Michael Residence | Domestic Sewage GP | Occoquan River-UT |
| 1aOCC002.47 | DEQ water quality monitoring station located in Occoquan Bay, approximately 2.2 miles downstream of Outfall 001 | | |
| Fairfax County Water Authority | The Fairfax County Water Authority intake for the Occoquan Reservoir is located within a five mile radius of this facility; however, it is located upstream from the drainage for this outfall. | | |

**13. Material Storage:**

No materials are stored at the facility.

**14. Site Inspection:**

A site visit was performed by the Water Permit Writer, Ann Zimmerman on September 16, 2021 to confirm information included in the reissuance application and current operations onsite. A site visit was conducted by DEQ-NRO Water Compliance Staff on April 6, 2016 (see **Attachment 5**).

**15. Receiving Stream Water Quality and Water Quality Standards:**

a. Ambient Water Quality Data

This facility discharges to tidal Thompson Creek, which is a small tributary to Occoquan Bay/Belmont Bay. While Thompson Creek has not been monitored by DEQ, it is included in the water quality assessment for the Occoquan embayment. The following is the water quality summary for this tributary to the Occoquan Bay, as taken from the 2020 Integrated Report:

*Class II, Section 6, special stds. b, y.*

*DEQ monitoring stations located in this segment of Occoquan Bay/Belmont Bay: n/a*

*The aquatic life use is categorized as not supporting; however, the Chesapeake Bay TMDL has been completed. Assessment of the thirty day mean dissolved oxygen values during the summer season indicates that the open-water aquatic life subuse is not met. The seven day mean and instantaneous dissolved oxygen levels have not been assessed. The submerged aquatic vegetation data is assessed as fully supporting. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The Tidal Potomac River PCB TMDL has been completed and approved. The recreation and wildlife uses were not assessed.*

The nearest downstream DEQ water quality monitoring station is 1aOCC002.47, which is located in Occoquan Bay, approximately 2.2 miles downstream of Outfall 001. The following is the monitoring summary for this portion of the Occoquan Bay, as taken from the 2020 Integrated Assessment:

*Class II, Section 6, special stds. b, y.*

*DEQ monitoring stations located in this segment of Occoquan Bay:*

- *ambient water quality, Coastal 2000, and fish tissue monitoring station 1aOCC002.47 at Buoy 6, midway into bay.*

*The aquatic life use is categorized as not supporting; however, the Chesapeake Bay TMDL has been completed. Assessment of the thirty day mean dissolved oxygen values during the summer season indicates that the open-water aquatic life subuse is not met. The seven day mean and instantaneous dissolved oxygen levels have not been assessed. The submerged aquatic vegetation data is assessed as fully supporting. Observed effects are noted for the aquatic life use based on previous sediment data that revealed exceedances of the Estuarine NOAA-based ER-M sediment screening values (SV) of 0.71 ppm (dry weight) for mercury in 2001 and of 7 ppb (dry weight) for DDT in 2004 and for chlorophyll a, as described above. Coastal 2000 weight of evidence analysis, utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions, resulted in an assessment of insufficient information; it was noted that a potential exists for chronic effects of metals in the sediment and that there is a possibility of eutrophication. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory; the Tidal Potomac River PCB TMDL for the Occoquan River watershed has been completed and approved. The recreation and wildlife uses are considered fully supporting.*

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

| TABLE 2 – 303(d) Impairment and TMDL information for the receiving stream segment | | | | | | |
|---|---|---|---|---|---|---|
| **Waterbody Name** | **Impaired Use** | **Cause** | **Year First Listed as Impaired** | **TMDL completed** | **WLA** | **Basis for WLA** |
| ***Impairment Information in the 2020 Integrated Report*** | | | | | | |
| Occoquan Bay/Belmont Bay | Aquatic Life / Open-Water Aquatic Life | Dissolved Oxygen | 2014 | Chesapeake Bay TMDL 12/29/2010 | This facility is accounted for in the Chesapeake Bay TMDL NPDES Permit Inventory and is part of an aggregated WLA for total nitrogen, total phosphorus, and total suspended solids (Appendix Q). | |
| | Fish Consumption | PCBs in Fish Tissue | 2002 | Tidal Potomac PCB 10/31/2007 | None | N/A |

| TABLE 3 – Information on Downstream 303(d) Impairments and TMDLs | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Waterbody Name** | **Impaired Use** | **Cause** | **Year First Listed as Impaired** | **Distance From Outfall** | **TMDL completed** | **WLA** | **Basis for WLA** |
| ***Impairment Information in the 2020 Integrated Report*** | | | | | | | |
| Occoquan Bay | Aquatic Life | Estuarine Bioassessments | 2006 | 1.3 miles | No | --- | --- |

There is a PCB impairment in the tidal portion of Occoquan Bay. A PCB TMDL has been completed for the Potomac River and was approved by EPA on 10/31/2007. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility, as it is a small wastewater treatment facility that is unlikely to discharge PCBs. Based on this information, this facility will not be requested to monitor for low-level PCBs.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2020 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban stormwater, onsite/septic systems, agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient limitations for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in **Attachment 6**.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Thompson Creek, is located within Section 6 of the Potomac River Basin, and classified as a Class II water.

Class II tidal waters in the Chesapeake Bay and its tidal tributaries must meet dissolved oxygen concentrations as specified in 9VAC25-260-185 and maintain a pH of 6.0-9.0 standard units as specified in 9VAC25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the

remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented **Attachment 7**.

The Freshwater Water Quality/Wasteload Allocation Analysis (**Attachment 8**) details other water quality criteria applicable to the receiving stream.

Some Water Quality Criteria are dependent on the temperature and pH and Total Hardness of the stream and final effluent. The stream and final effluent values used as part of **Attachment 8** are as follows:

pH and Temperature for Ammonia Criteria:
The fresh water, aquatic life Water Quality Criteria for Ammonia are dependent on the instream temperature and pH. Since the effluent may have an impact on the instream values, the temperature and pH values of the effluent must also be considered when determining the ammonia criteria for the receiving stream. The 90th percentile temperature and pH values are used because they best represent the critical conditions of the receiving stream.

The facility will discharge to a tidal marsh area that will have no water at low tide; therefore, effluent values can be used to determine the applicable ammonia criteria. Since the facility is constructed but is not yet operating, default values shall be used for criteria determination. A temperature value of 25°C (15°C for winter) and a pH value of 8.0 S.U. were used. These are the assumptions for pH and temperature used to develop the ammonia criteria from the 2005 reissuance that were also carried forward for the 2011 and 2016 reissuances. The ammonia water quality criteria are shown in **Attachment 8**.

Total Hardness for Hardness-Dependent Metals Criteria:
The Water Quality Criteria for some metals are dependent on the receiving stream's total hardness (expressed as mg/L calcium carbonate) as well as the total hardness of the final effluent.

There is no hardness data for either the facility or receiving stream. Staff guidance suggests using a default hardness value of 50 mg/L $CaCO_3$ for streams east of the Blue Ridge. The hardness-dependent metals criteria in **Attachment 8** are based on this assumed value for the receiving stream and effluent.

Bacteria Criteria:
The Virginia Water Quality Standards at 9VAC25-260-170.A. state that freshwater *E. coli* bacteria shall not exceed a geometric mean of 126 N/100 mL to protect primary recreational uses in surface waters.

d. Receiving Stream Special Standards
The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Thompson Creek, is located within Section 6 of the Potomac River Basin. This section has been designated with special standards b and y.

Special Standard "b" (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 Bridge in King George County. The regulation sets effluent limits for $BOD_5$, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies.

Special Standard "y" is the chronic ammonia criterion for tidal freshwater Potomac River and tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge. During November 1 through February 14 of each year the thirty-day average concentration of total ammonia nitrogen (in mg N/L) shall not exceed, more than once every three years on the average the following chronic ammonia criterion:

$$\left( \frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) \times 1.45(10^{0.028(25-MAX)})$$

MAX = temperature in °C or 7, whichever is greater.

The default design flow for calculating steady state waste load allocations for this chronic ammonia criterion is the 30Q10, unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of this water quality criterion. Since this facility is expected to be an intermittent discharge, only the acute criterion was applied for development of the limitations. Since this special standard is for the chronic ammonia criterion, it was not used for ammonia limit development.

e. Threatened or Endangered Species

The Virginia Department of Wildlife Resources (DWR) Fish and Wildlife Information System database was searched on August 31, 2021 for records to determine if there are state and/or federally listed threatened or endangered species in the vicinity of the discharge. The following state and/or federally listed threatened and endangered species were identified within a three mile radius of the discharge: Atlantic sturgeon (*Acipenser oxyrinchus*), Northern long-eared bat (*Myotis septentrionalis*), Yellow lance (*Elliptio lanceolate*), Little brown bat (*Myotis lucifugus*), Tri-colored bat (*Perimyotis subflavus*), Brook floater (*Alasmidonta varicosa*), Wood turtle (*Glyptemys insculpta*), Peregrine falcon (*Falco peregrinus*), Loggerhead shrike (*Lanius ludovicianus*), Henslow's sparrow (*Centronyx henslowii*), Appalachian grizzled skipper (*Pyrgus Wyandot*), and Migrant loggerhead shrike (*Lanius ludovicianus migrans*). See **Attachment 9** for the Virginia Fish and Wildlife Information Service Search Report.

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use. It is staff's professional judgment that the proposed effluent limitations and special conditions are protective of this use.

In addition, the U.S. Fish and Wildlife Service (FWS) and the Virginia Department of Conservation and Recreation (DCR) were coordinated with during this reissuance per the procedures as set forth in the 2007 Memorandum of Understanding (MOU) concerning Threatened and Endangered Species Screening for VPDES Permits. The purpose of this coordination is to obtain input from other agencies during the permitting process to ascertain potential adverse impacts to threatened and endangered species and/or their habitats. The permit package was submitted to them on August 31, 2021.

FWS responded to the Threatened and Endangers Species VPDES Coordination on September 30, 2021 and indicated the following: "The facility discharges to Thompson's Creek, where there is potential habitat for the federally listed endangered Dwarf wedgemussel (*Alasmidonta heterodon*). We understand there have been no discharges reported since the certificate to operate (CTO) was issued in 2016 and have no comments at this time." This response is included in the reissuance correspondence file.

**16. Antidegradation (9VAC25-260-30):**

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 2. The waters of Thompson Creek consist primarily of run-off from forested woodland, and the drainage area is small. It is staff's professional judgement that the receiving stream contains high quality water from a watershed with no significant sources of pollution. No significant degradation to the existing water quality will be allowed. In accordance with current DEQ guidance, no significant lowering of water quality is to occur where permit limits are based on the following:

- The dissolved oxygen in the receiving stream is not lowered more than 0.2 mg/L from the existing levels;
- The pH of the receiving stream is maintained within the range 6.0-9.0 S.U.;
- There is compliance with all temperature criteria applicable to the receiving stream;
- No more than 25% of the unused assimilative capacity is allocated for toxic criteria established for the protection of aquatic life; and
- No more than 10% of the unused assimilative capacity is allocated for criteria for the protection of human health.

The antidegradation policy also prohibits the expansion of mixing zones to Tier 2 waters unless the requirements of 9VAC25-260-30.A.2 are met. The draft permit is not proposing an expansion of the existing mixing zone.

**17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:**

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10, 30Q10 and 1Q10 have been determined to be zero, therefore the WLAs are equal to the WQS. The WLA values are then compared with available effluent data to determine the need

for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a. Effluent Screening:
There is no effluent data at this time. The facility has been on "pump and haul" operations since opening due to low occupancy.

b. Mixing Zones and Wasteload Allocations (WLAs):
Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{Co\,[\,Qe + (\,f\,)\,(Qs\,)\,] - [\,(\,Cs\,)\,(\,f\,)\,(\,Qs\,)\,]}{Qe}$$

Where:
- WLA = Wasteload allocation
- Co = In-stream water quality criteria
- Qe = Design flow
- Qs = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- f = Decimal fraction of critical flow
- Cs = Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is a tidal marsh area of Thompson Creek. At low tide there is no water available for dilution, therefore the WLAs are set equal to the criteria.

Antidegradation Wasteload Allocations (AWLAs).

Since the receiving stream has been determined to be a Tier II water, staff must also determine antidegradation wasteload allocations (AWLAs). The steady state complete mix equation is used substituting the antidegradation baseline (Cb) for the in-stream water quality criteria (Co):

$$AWLA = \frac{Cb\,(\,Qe + Qs\,) - (\,Cs\,)\,(\,Qs\,)}{Qe}$$

Where:
- AWLA = Antidegradation-based wasteload allocation
- Cb = In-stream antidegradation baseline concentration
- Qe = Design flow
- Qs = Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
- Cs = Mean background concentration of parameter in the receiving stream.

Calculated AWLAs for the pollutants noted in b. above are presented in **Attachment 8**.

c. Effluent Limitations Toxic Pollutants, Outfall 001

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with AWLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

DEQ guidance suggests using the calculated criteria and a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage.

Winter (November – March) for the 0.005 and 0.01 MGD flow tiers: As the discharge is considered intermittent, chronic criteria were not evaluated. Staff used only the acute wasteload allocations to calculate effluent limitations. The November-March water quality based effluent limit analysis yields a monthly average limit of 2.1 mg/L and a weekly average limit of 2.1 mg/L (**Attachment 10**).

Summer (April – October) for the 0.005 and 0.01 MGD flow tiers: The summer water quality based effluent limit analysis yields a monthly average limit of 2.1 mg/L (**Attachment 10**). As the April-October water-quality based limit is less stringent than the Ammonia as N limit required by the Policy for Potomac River Embayments (PPRE), the April-October monthly average limit is 1.0 mg/L. The weekly average limit will be 1.5 mg/L based on the PPRE monthly average limit of 1.0 mg/L and a 1.5 multiplier. A loading limit is included here because the limit is based on the Policy for Potomac River Embayments and not on ammonia toxicity.

Also, the facility should be aware that the Environmental Protection Agency (EPA) finalized new, more stringent ammonia criteria in August 2013; possibly resulting in significant reductions in ammonia effluent in NPDES Discharge Permits. The new ammonia criteria were adopted on October 8, 2020 and will be considered with the next reissuance. Development of agency implementation of the new criteria were ongoing during the drafting of this Fact Sheet. This, along with other facilities, will be reevaluated against the new criteria during their next respective permit terms to determine what changes may be required.

2) Total Residual Chlorine:

Chlorine is used for disinfection and has the potential in the discharge. Staff calculated WLAs for Total Residual Chlorine (TRC) using current critical flows and the established wasteload allocations. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.0020 mg/L and a weekly average limit of 0.0025 mg/L are proposed for this discharge (**Attachment 10**).

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day ($cBOD_5$), total suspended solids (TSS), total phosphorus, or pH limitations are proposed.

Dissolved Oxygen limitations are based on 9VAC25-260-185.

Total Phosphorus, $cBOD_5$ and TSS limitations are based on the effluent limit policy for the Potomac River Embayments (9VAC25-415).

pH limitations are set at the water quality criteria.

*E. coli* limitations are in accordance with the Water Quality Standards 9VAC25-260-170.

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Policy for the Potomac River Embayments

The Policy for the Potomac River Embayments (PPRE) includes monthly average effluent limits that apply to all sewage treatment plants:

| Parameter | Monthly Average (mg/L) |
|---|---|
| $cBOD_5$ | 5 |
| Total Suspended Solids | 6.0 |
| Total Phosphorus | 0.18 |
| Ammonia (Apr 1 – Oct 31) | 1.0 |

The PPRE states that the "above limitations shall not replace or exclude the discharge from meeting the requirements of the State's Water Quality Standards (9VAC25-260-10 et seq.)."

f. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9VAC25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15, significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries. Only concentration limits are now found in the individual VPDES permit when the facility installs nutrient removal technology. The basis for the concentration limits is 9VAC25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* which requires new or expanding discharges with design flows of ≥0.04 MGD to treat for TN and TP to either BNR (Biological Nutrient Removal) levels (TN = 8 mg/L; TP = 1.0 mg/L) or SOA (State of the Art) levels (TN = 3.0 mg/L and TP = 0.3 mg/L).

This facility has also obtained coverage under 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.* This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit. This facility has coverage under this General Permit; the permit number is VAN010139. Total Nitrogen Annual Loads and Total Phosphorus Annual Loads from this facility are found in 9VAC25-720 – *Water Quality Management Plan Regulation* which sets forth TN and TP maximum wasteload allocations for facilities designated as significant discharges, i.e., those with design flows of ≥0.5 MGD above the fall line and >0.1 MGD below the fall line.

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen, Total Nitrogen, and Total Phosphorus are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9VAC25-820. Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen and Total Phosphorus are included in this individual permit. The Total Nitrogen annual average of 12 mg/L is based on the offset plan submitted as part of the Registration Statement for 9VAC25-820.

Since the facility is subject to the PPRE and monthly average Total Phosphorus limitations at both flow tiers, the Year-to-Date and Calendar Year annual average for Total Phosphorus are not included since the monthly averaging period is more stringent. The Year-to-Date and Calendar Year reporting shall continue to be required under the General Permit.

By email dated July 9, 2021, the facility submitted their First Amendment to Chesapeake Bay Nutrient Offset Agreement indicating that they had secured nutrient allocations from Arlington County (**Attachment 11**). For the time period January 1, 2022 through December 31, 2026, allocations of 138 pounds/year for Total Nitrogen and 3 pounds/year Total Phosphorus shall be purchased by George Mason University from Arlington County.

g. Effluent Limitations and Monitoring Summary:

The effluent limitations are presented in the following table. Limits were established for cBOD5, Total Suspended Solids, Ammonia as N, pH, Dissolved Oxygen, Total Phosphorus, Total Nitrogen, Total Residual Chlorine, and *E. coli*. Monitoring is included for Flow, Total Kjeldahl Nitrogen, and Nitrate+Nitrite.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

The mass loading (lb/d) for Total Phosphorus monthly and weekly averages were calculated by multiplying the concentration values (mg/L), with the flow values (in MGD) and a conversion factor of 8.345.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual and the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia.

The VPDES Permit Regulation at 9VAC25-31-30 and 40 CFR Part 133 require that the facility achieve at least 85% removal for BOD5, $cBOD_5$ and TSS (or 65% for equivalent to secondary). The limits in this permit are water-quality-based effluent

limits more stringent than the federal effluent guidelines for Secondary Treatment included in 40 CFR § 133.102. Based on comments received from EPA, influent monitoring was included with this reissuance for $cBOD_5$ and TSS to confirm that treatment results in greater than 85% removal.

**18. Antibacksliding:**

The Total Residual Chlorine (after dechlorination) limits were revised to correct significant figure rounding errors in accordance with DEQ Guidance Memo No. 06-2016. This resulted in the monthly average limit being revised from 0.002 mg/L to 0.0020 mg/L and the weekly average limit being revised from 0.002 mg/L to 0.0025 mg/L.

The proposed backsliding conforms to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, 9 VAC 25-31-220.L., and 40 § CFR 122.44. The Total Residual Chlorine limits are water quality based effluent limits. The revisions to the limits are allowed since the revisions comply with the water quality standards 402(o)(3) and they are consistent with antidegradation 303(d)(4)(B).

All other limits in this permit are at least as stringent as those previously established.

**19a. Effluent Limitations/Monitoring Requirements:**

Design flow is 0.005 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the CTO for the 0.01 MGD tier or expiration date, whichever comes first.

| PARAMETER | BASIS FOR LIMITS | DISCHARGE LIMITATIONS | | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|---|
| | | Monthly Average | Weekly Average | Minimum | Maximum | Frequency | Sample Type |
| Flow (MGD) | NA | NL | NA | NA | NL | 1/D | Estimate |
| $cBOD_5$, Influent [a.] | 1 | NL mg/L | NA | NA | NA | 1/YR | Grab |
| $cBOD_5$, Percent Removal [a.] | 1 | NA | NA | 85% | NA | 1/YR | Calculated |
| TSS, Influent [a.] | 1 | NL mg/L | NA | NA | NA | 1/YR | Grab |
| TSS, Percent Removal [a.] | 1 | NA | NA | 85% | NA | 1/YR | Calculated |
| pH | 3 | NA | NA | 6.0 S.U. | 9.0 S.U. | 1/D | Grab |
| $cBOD_5$ | 5 | 5 mg/L 0.095 kg/day | 8 mg/L 0.15 kg/day | NA | NA | 1/M | Grab |
| Total Suspended Solids (TSS) | 5 | 6.0 mg/L 0.11 kg/day | 9.0 mg/L 0.17 kg/day | NA | NA | 1/M | Grab |
| Dissolved Oxygen | 3 | NA | NA | 6.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after contact tank) | 4 | NA | NA | 1.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after dechlorination) | 3 | 0.0020 mg/L | 0.0025 mg/L | NA | NA | 1/D | Grab |
| Ammonia as N (Apr-Oct) | 5 | 1.0 mg/L 0.019 kg/day | 1.5 mg/L 0.028 kg/day | NA | NA | 1/M | Grab |
| Ammonia as N (Nov-Mar) | 3 | 2.1 mg/L | 2.1 mg/L | NA | NA | 1/M | Grab |
| *E. coli* (Geometric Mean) [b. c.] | 3 | 126 n/100 mL | NA | NA | NA | 1/W | Grab |
| Total Phosphorus | 5 | 0.18 mg/L 0.008 lb/day | 0.27 mg/L 0.011 lb/day | NA | NA | 1/M | Grab |
| Total Kjeldahl Nitrogen (TKN) | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Grab |
| Nitrate+Nitrite, as N | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Grab |
| Total Nitrogen [d.] | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen – Year to Date [e.] | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen - Calendar Year [e.] | 3, 6 | 12.0 mg/L | NA | NA | NA | 1/YR | Calculated |

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Policy for the Potomac River Embayments
6. 9VAC25-40 (Nutrient Regulation)

*MGD* = Million gallons per day.
*NA* = Not applicable.
*NL* = No limit; monitor and report.
*S.U.* = Standard units.
*1/D* = Once every day.
*1/W* = Once every week.
*1/M* = Once every month.
*1/YR* = Once every calendar year.

Estimate= Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab= An individual sample collected over a period of time not to exceed 15 minutes.

a. See Section 20.b for requirements of secondary treatment demonstration. At least 85% removal for $cBOD_5$, and TSS shall be attained for this effluent. The permittee shall report the influent $cBOD_5$ and TSS percent removal annually. During the month that influent sampling is performed for percent removal reporting purposes, the sample frequency shall be performed at the same effluent sample frequency for cBOD5 and TSS.

b. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

c. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100 mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter. Upon approval, the permittee shall collect four (4) samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period. Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100 mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

d. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

e. See Section 20.a. for more information on the Nutrient Calculations.

**19b.Effluent Limitations/Monitoring Requirements:**

Design flow is 0.01 MGD.

Effective Dates: During the period beginning with issuance of the CTO for the 0.01 MGD flow tier and lasting until the expiration date.

| PARAMETER | BASIS FOR LIMITS | DISCHARGE LIMITATIONS | | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|---|
| | | Monthly Average | Weekly Average | Minimum | Maximum | Frequency | Sample Type |
| Flow (MGD) | NA | NL | NA | NA | NL | 1/D | Estimate |
| $cBOD_5$, Influent [a.] | 1 | NL mg/L | NA | NA | NA | 1/YR | Grab |
| $cBOD_5$, Percent Removal [a.] | 1 | NA | NA | 85% | NA | 1/YR | Calculated |
| TSS, Influent [a.] | 1 | NL mg/L | NA | NA | NA | 1/YR | Grab |
| TSS, Percent Removal [a.] | 1 | NA | NA | 85% | NA | 1/YR | Calculated |
| pH | 3 | NA | NA | 6.0 S.U. | 9.0 S.U. | 1/D | Grab |
| $cBOD_5$ | 5 | 5 mg/L 0.19 kg/day | 8 mg/L 0.30 kg/day | NA | NA | 1/M | Grab |
| Total Suspended Solids (TSS) | 5 | 6.0 mg/L 0.23 kg/day | 9.0 mg/L 0.34 kg/day | NA | NA | 1/M | Grab |
| Dissolved Oxygen | 3 | NA | NA | 6.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after contact tank) | 4 | NA | NA | 1.0 mg/L | NA | 1/D | Grab |
| Total Residual Chlorine (after dechlorination) | 3 | 0.0020 mg/L | 0.0025 mg/L | NA | NA | 1/D | Grab |
| Ammonia as N (Apr-Oct) | 5 | 1.0 mg/L 0.038 kg/day | 1.5 mg/L 0.057 kg/day | NA | NA | 1/M | Grab |
| Ammonia as N (Nov-Mar) | 3 | 2.1 mg/L | 2.1 mg/L | NA | NA | 1/M | Grab |
| *E. coli* (Geometric Mean) [b. c.] | 3 | 126 n/100mL | NA | NA | NA | 1/W | Grab |
| Total Phosphorus | 5 | 0.18 mg/L 0.015 lb/day | 0. 27 mg/L 0.023 lb/day | NA | NA | 1/M | Grab |
| Total Kjeldahl Nitrogen (TKN) | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Grab |
| Nitrate+Nitrite, as N | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Grab |
| Total Nitrogen [d.] | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen – Year to Date [e.] | 3, 6 | NL mg/L | NA | NA | NA | 1/M | Calculated |
| Total Nitrogen - Calendar Year [e.] | 3, 6 | 12.0 mg/L | NA | NA | NA | 1/YR | Calculated |

The basis for the limitations codes are:

1. Federal Effluent Requirements
2. Professional Judgement
3. Water Quality Standards
4. DEQ Disinfection Guidance
5. Policy for the Potomac River Embayments
6. 9VAC25-40 (Nutrient Regulation)

*MGD* = Million gallons per day.
*NA* = Not applicable.
*NL* = No limit; monitor and report.
*S.U.* = Standard units.

*1/D* = Once every day.
*1/W* = Once every week.
*1/M* = Once every month.
*1/YR* = Once calendar every year.

Estimate= Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Grab= An individual sample collected over a period of time not to exceed 15 minutes.

a. See Section 20.b for requirements of secondary treatment demonstration. At least 85% removal for $cBOD_5$, and TSS shall be attained for this effluent. The permittee shall report the influent $cBOD_5$ and TSS percent removal annually. During the month that influent sampling is performed for percent removal reporting purposes, the sample frequency shall be performed at the same effluent sample frequency for cBOD5 and TSS.

b. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

c. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter. Upon approval, the permittee shall collect four (4) samples during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean. The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period. Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

d. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite

e. See Section 20.a. for more information on the Nutrient Calculations.

**20. Other Permit Requirements:**

a. Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.
These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9VAC25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9VAC25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits**.**

b. Demonstration of Secondary Treatment
This VPDES permit requires 85% removal of $cBOD_5$ and TSS in accordance with the federal effluent guidelines for Secondary Treatment included in 40 CFR § 133.102. Because this facility provides advanced secondary or tertiary treatment with effluent $cBOD_5$ and TSS substantially less than 30 mg/l, a reduced reporting frequency of annually is included in the permit.

The permittee shall monitor and report the influent $cBOD_5$ and TSS concentrations and calculated percent removal on an annual basis. The annual monitoring periods shall be January – December.

Influent sampling frequency shall be performed at the same sample frequency as the corresponding effluent samples within a given calendar month. For seasonal $cBOD_5$ and TSS, the month that the percent removal requirement is calculated will be compared to the seasonal requirement effective during that month.

The $cBOD_5$ and TSS influent concentrations shall be used to calculate a corresponding percent removal rate for each respective sampling event. If the $cBOD_5$ and/or TSS concentrations for the final effluent are less than the quantification levels (QL) specified in Part I.B.1 of this permit, then the QL shall be used to calculate the percent removal for that sampling event. All influent results and percent removal calculations shall be averaged for the calendar month for reporting purposes. A single monthly average removal percentage of the monthly values shall be reported on the DMR by the 10th day of the month following sampling.

**21. Other Special Conditions:**

a. **95% Capacity Reopener.** The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b. **Indirect Dischargers.** Required by VPDES Permit Regulation, 9VAC25-31-200 B.1 and B.2 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c. **O&M Manual Requirement.** Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d. **Licensed Operator Requirement.** The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and by the Board for Waterworks and Wastewater Works Operators (18VAC160-30 et seq.) and Onsite Sewage System Professionals Regulations (18VAC160-40 et seq.) requires licensure of operators. This facility requires a Class III operator.

e. **Reliability Class.** The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of II.

f. **CTC, CTO Requirement.** The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

g. **Water Quality Criteria Reopener.** The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h. **Sludge Reopener.** The VPDES Permit Regulation at 9VAC25-31-220.C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA. The facility includes a sewage treatment works.

i. **Sludge Use and Disposal.** The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

j. **TMDL Reopener.** This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL that may be developed and approved for the receiving stream.

k. **Nutrient Offsets**. The Virginia General Assembly, in their 2005 session, enacted a new Article 4.02 (Chesapeake Bay Watershed Nutrient Credit Exchange Program) to the Code of Virginia to address nutrient loads to the Bay. Section 62.1-44.19:15 sets forth the requirements for new and expanded dischargers, which are captured by the requirements of the law, including the requirement that non-point load reductions acquired for the purpose of offsetting nutrient discharges be enforced through the individual VPDES permit.

l. **E3/E4.** 9VAC25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

m. **Nutrient Reopener.** 9VAC25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9VAC25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

n. **Permit Maintenance Fees.** Fees for Permits and Certificates at 9VAC25-20-60.A.4 requires the payment of permit maintenance fee(s) by October 1 of each calendar year. Permits will not be reissued or administratively continued without payment of the required fee(s).

**22. Permit Section Part II.**

Required by VPDES Regulation 9VAC25-31-190, Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

**23. Changes to the Permit from the Previously Issued Permit:**

a. Special Conditions: Permit Maintenance Fees special condition included per agency practice.

b. Monitoring and Effluent Limitations:
1) Influent monitoring and percent removal reporting was included for $cBOD_5$ and TSS.
2) The Total Residual Chlorine (after dechlorination) limits were revised to correct significant figure rounding errors in accordance with DEQ Guidance Memo No. 06-2016.

**24. Variances/Alternate Limits or Conditions:** None.

**25. Public Notice Information:**

First Public Notice Date: October 29, 2021 Second Public Notice Date: November 5, 2021

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3805, Ann.Zimmerman@deq.virginia.gov. See **Attachment 12** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

**26. Additional Comments:**

Previous Board Action(s): There have been no recent board actions for this facility.

Staff Comments: None.

Public Comment: No comments were received during the public notice.

# Pt. of View – VA0090221
# Fact Sheet Attachments:

Attachment 1 – Flow Frequency Determination

Attachment 2 – October 2015 CTC / March 2016 CTO

Attachment 3 – Facility Schematic

Attachment 4 – Topographic Map

Attachment 5 – Inspection Memo April 2016

Attachment 6 – Planning Statement

Attachment 7 – DO Criteria

Attachment 8 – Water Quality Criteria

Attachment 9 – Virginia Fish and Wildlife Information Service Search Report

Attachment 10 – Reasonable Potential Analysis

Attachment 11 – Offset Agreement – 2021 Amendment

Attachment 12 – Public Notice

# Attachment 1

**MEMORANDUM**

**DEPARTMENT OF ENVIRONMENTAL QUALITY**
Office of Water Quality Assessments
629 East Main Street P.O. Box 10009 Richmond, Virginia 23219

**SUBJECT:** Flow Frequency Determination
Meadowood Farm L.L.P. WWTP – #VA0090221



**TO:** Kenneth H. Blodgett, NRO

**FROM:** Paul E. Herman, P.E., WQAP

**DATE:** May 14, 1999

**COPIES:** Ron Gregory, Charles Martin, File

The Meadowood Farm L.L.P. WWTP discharges to an unnamed tributary of the Belmont Bay near Woodbridge, Virginia. Flow frequencies are required at this site for use by the permit writer in developing the VPDES permit.

The flow frequencies for the discharge receiving stream were determined by inspection of the USGS Fort Belvoir Quadrangle topographic map. The map depicts the stream as swamp at the discharge point. The flow frequencies for swamps are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and harmonic mean. The swamp drains to the tidal Belmont Bay. The flow frequencies for tidal water bodies are not determinable. Dilution ratios should be used to assess the impact the subject discharge will have on the tidal Belmont Bay.

If you have any questions concerning this analysis, please let me know.

# Attachment 2

# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

March 25, 2016

Fairfax County
GMU Institute of Conflict Analysis and Resolution WWTP
PTL#26480, Permit VA0090221

**Via E-mail** (npickens@gmu.edu)

Ms. Nancy Pickens
Project Manager
George Mason University
4400 University Drive, MSN 1E4
Fairfax, VA 22030

Dear Ms. Pickens:

In accordance with 9VAC25-790-190 of the Commonwealth of Virginia's *Sewage Collection and Treatment Regulations*, this letter transmits the Certificate to Operate (CTO) for GMU Institute of Conflict Analysis and Resolution WWTP located in Fairfax County. The CTO is being issued based on the Application for Certificate to Operate dated March 18, 2016, and received by this office on March 23, 2016.

If you have any questions about this letter or the approval process, please contact Alison Thompson at (703)-583-3834 or alison.thompson@deq.virginia.gov.

Respectfully,

for Bryant Thomas
Water Permit & Planning Manager

cc: VPDES Permit File VA0090221
VDH District Office, attn: Environmental Health Manager
Fairfax County Local Building Official
Karen Clark (kclark@chacompanies.com)

Attachment: CTO

**Department of Environmental Quality**
**APPLICATION for CERTIFICATE TO OPERATE**
**Under the Sewage Collection and Treatment Regulations 9 VAC 25-790**
**and/or the Water Reclamation and Reuse Regulation 9 VAC 25-740**

See instructions. Submit 1 copy of this form and any attachments. Form will expand as you enter information.

| | |
|---|---|
| Project Title: (as it appears on plans) George Mason University Institute of Conflict Analysis and Resolution Wastewater Treatment Plant<br>P.E. Seal Date on Cover: 5/13/2013<br>Specifications Title and Date: George Mason University Institute of Conflict Analysis and Resolution Wastewater Treatment Plant | |
| Location of Project:7301 Old Spring Road | County/City: Lorton VA 22079 |
| Receiving Wastewater Collection System(s): NOT APPLICABLE | |
| Receiving Sewage Treatment Plant(s): NOT APPLICABLE | |
| **PROJECT OWNER: George Mason University** | **RESPONSIBLE ENGINEER** |
| Owner Contact Name: Nancy Pickens | Name: Karen Clark |
| Title: Project Manager | Company Name: CHA Consulting, Inc. |
| Address: 4400 University Drive, MSN 1E4, Fairfax, VA 22030 | Address: 9020 Stony Point Parkway, Suite 160 Richmond, VA |
| Phone: 703-993-2644 | Phone: 518-453-4533 |
| Email: npickens@gmu.edu | Email: kclark@chacompanies.com |
| Owner Signature and Date: Thomas G. Calle 3/18/16 | |

***PTL NUMBER FROM CERTIFICATE TO CONSTRUCT:*** 26316
***Attach*** Copy of the original Certificate to Construct if issued prior to November 9, 2008. If applicable, provide verification of compliance with any conditions in the Certificate to Construct.

Design Flow: (a) average daily flow (MGD): 0.005 (b) peak flow (MGD): 0.010
For sewage treatment plant, water reclamation or satellite reclamation projects, provide the VPDES/VPA Permit Number: VA0090221
Is a new Discharge Monitoring Report (DMR) or other monthly monitoring report required? Yes ☒ No ☐
For Pump Stations, Sewage Treatment Plants, and Reclamation Systems, check Reliability Class: I ☐ II ☒ III ☐ NA ☐

Two options are provided for the Statement of Completion, depending on whether the project is being authorized under the Sewage Collection and Treatment Regulations, the Water Reclamation and Reuse Regulations, or BOTH. Please check the appropriate box and then provide signature and seal below as indicated.

☒ *The following statement of completion for issuance of a Certificate to Operate under the Sewage Collection and Treatment Regulations must be signed and sealed by the responsible engineer.* (DEQ will not conduct a confirming inspection.)

*"The construction of the project has been completed in accordance with the **referenced** plans and specifications **or revised only in accordance with 9 VAC 25-790-180.B,** and inspections have been performed to make this statement in accordance with Section 9 VAC 25-790-180.C.1 of the Sewage Collection and Treatment Regulations."*

COMMONWEALTH OF VIRGINIA
KAREN W. CLARK
Lic. No. 042079
3-11-16
PROFESSIONAL ENGINEER

Karen W Clark 3-11-16
Licensed Engineer's Signature and original seal (signed and dated)

☐ *The following statement of completion for issuance of a Certificate to Operate under the Water Reclamation and Reuse Regulation must be signed and sealed by the responsible engineer.* (DEQ will not conduct a confirming inspection.)

***"The construction of the project has been completed in accordance with the referenced plans and specifications or revised only in accordance with 9 VAC 25-740-120-B.2.b. and inspections have been performed to make this statement in accordance with Section 9 VAC 25-40-120.B.3.a. of the Water Reclamation and Reuse Regulations."***

Licensed Engineer's Signature and original seal (signed and dated)

*For DEQ use only:*

In accordance with *Code of Virginia* 1950, as amended, Title 62.1, Section 62.1-44.19, this form, signed by the appropriate DEQ representative, serves as the **Certificate to Operate** for the referenced project.

| Alison Thompson | | 3/25/16 | 26480 |
|---|---|---|---|
| Name | Signature | Date | CTO PTL Number |

*Department of Environmental Quality Authorized Representative*

**An Operation and Maintenance Manual must be submitted to the DEQ Regional Office in accordance with 9 VAC 25-790 for sewage treatment plants, 9 VAC 25-740 for water reclamation systems and satellite reclamation systems and VPDES or VPA permit requirements.**

**For pump stations, an Operation and Maintenance Manual must be maintained for the facility in accordance with 9 VAC 25-790, but is NOT to be submitted to DEQ. The pump station must be operated and maintained in accordance with that manual.**

# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

October 20, 2015

**Via E-mail** (npickens@gmu.edu)

Fairfax County
George Mason University Institute WWTP
VA0090221 PTL#26316

Ms. Nancy Pickens
Project Manager
George Mason University
4400 University Drive, MSN 1E4
Fairfax, VA 22030

Dear Ms. Pickens:

In accordance with the Code of Virginia, Title 62.1, Section 62.1-44.19, attached please find the Certificate to Construct (CTC) for this project. This CTC is being issued based on the Application for Certificate to Construct dated July 13, 2015, and received by this office on July 13, 2015.

Receipt of this CTC does not relieve any owner of the responsibility to comply with any other applicable statutes or regulations, including local ordinances and zoning requirements. This CTC also is not applicable to the subsurface drainfield that was installed at the facility.

Please be advised that a Certificate to Operate (CTO) is required by the Code before placing the system in operation. Application for the CTO can be found at the DEQ website:
http://www.deq.virginia.gov/Programs/Water/WastewaterEngineering/RegulationsCertificates.aspx

If you have any questions about this letter or the approval process, please contact Alison Thompson at (703)-583-3834 or alison.thompson@deq.virginia.gov.

Respectfully,

for Bryant Thomas
Water Permit & Planning Manager

cc: VA0090221 File
VDH District Office, attn: Environmental Health Manager
Fairfax County Building Official
Karen Clark (kclark@chacompanies.com)
Adrian Joye (Adrian.Joye@fairfaxcounty.gov)

# Virginia Department of Environmental Quality
## APPLICATION for CERTIFICATE TO CONSTRUCT (CTC)
## For Municipal Sewage Collection, Treatment, and/or Reclamation Systems

See Instructions. Do not submit plans and specifications. Submit 1 copy of this form with all attachments. Form will expand as you enter information.

| | |
|---|---|
| Project Title: (as it appears on plans) George Mason University Institute of Conflict Analysis and Resolution Waste Water Treatment Plant<br>P.E. Seal Date on Cover: 5/3/13<br>Specifications Title and Date: George Mason University Institute of Conflict Analysis and Resolution Waste Water Treatment Plant | |
| Location of Project: 7301Old Spring Road | County/City: Lorton, VA 22079 |
| Receiving Wastewater Collection System(s): | |
| Receiving Sewage Treatment Plant(s)/Reclamation System: | |
| **PROJECT OWNER: George Mason University** | **PROJECT ENGINEER:** CHA |
| Owner Contact Name: Nancy Pickens | Name: Karen Clark |
| Title: Project Manager | Company Name: CHA |
| Address: 4400 University Drive, MSN 1E4, Fairfax, VA 22030 | Address: 9020 Stony Point Parkway, Suite 160, Richmond, VA |
| Phone: 703-993-2644 | Phone: 518-453-4533 |
| Email: npickens@gmu.edu | Email: kclark@chacompanies.com |
| Owner Signature and date: Thomas G. Calhoun 7/13/15 | |

***For Sewage Treatment Works and Sewage Collection Systems:***

***Attach*** Project Description

***Attach*** Letter(s) of Acceptance from Receiving Facility/Utility for sewage collection system projects

***Attach*** Reliability Class: (1) For Pump Stations attach Reliability Class Worksheet. (2) For Sewage Treatment Plants note the Reliability Class rating from the VPDES or VPA permit and method of meeting reliability classification requirements.

For a sewage treatment plant project, provide the VPDES or VPA permit number: VA0090221
Design Sewage Flow (Sewage Plant): (a) average daily flow (MGD): 0.005 (b) peak daily flow (MGD): 0.010
Design Sewage Flow (Pump Station): (a) average daily flow (MGD): 0.005 (b) peak hour flow (MGD): 0.03312

Please check the appropriate components of your project:

| | | | |
|---|---|---|---|
| Gravity and/or Vacuum Sewer | ☐ | New Sewage Treatment Plant | ☒ |
| Pump Station(s) | ☒ | Modification of Existing Sewage Treatment Plant | ☐ |
| Force Main(s) | ☒ | Expansion of Existing Sewage Treatment Plant | ☐ |

**For Reclamation or Satellite Reclamation System, Attach Page 2:** Page 2 Attached? Yes ☐ No ☒

*The following statement must be signed and sealed by the Virginia licensed design engineer:*
*"As discussed in 9 VAC 25-790-240.C., the referenced design documents **are in** substantial **compliance** with Part III - Manual of Practice **For Sewerage Systems and Treatment Works,** of the Sewage Collection and Treatment Regulations (9 VAC 25-790-310 et seq.)"*

COMMONWEALTH OF VIRGINIA
KAREN W. CLARK
Lic. No. 042079
PROFESSIONAL ENGINEER

Karen W Clark 7-9-15 — Karen W Clark 7-9-15
***Licensed Design Engineer's Signature and original seal (signed and dated)***

☐ **Design exceptions and justifications are attached in accordance with 9 VAC 25-790-240.C.**

*For DEQ use only:*

In accordance with the *Code of Virginia* 1950, as amended, Title 62.1, Section 62.1-44.19, this form, signed by the appropriate DEQ representative, constitutes your Certificate to Construct. This Certificate is valid for a period of five years from the date of issuance. Other permits and authorizations may be necessary. Please contact your Regional DEQ Office if you have any questions.

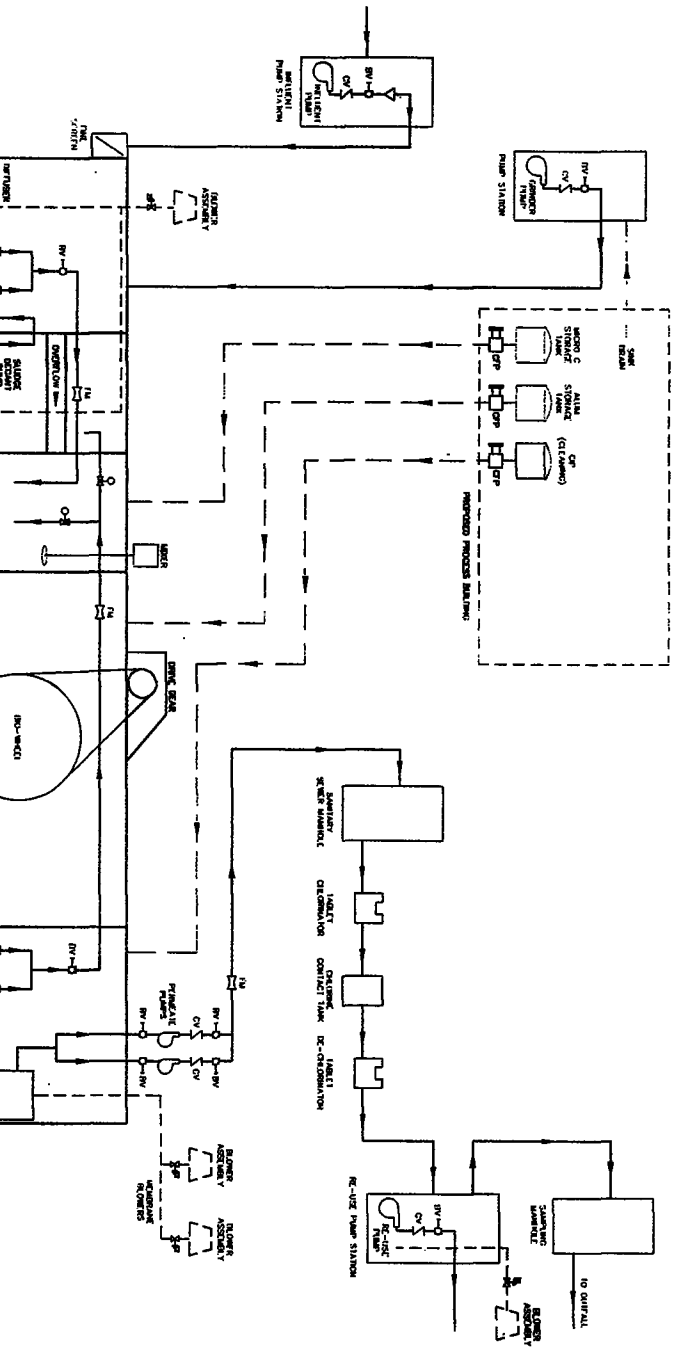
| Alison Thompson | | 10/20/15 | 26316 |
|---|---|---|---|
| Name | Signature | Date | CTC PTL Number |

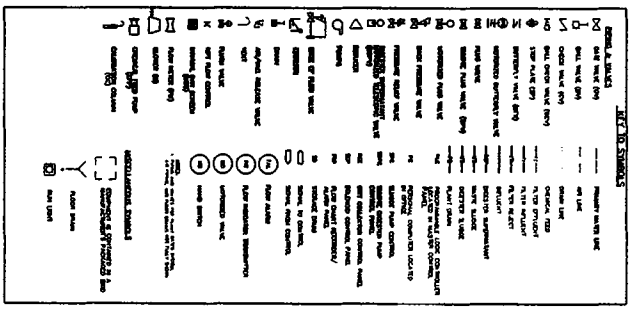
*Department of Environmental Quality Authorized Representative*

Note: Once the project is complete, an application for a Certificate to Operate must be submitted to the appropriate DEQ Regional office.

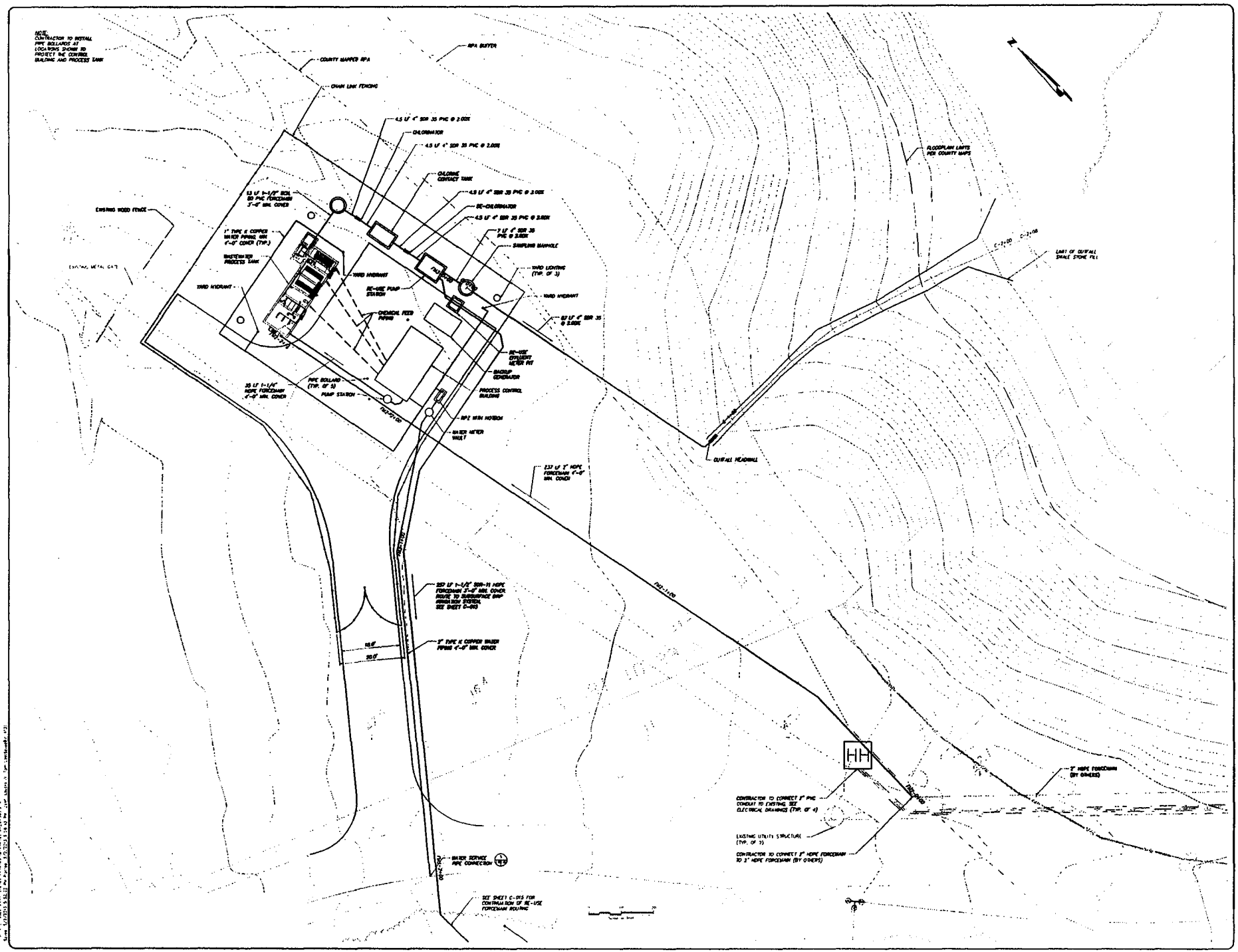
# Attachment 3

Attachment 2



| C-002 | GEORGE MASON UNIVERSITY INSTITUTE OF CONFLICT ANALYSIS AND RESOLUTION WWTP | CHA | CONTRACT No. 2<br>PROJECT CODE: 247-16835-005<br>7301 OLD SPRING DRIVE<br>LORTON, VA 22079 | 1 ISSUE FOR REGULATORY REVIEW |
|---|---|---|---|---|
| | PROCESS FLOW SCHEMATIC | | | |




| No. | Revision/Issue | Date |
|---|---|---|
| 1 | ISSUE FOR REGULATORY REVIEW | 3.10.23 |

CONTRACT No. 2
PROJECT CODE: 247-16835-005
7301 OLD SPRING DRIVE
LORTON, VA 22079

GEORGE MASON UNIVERSITY
INSTITUTE OF CONFLICT ANALYSIS AND RESOLUTION WWTP

YARD PIPING PLAN

C-006

# Attachment 4


N

GENERAL NOTES

ADMINISTRATIVE INDEX

SHEET INDEX

TOPOGRAPHIC MAP
2009

118-1

Revised to 03 - 01 - 2009

# Attachment 5

# MEMORANDUM
# VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
# NORTHERN REGIONAL OFFICE

13901 Crown Court Woodbridge, VA 22193

SUBJECT: George Mason University - Point of View Sewage Treatment Plant (VA0090221)

TO: File

FROM: Martin Robinson

DATE: April 6, 2016

On April 6, 2016, Mr. Martin Robinson traveled to the Point of View Sewage Treatment Plant. The treatment plant will serve the George Mason University Point of View Conference Center. The treatment plant was not operational and the Point of View Conference Center site was still under construction. ***See Photos below***:




# Attachment 6

| | |
|---|---|
| To: | Ann Zimmerman |
| From: | Rebecca Shoemaker |
| Date: | December 22, 2020 |
| Subject: | Planning Statement for Point of View WWTP, Fairfax County |
| Permit Number: | VA0090221 |

**Information for Outfall 001:**

Discharge Type: Municipal
Discharge Flow: 0.005 MGD with expansion to 0.010 MGD
Receiving Stream: Thompson Creek
Latitude / Longitude: 38° 39' 31''N / 77° 11' 41''W
Rivermile: 0.46
Streamcode: 1aXIO
Waterbody: VAN-A25E
6th Order HUC: PL48
Water Quality Standards: Class II, Section 6, Special Standards b, y
Drainage Area: 1.35 $mi^2$

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

This facility discharges to tidal Thompson Creek, which is a small tributary to Occoquan Bay/Belmont Bay. While Thompson Creek has not been monitored by DEQ, it is included in the water quality assessment for the Occoquan embayment. The following is the water quality summary for this tributary to the Occoquan Bay, as taken from the 2020 Integrated Report:

*Class II, Section 6, special stds. b, y.*

*DEQ monitoring stations located in this segment of Occoquan Bay/Belmont Bay: n/a*

*The aquatic life use is categorized as not supporting; however, the Chesapeake Bay TMDL has been completed. Assessment of the thirty day mean dissolved oxygen values during the summer season indicates that the open-water aquatic life subuse is not met. The seven day mean and instantaneous dissolved oxygen levels have not been assessed. The submerged aquatic vegetation data is assessed as fully supporting. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The Tidal Potomac River PCB TMDL has been completed and approved. The recreation and wildlife uses were not assessed.*

The nearest downstream DEQ water quality monitoring station is 1aOCC002.47, which is located in Occoquan Bay, approximately 2.2 miles downstream of Outfall 001. The following is the monitoring summary for this portion of the Occoquan Bay, as taken from the 2020 Integrated Assessment:

*Class II, Section 6, special stds. b, y.*

*DEQ monitoring stations located in this segment of Occoquan Bay:*

- *ambient water quality, Coastal 2000, and fish tissue monitoring station 1aOCC002.47 at Buoy 6, midway into bay.*

*The aquatic life use is categorized as not supporting; however, the Chesapeake Bay TMDL has been completed. Assessment of the thirty day mean dissolved oxygen values during the summer season indicates that the open-water aquatic life subuse is not met. The seven day mean and instantaneous dissolved oxygen levels have not been assessed. The submerged aquatic vegetation data is assessed as fully supporting. Observed effects are noted for the aquatic life use based on previous sediment data that revealed exceedances of the Estuarine NOAA-based ER-M sediment screening values (SV) of 0.71 ppm (dry weight) for mercury in 2001 and of 7 ppb (dry weight) for DDT in 2004 and for chlorophyll a, as described above. Coastal 2000 weight of evidence analysis, utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions, resulted in an assessment of insufficient information; it was noted that a potential exists for chronic effects of metals in the sediment and that there is a possibility of eutrophication. The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory; the Tidal Potomac River PCB TMDL for the Occoquan River watershed has been completed and approved. The recreation and wildlife uses are considered fully supporting.*

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A. Yes.

**Table A. 303(d) Impairment and TMDL information for the receiving stream segment**

| Waterbody Name | Impaired Use | Cause | Year First Listed as Impaired | TMDL completed | WLA | Basis for WLA |
|---|---|---|---|---|---|---|
| ***Impairment Information in the 2020 Integrated Report*** | | | | | | |
| Occoquan Bay/Belmont Bay | Aquatic Life / Open-Water Aquatic Life | Dissolved Oxygen | 2014 | Chesapeake Bay TMDL 12/29/2010 | This facility is accounted for in the Chesapeake Bay TMDL NPDES Permit Inventory and is part of an aggregated WLA for total nitrogen, total phosphorus, and total suspended solids (Appendix Q). | |
| | Fish Consumption | PCBs in Fish Tissue | 2002 | Tidal Potomac PCB 10/31/2007 | None | N/A |

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B. Yes.

**Table B. Information on Downstream 303(d) Impairments and TMDLs**

| Waterbody Name | Impaired Use | Cause | Year First Listed as Impaired | Distance From Outfall | TMDL completed | WLA | Basis for WLA |
|---|---|---|---|---|---|---|---|
| ***Impairment Information in the 2020 Integrated Report*** | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Occoquan Bay | Aquatic Life | Estuarine Bioassessments | 2006 | 1.3 miles | No | --- | --- |

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

There is a PCB impairment in the tidal portion of Occoquan Bay. A PCB TMDL has been completed for the Potomac River and was approved by EPA on 10/31/2007. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility, as it is a small wastewater treatment facility that is unlikely to discharge PCBs. Based on this information, this facility will not be requested to monitor for low-level PCBs.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

The Fairfax County Water Authority intake for the Occoquan Reservoir is located within a five mile radius of this facility; however, it is located upstream from the drainage for this outfall.

# Attachment 7

Dissolved Oxygen Criteria (9VAC25-260-185)

| Designated Use | Criteria Concentration/Duration | Temporal Application |
|---|---|---|
| Migratory fish spawning and nursery | 7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity) | February 1 – May 31 |
| | Instantaneous minimum > 5 mg/L | |
| Open-water[1,2] | 30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity)<br><br>30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity) | Year-round |
| | 7-day mean > 4 mg/L | |
| | Instantaneous minimum > 3.2 mg/L at temperatures < 29°C<br><br>Instantaneous minimum > 4.3 mg/L at temperatures > 29°C | |
| Deep-water | 30-day mean >3 mg/L | June 1-September 30 |
| | 1-day mean > 2.3 mg/L | |
| | Instantaneous minimum > 1.7 mg/L | |
| Deep-channel | Instantaneous minimum > 1 mg/L | June 1-September 30 |

[1]See subsection aa of 9VAC25-260-310 for site specific seasonal open-water dissolved oxygen criteria applicable to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries.

[2]In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

# Attachment 8

# Pt. of View: VA0090221
# Water Quality Criteria/Wasteload Allocation

01 September, 2021

## Input Parameters:

### Facility Information

| | |
|---|---|
| Facility Name: | Pt. of View |
| Permit Number: | Thompson Creek |
| Receiving Stream: | VA0090221 |
| Analysis Type: | Freshwater |

### Stream Information

| | |
|---|---|
| Mean Hardness (as $CaCO_3$): | 50 mg/L |
| 90% Temperature (Annual): | 25 °C |
| 90% Temperature (Wet Season): | 15 °C |
| 90% Maximum pH: | 8 SU |
| 10% Maximum pH: | 7 SU |
| Tier Designation (1 or 2): | 2 |
| Public Water Supply (PWS)? | No |
| Trout Present? | No |
| Mussels Present? | Yes |
| Early Life Stages Present? | Yes |
| New Ammonia Criteria? | No |

### Stream Flows

| | |
|---|---|
| 1Q10 (Annual): | 0 MGD (0% Used) |
| 7Q10 (Annual): | 0 MGD (0% Used) |
| 30Q10 (Annual): | 0 MGD (0% Used) |
| 30Q5: | 0 MGD |
| Harmonic Mean: | 0 MGD |
| 1Q10 (Wet Season): | 0 MGD (0% Used) |
| 30Q10 (Wet Season): | 0 MGD (0% Used) |

### Effluent Information

| | |
|---|---|
| Mean Hardness (as $CaCO_3$): | 50 mg/L |
| 90% Temperature (Annual): | 25 °C |
| 90% Temperature (Wet Season): | 15 °C |
| 90% Maximum pH: | 8 SU |
| 10% Maximum pH: | 7 SU |
| Discharge Flow: | 0.005 MGD |

| Parameter | Units | Background Concentration | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method Target Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | |
| Acenapthene | ug/l | 0 | | | | 90.00 | | | | 90.00 | | | | 9.000 | | | | 9.000 | | | | 9.000 | 9.000 |
| Acrolein | ug/l | 0 | 3.000 | 3.000 | | 400.0 | 3.000 | 3.000 | | 400.0 | 0.7500 | 0.7500 | | 40.00 | 0.7500 | 0.7500 | | 40.00 | 0.7500 | 0.7500 | | 40.00 | 0.3000 |
| Acrylonitrile | ug/l | 0 | | | | 70.00 | | | | 70.00 | | | | 7.000 | | | | 7.000 | | | | 7.000 | 7.000 |
| Aldrin | ug/l | 0 | 3.000 | | | 0.000007700 | 3.000 | | | 0.000007700 | 0.7500 | | | 7.700e-7 | 0.7500 | | | 7.700e-7 | 0.7500 | | | 7.700e-7 | 7.700e-7 |
| Ammonia (Yearly) | mg/l | 0 | 8.408 | 1.238 | | | 8.408 | 1.238 | | | 2.102 | 0.3095 | | | 2.102 | 0.3095 | | | 2.102 | 0.3095 | | | 0.1857 |
| Ammonia (High Flow) | mg/l | 0 | 8.408 | 2.359 | | | 8.408 | 2.359 | | | 2.102 | 0.5898 | | | 2.102 | 0.5898 | | | 2.102 | 0.5898 | | | 0.3539 |
| Anthracene | ug/l | 0 | | | | 400.0 | | | | 400.0 | | | | 40.00 | | | | 40.00 | | | | 40.00 | 40.00 |
| Antimony | ug/l | 0 | | | | 640.0 | | | | 640.0 | | | | 64.00 | | | | 64.00 | | | | 64.00 | 64.00 |
| Arsenic | ug/l | 0 | 340.0 | 150.0 | | | 340.0 | 150.0 | | | 85.00 | 37.50 | | | 85.00 | 37.50 | | | 85.00 | 37.50 | | | 22.50 |
| Barium | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Benzene | ug/l | 0 | | | | 160.0 | | | | 160.0 | | | | 16.00 | | | | 16.00 | | | | 16.00 | 16.00 |
| Benzidine | ug/l | 0 | | | | 0.1100 | | | | 0.1100 | | | | 0.01100 | | | | 0.01100 | | | | 0.01100 | 0.01100 |
| Benzo (a) anthracene | ug/l | 0 | | | | 0.01300 | | | | 0.01300 | | | | 0.001300 | | | | 0.001300 | | | | 0.001300 | 0.001300 |
| Benzo (b) fluoranthene | ug/l | 0 | | | | 0.01300 | | | | 0.01300 | | | | 0.001300 | | | | 0.001300 | | | | 0.001300 | 0.001300 |
| Benzo (k) fluoranthene | ug/l | 0 | | | | 0.1300 | | | | 0.1300 | | | | 0.01300 | | | | 0.01300 | | | | 0.01300 | 0.01300 |
| Benzo (a) pyrene | ug/l | 0 | | | | 0.001300 | | | | 0.001300 | | | | 0.0001300 | | | | 0.0001300 | | | | 0.0001300 | 0.0001300 |
| Bis (chloromethyl) Ether | ug/l | 0 | | | | 0.1700 | | | | 0.1700 | | | | 0.01700 | | | | 0.01700 | | | | 0.01700 | 0.01700 |
| Bis2-Chloroethyl Ether | ug/l | 0 | | | | 22.00 | | | | 22.00 | | | | 2.200 | | | | 2.200 | | | | 2.200 | 2.200 |
| Bis2-Chloroisopropyl Ether | ug/l | 0 | | | | 4.000 | | | | 4.000 | | | | 400.0 | | | | 400.0 | | | | 400.0 | 400.0 |
| Bis 2-Ethylhexyl Phthalate | ug/l | 0 | | | | 3.700 | | | | 3.700 | | | | 0.3700 | | | | 0.3700 | | | | 0.3700 | 0.3700 |
| Bromoform | ug/l | 0 | | | | 1.200 | | | | 1.200 | | | | 120.0 | | | | 120.0 | | | | 120.0 | 120.0 |
| Butylbenzylphthalate | ug/l | 0 | | | | 1.000 | | | | 1.000 | | | | 0.1000 | | | | 0.1000 | | | | 0.1000 | 0.1000 |
| Cadmium | ug/l | 0 | 0.9381 | 0.4264 | | | 0.9381 | 0.4264 | | | 0.2345 | 0.1066 | | | 0.2345 | 0.1066 | | | 0.2345 | 0.1066 | | | 0.06396 |
| Carbon Tetrachloride | ug/l | 0 | | | | 50.00 | | | | 50.00 | | | | 5.000 | | | | 5.000 | | | | 5.000 | 5.000 |
| Carbaryl | ug/l | 0 | 2.100 | 2.100 | | | 2.100 | 2.100 | | | 0.5250 | 0.5250 | | | 0.5250 | 0.5250 | | | 0.5250 | 0.5250 | | | 0.2100 |
| Chlordane | ug/l | 0 | 2.400 | 0.004300 | | 0.003200 | 2.400 | 0.004300 | | 0.003200 | 0.6000 | 0.001075 | | 0.0003200 | 0.6000 | 0.001075 | | 0.0003200 | 0.6000 | 0.001075 | | 0.0003200 | 0.0003200 |
| Chloride | ug/l | 0 | 8.600e+5 | 2.300e+5 | | | 8.600e+5 | 2.300e+5 | | | 2.150e+5 | 5.750e+4 | | | 2.150e+5 | 5.750e+4 | | | 2.150e+5 | 5.750e+4 | | | 3.450e+4 |
| TRC | mg/l | 0 | 0.01900 | 0.01100 | | | 0.01900 | 0.01100 | | | 0.004750 | 0.002750 | | | 0.004750 | 0.002750 | | | 0.004750 | 0.002750 | | | 0.001650 |
| Chlorobenzene | ug/l | 0 | | | | 800.0 | | | | 800.0 | | | | 80.00 | | | | 80.00 | | | | 80.00 | 80.00 |
| Chlorodibromomethane | ug/l | 0 | | | | 210.0 | | | | 210.0 | | | | 21.00 | | | | 21.00 | | | | 21.00 | 21.00 |
| Chloroform | ug/l | 0 | | | | 2.000 | | | | 2.000 | | | | 200.0 | | | | 200.0 | | | | 200.0 | 200.0 |
| 2-Chloronaphthalene | ug/l | 0 | | | | 1.000 | | | | 1.000 | | | | 100.0 | | | | 100.0 | | | | 100.0 | 100.0 |
| 2-Chlorophenol | ug/l | 0 | | | | 800.0 | | | | 800.0 | | | | 80.00 | | | | 80.00 | | | | 80.00 | 80.00 |
| Chlorpyrifos | ug/l | 0 | 0.08300 | 0.04100 | | | 0.08300 | 0.04100 | | | 0.02075 | 0.01025 | | | 0.02075 | 0.01025 | | | 0.02075 | 0.01025 | | | 0.006150 |
| Chromium III | ug/l | 0 | 323.0 | 42.01 | | | 323.0 | 42.01 | | | 80.74 | 10.50 | | | 80.74 | 10.50 | | | 80.74 | 10.50 | | | 6.302 |
| Chromium VI | ug/l | 0 | 16.00 | 11.00 | | | 16.00 | 11.00 | | | 4.000 | 2.750 | | | 4.000 | 2.750 | | | 4.000 | 2.750 | | | 1.600 |
| Chromium, Total | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Chrysene | ug/l | 0 | | | | 1.300 | | | | 1.300 | | | | 0.1300 | | | | 0.1300 | | | | 0.1300 | 0.1300 |
| Copper | ug/l | 0 | 6.994 | 4.953 | | | 6.994 | 4.953 | | | 1.749 | 1.238 | | | 1.749 | 1.238 | | | 1.749 | 1.238 | | | 0.6994 |
| Cyanide, Free | ug/l | 0 | 22.00 | 5.200 | | 400.0 | 22.00 | 5.200 | | 400.0 | 5.500 | 1.300 | | 40.00 | 5.500 | 1.300 | | 40.00 | 5.500 | 1.300 | | 40.00 | 0.7800 |
| DDD | ug/l | 0 | | | | 0.001200 | | | | 0.001200 | | | | 0.0001200 | | | | 0.0001200 | | | | 0.0001200 | 0.0001200 |
| DDE | ug/l | 0 | | | | 0.0001800 | | | | 0.0001800 | | | | 0.00001800 | | | | 0.00001800 | | | | 0.00001800 | 0.00001800 |
| DDT | ug/l | 0 | 1.100 | 0.001000 | | 0.0003000 | 1.100 | 0.001000 | | 0.0003000 | 0.2750 | 0.0002500 | | 0.00003000 | 0.2750 | 0.0002500 | | 0.00003000 | 0.2750 | 0.0002500 | | 0.00003000 | 0.00003000 |
| Demeton | ug/l | 0 | | 0.1000 | | | | 0.1000 | | | | 0.02500 | | | | 0.02500 | | | | 0.02500 | | | 0.02500 |
| Diazinon | ug/l | 0 | 0.1700 | 0.1700 | | | 0.1700 | 0.1700 | | | 0.04250 | 0.04250 | | | 0.04250 | 0.04250 | | | 0.04250 | 0.04250 | | | 0.01700 |
| Dibenz(a,h)anthracene | ug/l | 0 | | | | 0.001300 | | | | 0.001300 | | | | 0.0001300 | | | | 0.0001300 | | | | 0.0001300 | 0.0001300 |
| 1,2-Dichlorobenzene | ug/l | 0 | | | | 3.000 | | | | 3.000 | | | | 300.0 | | | | 300.0 | | | | 300.0 | 300.0 |
| 1,3-Dichlorobenzene | ug/l | 0 | | | | 10.00 | | | | 10.00 | | | | 1.000 | | | | 1.000 | | | | 1.000 | 1.000 |
| 1,4-Dichlorobenzene | ug/l | 0 | | | | 900.0 | | | | 900.0 | | | | 90.00 | | | | 90.00 | | | | 90.00 | 90.00 |
| 3,3-Dichlorobenzidine | ug/l | 0 | | | | 1.500 | | | | 1.500 | | | | 0.1500 | | | | 0.1500 | | | | 0.1500 | 0.1500 |
| Dichlorobromomethane | ug/l | 0 | | | | 270.0 | | | | 270.0 | | | | 27.00 | | | | 27.00 | | | | 27.00 | 27.00 |
| 1,2-Dichloroethane | ug/l | 0 | | | | 6.500 | | | | 6.500 | | | | 650.0 | | | | 650.0 | | | | 650.0 | 650.0 |
| 1,1-Dichloroethylene | ug/l | 0 | | | | 2.000e+4 | | | | 2.000e+4 | | | | 2,000 | | | | 2,000 | | | | 2,000 | 2,000 |
| 1,2-trans-dichloroethylene | ug/l | 0 | | | | 4,000 | | | | 4,000 | | | | 400.0 | | | | 400.0 | | | | 400.0 | 400.0 |
| 2,4-Dichlorophenol | ug/l | 0 | | | | 60.00 | | | | 60.00 | | | | 6.000 | | | | 6.000 | | | | 6.000 | 6.000 |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | ug/l | 0 | | | | 1,200e+4 | | | | 1,200e+4 | | | | 1,200 | | | | 1,200 | | | | 1,200 | 1,200 |
| 1,2-Dichloropropane | ug/l | 0 | | | | 310.0 | | | | 310.0 | | | | 31.00 | | | | 31.00 | | | | 31.00 | 31.00 |
| 1,3-Dichloropropene | ug/l | 0 | | | | 120.0 | | | | 120.0 | | | | 12.00 | | | | 12.00 | | | | 12.00 | 12.00 |
| Dieldrin | ug/l | 0 | 0.2400 | 0.05600 | | 0.00001200 | 0.2400 | 0.05600 | | 0.00001200 | 0.06000 | 0.01400 | | 0.000001200 | 0.06000 | 0.01400 | | 0.000001200 | 0.06000 | 0.01400 | | 0.000001200 | 0.000001200 |
| Diethyl Phthalate | ug/l | 0 | | | | 600.0 | | | | 600.0 | | | | 60.00 | | | | 60.00 | | | | 60.00 | 60.00 |
| 2,4-Dimethylphenol | ug/l | 0 | | | | 3,000 | | | | 3,000 | | | | 300.0 | | | | 300.0 | | | | 300.0 | 300.0 |

| Parameter | Units | Background Concentration | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method Target Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | |
| Dimethyl Phthalate | ug/l | 0 | | | | 2,000 | | | | 2,000 | | | | 200.0 | | | | 200.0 | | | | 200.0 | 200.0 |
| Di-n-Butyl Phthalate | ug/l | 0 | | | | 30,00 | | | | 30,00 | | | | 3,000 | | | | 3,000 | | | | 3,000 | 3,000 |
| 2,4 Dinitrophenol | ug/l | 0 | | | | 300.0 | | | | 300,0 | | | | 30,00 | | | | 30,00 | | | | 30,00 | 30,00 |
| Dinitrophenols | ug/l | 0 | | | | 1,000 | | | | 1,000 | | | | 100,0 | | | | 100,0 | | | | 100,0 | 100,0 |
| 2-Methyl-4,6-Dinitrophenol | ug/l | 0 | | | | 30,00 | | | | 30,00 | | | | 3,000 | | | | 3,000 | | | | 3,000 | 3,000 |
| 2,4-Dinitrotoluene | ug/l | 0 | | | | 17.00 | | | | 17.00 | | | | 1.700 | | | | 1.700 | | | | 1.700 | 1.700 |
| Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin | ug/l | 0 | | | | 5.100e-8 | | | | 5.100e-8 | | | | 5.100e-9 | | | | 5.100e-9 | | | | 5.100e-9 | 5.100e-9 |
| 1,2-Diphenylhydrazine | ug/l | 0 | | | | 2.000 | | | | 2.000 | | | | 0.2000 | | | | 0.2000 | | | | 0.2000 | 0.2000 |
| Alpha-Endosulfan | ug/l | 0 | 0.2200 | 0.05600 | | 30.00 | 0.2200 | 0.05600 | | 30.00 | 0.05500 | 0.01400 | | 3.000 | 0.05500 | 0.01400 | | 3.000 | 0.05500 | 0.01400 | | 3.000 | 0.008400 |
| Beta-Endosulfan | ug/l | 0 | 0.2200 | 0.05600 | | 40.00 | 0.2200 | 0.05600 | | 40.00 | 0.05500 | 0.01400 | | 4.000 | 0.05500 | 0.01400 | | 4.000 | 0.05500 | 0.01400 | | 4.000 | 0.008400 |
| Alpha + Beta Endosulfan | ug/l | 0 | 0.2200 | 0.05600 | | | 0.2200 | 0.05600 | | | 0.05500 | 0.01400 | | | 0.05500 | 0.01400 | | | 0.05500 | 0.01400 | | | 0.008400 |
| Endosulfan Sulfate | ug/l | 0 | | | | 40.00 | | | | 40.00 | | | | 4.000 | | | | 4.000 | | | | 4.000 | 4.000 |
| Endrin | ug/l | 0 | 0.08600 | 0.03600 | | 0.03000 | 0.08600 | 0.03600 | | 0.03000 | 0.02150 | 0.009000 | | 0.003000 | 0.02150 | 0.009000 | | 0.003000 | 0.02150 | 0.009000 | | 0.003000 | 0.003000 |
| Endrin Aldehyde | ug/l | 0 | | | | 1.000 | | | | 1.000 | | | | 0.1000 | | | | 0.1000 | | | | 0.1000 | 0.1000 |
| Ethylbenzene | ug/l | 0 | | | | 130.0 | | | | 130.0 | | | | 13.00 | | | | 13.00 | | | | 13.00 | 13.00 |
| Fluoranthene | ug/l | 0 | | | | 20.00 | | | | 20.00 | | | | 2.000 | | | | 2.000 | | | | 2.000 | 2.000 |
| Fluorene | ug/l | 0 | | | | 70.00 | | | | 70.00 | | | | 7.000 | | | | 7.000 | | | | 7.000 | 7.000 |
| Foaming Agents | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Guthion | ug/l | 0 | | 0.01000 | | | | 0.01000 | | | | 0.002500 | | | | 0.002500 | | | | 0.002500 | | | 0.002500 |
| Heptachlor | ug/l | 0 | 0.5200 | 0.003800 | | 0.00005900 | 0.5200 | 0.003800 | | 0.00005900 | 0.1300 | 0.0009500 | | 0.000005900 | 0.1300 | 0.0009500 | | 0.000005900 | 0.1300 | 0.0009500 | | 0.000005900 | 0.000005900 |
| Heptachlor Epoxide | ug/l | 0 | 0.5200 | 0.003800 | | 0.0003200 | 0.5200 | 0.003800 | | 0.0003200 | 0.1300 | 0.0009500 | | 0.00003200 | 0.1300 | 0.0009500 | | 0.00003200 | 0.1300 | 0.0009500 | | 0.00003200 | 0.00003200 |
| Hexachlorobenzene | ug/l | 0 | | | | 0.0007900 | | | | 0.0007900 | | | | 0.00007900 | | | | 0.00007900 | | | | 0.00007900 | 0.00007900 |
| Hexachlorobutadiene | ug/l | 0 | | | | 0.1000 | | | | 0.1000 | | | | 0.01000 | | | | 0.01000 | | | | 0.01000 | 0.01000 |
| Hexachlorocyclohexane Alpha-BHC | ug/l | 0 | | | | 0.003900 | | | | 0.003900 | | | | 0.0003900 | | | | 0.0003900 | | | | 0.0003900 | 0.0003900 |
| Hexachlorocyclohexane Beta-BHC | ug/l | 0 | | | | 0.1400 | | | | 0.1400 | | | | 0.01400 | | | | 0.01400 | | | | 0.01400 | 0.01400 |
| Hexachlorocyclohexane Gamma-BHC (Lindane) | ug/l | 0 | 0.9500 | | | 4.400 | 0.9500 | | | 4.400 | 0.2375 | | | 0.4400 | 0.2375 | | | 0.4400 | 0.2375 | | | 0.4400 | 0.09500 |
| Hexachlorocyclohexane (HCH) - Technical | ug/l | 0 | | | | 0.1000 | | | | 0.1000 | | | | 0.01000 | | | | 0.01000 | | | | 0.01000 | 0.01000 |
| Hexachlorocyclopentadiene | ug/l | 0 | | | | 4.000 | | | | 4.000 | | | | 0.4000 | | | | 0.4000 | | | | 0.4000 | 0.4000 |
| Hexachloroethane | ug/l | 0 | | | | 1.000 | | | | 1.000 | | | | 0.1000 | | | | 0.1000 | | | | 0.1000 | 0.1000 |
| Hydrogen Sulfide | ug/l | 0 | | 2.000 | | | | 2.000 | | | | 0.5000 | | | | 0.5000 | | | | 0.5000 | | | 0.5000 |
| Indeno (1,2,3-cd) pyrene | ug/l | 0 | | | | 0.01300 | | | | 0.01300 | | | | 0.001300 | | | | 0.001300 | | | | 0.001300 | 0.001300 |
| Iron | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Isophorone | ug/l | 0 | | | | 1.800e+4 | | | | 1.800e+4 | | | | 1,800 | | | | 1,800 | | | | 1,800 | 1,800 |
| Kepone | ug/l | 0 | | 0.000 | | | | 0.000 | | | | 0.000 | | | | 0.000 | | | | 0.000 | | | 0.000 |
| Lead | ug/l | 0 | 43.89 | 4.986 | | | 43.89 | 4.986 | | | 10.97 | 1.247 | | | 10.97 | 1.247 | | | 10.97 | 1.247 | | | 0.7480 |
| Malathion | ug/l | 0 | | 0.1000 | | | | 0.1000 | | | | 0.02500 | | | | 0.02500 | | | | 0.02500 | | | 0.02500 |
| Mercury | ug/l | 0 | 1.400 | 0.7700 | | | 1.400 | 0.7700 | | | 0.3500 | 0.1925 | | | 0.3500 | 0.1925 | | | 0.3500 | 0.1925 | | | 0.1155 |
| Methyl Bromide | ug/l | 0 | | | | 1.000e+4 | | | | 1.000e+4 | | | | 1,000 | | | | 1,000 | | | | 1,000 | 1,000 |
| 3-Methyl-4-Chlorophenol | ug/l | 0 | | | | 2,000 | | | | 2,000 | | | | 200.0 | | | | 200.0 | | | | 200.0 | 200.0 |
| Methylene Chloride | ug/l | 0 | | | | 1,000 | | | | 1,000 | | | | 100.0 | | | | 100.0 | | | | 100.0 | 100.0 |
| Methoxychlor | ug/l | 0 | | 0.03000 | | 0.02000 | | 0.03000 | | | | 0.007500 | | 0.002000 | | 0.007500 | | 0.002000 | | 0.007500 | | 0.002000 | 0.002000 |
| Mirex | ug/l | 0 | | 0.000 | | | | 0.000 | | | | 0.000 | | | | 0.000 | | | | 0.000 | | | 0.000 |
| Nickel | ug/l | 0 | 101.5 | 11.27 | | 4,600 | 101.5 | 11.27 | | 4,600 | 25.36 | 2.819 | | 460.0 | 25.36 | 2.819 | | 460.0 | 25.36 | 2.819 | | 460.0 | 1.691 |
| Nitrate (as N) | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Nitrobenzene | ug/l | 0 | | | | 600.0 | | | | 600.0 | | | | 60.00 | | | | 60.00 | | | | 60.00 | 60.00 |
| N-Nitrosodimethylamine | ug/l | 0 | | | | 30.00 | | | | 30.00 | | | | 3.000 | | | | 3.000 | | | | 3.000 | 3.000 |
| N-Nitrosodiphenylamine | ug/l | 0 | | | | 60.00 | | | | 60.00 | | | | 6.000 | | | | 6.000 | | | | 6.000 | 6.000 |
| N-Nitrosodi-n-propylamine | ug/l | 0 | | | | 5.100 | | | | 5.100 | | | | 0.5100 | | | | 0.5100 | | | | 0.5100 | 0.5100 |
| Nonylphenol | ug/l | 0 | 28.00 | 6.600 | | | 28.00 | 6.600 | | | 7.000 | 1.650 | | | 7.000 | 1.650 | | | 7.000 | 1.650 | | | 0.9900 |
| Parathion | ug/l | 0 | 0.06500 | 0.01300 | | | 0.06500 | 0.01300 | | | 0.01625 | 0.003250 | | | 0.01625 | 0.003250 | | | 0.01625 | 0.003250 | | | 0.001950 |
| PCB Total | ug/l | 0 | | 0.01400 | | 0.0006400 | | 0.01400 | | 0.0006400 | | 0.003500 | | 0.00006400 | | 0.003500 | | 0.00006400 | | 0.003500 | | 0.00006400 | 0.00006400 |
| Pentachlorobenzene | ug/l | 0 | | | | 0.1000 | | | | 0.1000 | | | | 0.01000 | | | | 0.01000 | | | | 0.01000 | 0.01000 |
| Pentachlorophenol | ug/l | 0 | 8.723 | 6.693 | | 0.4000 | 8.723 | 6.693 | | 0.4000 | 2.181 | 1.673 | | 0.04000 | 2.181 | 1.673 | | 0.04000 | 2.181 | 1.673 | | 0.04000 | 0.04000 |
| Phenol | ug/l | 0 | | | | 3.000e+5 | | | | 3.000e+5 | | | | 3.000e+4 | | | | 3.000e+4 | | | | 3.000e+4 | 3.000e+4 |
| Pyrene | ug/l | 0 | | | | 30.00 | | | | 30.00 | | | | 3.000 | | | | 3.000 | | | | 3.000 | 3.000 |
| Radionuclides | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Gross Alpha Activity | pCi/L | 0 | | | | | | | | | | | | | | | | | | | | | |
| Beta and Photon Activity | mrem/yr | 0 | | | | | | | | | | | | | | | | | | | | | |
| Radium 226 + 228 | pCi/L | 0 | | | | | | | | | | | | | | | | | | | | | |
| Uranium | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Selenium, Total Recoverable | ug/l | 0 | 20.00 | 5.000 | | 4,200 | 20.00 | 5.000 | | 4,200 | 5.000 | 1.250 | | 420.0 | 5.000 | 1.250 | | 420.0 | 5.000 | 1.250 | | 420.0 | 0.7500 |

| Parameter | Units | Background Concentration | Water Quality Criteria | | | | Wasteload Allocations | | | | Antidegradation Baseline | | | | Antidegradation Allocations | | | | Most Limiting Allocations | | | | Method Target Value |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | Acute | Chronic | HH(PWS) | HH | |
| Silver | ug/l | 0 | 1.047 | | | | 1.047 | | | | 0.2618 | | | | 0.2618 | | | | 0.2618 | | | | 0.1047 |
| Sulfate | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | ug/l | 0 | | | | 0.03000 | | | | 0.03000 | | | | 0.003000 | | | | 0.003000 | | | | 0.003000 | 0.003000 |
| 1,1,2,2-Tetrachloroethane | ug/l | 0 | | | | 30.00 | | | | 30.00 | | | | 3.000 | | | | 3.000 | | | | 3.000 | 3.000 |
| Tetrachloroethylene | ug/l | 0 | | | | 290.0 | | | | 290.0 | | | | 29.00 | | | | 29.00 | | | | 29.00 | 29.00 |
| Thallium | ug/l | 0 | | | | 0.4700 | | | | 0.4700 | | | | 0.04700 | | | | 0.04700 | | | | 0.04700 | 0.04700 |
| Toluene | ug/l | 0 | | | | 520.0 | | | | 520.0 | | | | 52.00 | | | | 52.00 | | | | 52.00 | 52.00 |
| Total dissolved solids | ug/l | 0 | | | | | | | | | | | | | | | | | | | | | |
| Toxaphene | ug/l | 0 | 0.7300 | 0.0002000 | | 0.007100 | 0.7300 | 0.0002000 | | 0.007100 | 0.1825 | 0.00005000 | | 0.0007100 | 0.1825 | 0.00005000 | | 0.0007100 | 0.1825 | 0.00005000 | | 0.0007100 | 0.00003000 |
| Tributyltin | ug/l | 0 | 0.4600 | 0.07200 | | | 0.4600 | 0.07200 | | | 0.1150 | 0.01800 | | | 0.1150 | 0.01800 | | | 0.1150 | 0.01800 | | | 0.01080 |
| 1,2,4-Trichlorobenzene | ug/l | 0 | | | | 0.7600 | | | | 0.7600 | | | | 0.07600 | | | | 0.07600 | | | | 0.07600 | 0.07600 |
| 1,1,1-Trichloroethane | ug/l | 0 | | | | 2.000e+5 | | | | 2.000e+5 | | | | 2.000e+4 | | | | 2.000e+4 | | | | 2.000e+4 | 2.000e+4 |
| 1,1,2-Trichloroethane | ug/l | 0 | | | | 89.00 | | | | 89.00 | | | | 8.900 | | | | 8.900 | | | | 8.900 | 8.900 |
| Trichloroethylene | ug/l | 0 | | | | 70.00 | | | | 70.00 | | | | 7.000 | | | | 7.000 | | | | 7.000 | 7.000 |
| 2,4,5-Trichlorophenol | ug/l | 0 | | | | 600.0 | | | | 600.0 | | | | 60.00 | | | | 60.00 | | | | 60.00 | 60.00 |
| 2,4,6-Trichlorophenol | ug/l | 0 | | | | 28.00 | | | | 28.00 | | | | 2.800 | | | | 2.800 | | | | 2.800 | 2.800 |
| 2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex) | ug/l | 0 | | | | 400.0 | | | | | | | | 40.00 | | | | 40.00 | | | | 40.00 | 40.00 |
| Vinyl Chloride | ug/l | 0 | | | | 16.00 | | | | 16.00 | | | | 1.600 | | | | 1.600 | | | | 1.600 | 1.600 |
| Zinc | ug/l | 0 | 65.13 | 65.66 | | 2.600e+4 | 65.13 | 65.66 | | 2.600e+4 | 16.28 | 16.42 | | 2.600 | 16.28 | 16.42 | | 2.600 | 16.28 | 16.42 | | 2.600 | 6.513 |

Notes:

1. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals.
2. Metals measured as Dissolved, unless specified otherwise.
3. Regular WLA are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information. Antidegradation WLAs are based upon a complete mix.
4. Antidegradation Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic.
   Antidegradation Baseline = (0.10(WQC - background conc.) + background conc.) for human health.
5. WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio-1), effluent equal to 1 and 100% mix.
6. The following water effect ratios (WERs) were applied to metal water quality criteria computations: Cd = 1 , Cr = 1 , Cu = 1 , Pb = 1 , Ni = 1 , Ag = 1 , Zn = 1

# Attachment 9

**VaFWIS Search Report** Compiled on 8/31/2021, 2:12:45 PM

Help

Known or likely to occur within a **3 mile radius around point 38,39,31.0 -77,11,41.0** in **059 Fairfax County, 153 Prince William County, VA**

View Map of Site Location

731 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 32) (32 species with Status* or Tier I** or Tier II** )

| BOVA Code | Status* | Tier** | Common Name | Scientific Name |
|---|---|---|---|---|
| 010032 | FESE | Ib | Sturgeon, Atlantic | Acipenser oxyrinchus |
| 050022 | FTST | Ia | Bat, northern long-eared | Myotis septentrionalis |
| 060029 | FTST | IIa | Lance, yellow | Elliptio lanceolata |
| 050020 | SE | Ia | Bat, little brown | Myotis lucifugus |
| 050027 | SE | Ia | Bat, tri-colored | Perimyotis subflavus |
| 060006 | SE | Ib | Floater, brook | Alasmidonta varicosa |
| 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta |
| 040096 | ST | Ia | Falcon, peregrine | Falco peregrinus |
| 040293 | ST | Ia | Shrike, loggerhead | Lanius ludovicianus |
| 040379 | ST | Ia | Sparrow, Henslow's | Centronyx henslowii |
| 100155 | ST | Ia | Skipper, Appalachian grizzled | Pyrgus wyandot |
| 040292 | ST | | Shrike, migrant loggerhead | Lanius ludovicianus migrans |
| 030063 | CC | IIIa | Turtle, spotted | Clemmys guttata |
| 030012 | CC | IVa | Rattlesnake, timber | Crotalus horridus |
| 010077 | | Ia | Shiner, bridle | Notropis bifrenatus |
| 040040 | | Ia | Ibis, glossy | Plegadis falcinellus |
| 040306 | | Ia | Warbler, golden-winged | Vermivora chrysoptera |
| 100248 | | Ia | Fritillary, regal | Speyeria idalia idalia |
| 040213 | | Ic | Owl, northern saw-whet | Aegolius acadicus |
| 070027 | | Ic | Amphipod, Northern Virginia well | Stygobromus phreaticus |
| 040052 | | IIa | Duck, American black | Anas rubripes |
| 040033 | | IIa | Egret, snowy | Egretta thula |
| 040029 | | IIa | Heron, little blue | Egretta caerulea caerulea |
| 040036 | | IIa | Night-heron, yellow-crowned | Nyctanassa violacea violacea |
| 040181 | | IIa | Tern, common | Sterna hirundo |
| 040320 | | IIa | Warbler, cerulean | Setophaga cerulea |
| 040140 | | IIa | Woodcock, American | Scolopax minor |
| 060071 | | IIa | Lampmussel, yellow | Lampsilis cariosa |
| 040203 | | IIb | Cuckoo, black-billed | Coccyzus erythropthalmus |
| 040105 | | IIb | Rail, king | Rallus elegans |
| 040304 | | IIc | Warbler, Swainson's | Limnothlypis swainsonii |
| 100154 | | IIc | Butterfly, Persius duskywing | Erynnis persius persius |

To view **All 731 species** View 731

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
Virginia Wildlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented.; b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.;
c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

**Anadromous Fish Use Streams** ( 5 records )

View Map of All Anadromous Fish Use Streams

| Stream ID | Stream Name | Reach Status | Anadromous Fish Species | | | View Map |
|---|---|---|---|---|---|---|
| | | | Different Species | Highest TE* | Highest Tier** | |
| C2 | Accotink creek | Confirmed | 2 | | IV | Yes |
| C57 | Occoquan river | Confirmed | 6 | | IV | Yes |
| C62 | Pohick creek | Confirmed | 3 | | IV | Yes |
| C64 | Potomac river | Confirmed | 6 | | IV | Yes |
| P112 | Marumsco creek | Potential | 0 | | | Yes |

**Impediments to Fish Passage** ( 1 records )

View Map of All Fish Impediments

| ID | Name | River | View Map |
|---|---|---|---|
| 1292 | I-95 | GILES RUN | Yes |

**Threatened and Endangered Waters** ( 2 Reaches )

View Map of All Threatened and Endangered Waters

| Stream Name | T&E Waters Species | | | | | | View Map |
|---|---|---|---|---|---|---|---|
| | Highest TE* | BOVA Code, Status*, Tier**, Common & Scientific Name | | | | | |
| Accotink Creek (019916 ) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |
| Accotink Creek (09391 ) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |

**Managed Trout Streams**

N/A

**Bald Eagle Concentration Areas and Roosts**

**are present.** View Map of Bald Eagle Concentration Areas and Roosts

( 7 records )

| BECAR ID | Observation Year | Authority | Type | Comments | View Map |
|---|---|---|---|---|---|
| 15 | 1994 | M.A. Byrd (W&M), K. Cline (VDGIF) | Roost | Count Unknown | Yes |
| 53 | 2006 - 2007 | VDGIF, Center for Conservation Biology | Summer Concentration Area | Eagle_use High | Yes |
| 54 | 2006 - 2007 | VDGIF, Center for Conservation Biology | Summer Concentration Area | Eagle_use Low | Yes |
| 55 | 2006 - 2007 | VDGIF, Center for Conservation Biology | Summer Concentration Area | Eagle_use Moderate | Yes |
| 56 | 2006 - 2007 | VDGIF, Center for Conservation Biology | Winter Concentration Area | Eagle_use High | Yes |
| 57 | 2006 - 2007 | VDGIF, Center for Conservation Biology | Winter Concentration Area | Eagle_use Low | Yes |
| 58 | 2006 - 2007 | VDGIF, Center for Conservation Biology | Winter Concentration Area | Eagle_use Moderate | Yes |

**Bald Eagle Nests** ( 25 records )

View Map of All Query Results Bald Eagle Nests

| Nest | N Obs | Latest Date | DGIF Nest Status | View Map |
|---|---|---|---|---|
| FF0001 | 3 | Apr 27 2000 | HISTORIC | Yes |
| FF0002 | 14 | Apr 24 2008 | Unknown | Yes |
| FF0102 | 10 | Apr 29 2007 | HISTORIC | Yes |
| FF0201 | 3 | Jan 1 2003 | HISTORIC | Yes |
| FF0402 | 5 | May 3 2006 | HISTORIC | Yes |
| FF0403 | 9 | Apr 24 2008 | Unknown | Yes |
| FF0404 | 5 | May 3 2006 | HISTORIC | Yes |
| FF0601 | 5 | Apr 29 2007 | HISTORIC | Yes |
| FF0701 | 4 | May 4 2008 | Unknown | Yes |
| FF0702 | 4 | Apr 24 2008 | Unknown | Yes |
| FF0704 | 4 | Apr 24 2008 | Unknown | Yes |
| FF0705 | 4 | Apr 24 2008 | Unknown | Yes |
| FF0801 | 2 | Apr 24 2008 | Unknown | Yes |
| FF6302 | 1 | Jun 4 1977 | HISTORIC | Yes |
| FF7801 | 2 | May 25 1979 | HISTORIC | Yes |
| FF8001 | 28 | Apr 27 2000 | HISTORIC | Yes |
| FF8301 | 2 | May 26 1984 | HISTORIC | Yes |
| FF8901 | 21 | Apr 27 2000 | HISTORIC | Yes |
| FF9001 | 2 | Jan 1 1991 | HISTORIC | Yes |
| FF9202 | 18 | Apr 27 2000 | HISTORIC | Yes |
| FF9402 | 2 | Jan 1 1994 | HISTORIC | Yes |
| FF9601 | 22 | Apr 24 2008 | Unknown | Yes |
| FF9602 | 21 | Apr 24 2008 | Unknown | Yes |
| FF9701 | 20 | May 4 2008 | Unknown | Yes |
| PW0501 | 6 | Apr 29 2007 | HISTORIC | Yes |

Displayed 25 Bald Eagle Nests

**Habitat Predicted for Aquatic WAP Tier I & II Species** ( 4 Reaches )

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

| Stream Name | Tier Species | | | | | | View Map |
|---|---|---|---|---|---|---|---|
| | Highest TE* | BOVA Code, Status*, Tier**, Common & Scientific Name | | | | | |
| Accotink Creek (20700102) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |
| Kanes Creek (20700102) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |
| South Run (20700102) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |
| tributary (20700102) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |
| tributary (20700102) | ST | 030062 | ST | Ia | Turtle, wood | Glyptemys insculpta | Yes |

**Habitat Predicted for Terrestrial WAP Tier I & II Species** ( 3 Species )

View Map of Combined Terrestrial Habitat Predicted for 3 WAP Tier I & II Species Listed Below

ordered by Status Concern for Conservation

| BOVA Code | Status* | Tier** | Common Name | Scientific Name | View Map |
|---|---|---|---|---|---|
| 040105 | | IIb | Rail, king | Rallus elegans | Yes |

| | | | | | |
|---|---|---|---|---|---|
| 040038 | | | Bittern, American | Botaurus lentiginosus | Yes |
| 040093 | | | Eagle, bald | Haliaeetus leucocephalus | Yes |

**Virginia Breeding Bird Atlas Blocks** ( 6 records )

View Map of All Query Results
Virginia Breeding Bird Atlas Blocks

| BBA ID | Atlas Quadrangle Block Name | Breeding Bird Atlas Species | | | View Map |
|---|---|---|---|---|---|
| | | Different Species | Highest TE* | Highest Tier** | |
| 53184 | Fort Belvoir, CE | 85 | | II | Yes |
| 53183 | Fort Belvoir, CW | 37 | | III | Yes |
| 53186 | Fort Belvoir, SE | 72 | | II | Yes |
| 53185 | Fort Belvoir, SW | 83 | | II | Yes |
| 53172 | Indian Head, NE | 1 | | | Yes |
| 53171 | Indian Head, NW | 2 | | | Yes |

**Public Holdings:** ( 4 names )

| Name | Agency | Level |
|---|---|---|
| Fort Belvoir Military Reservation | U.S. Dept. of Army | Federal |
| Woodbridge Research / Diamond Laboratories | U.S. Dept. of Army | Federal |
| Mason Neck National Wildlife Refuge | U.S. Fish and Wildlife Service | Federal |
| Mason Neck State Park | VA Dept. of Conservation and Recreation | State |

**Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:**

| FIPS Code | City and County Name | Different Species | Highest TE | Highest Tier |
|---|---|---|---|---|
| 059 | Fairfax | 559 | FESE | I |
| 153 | Prince William | 483 | FESE | I |

**USGS 7.5' Quadrangles:**
Indian Head
Fort Belvoir

**USGS NRCS Watersheds in Virginia:**

N/A

**USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:**

| HU6 Code | USGS 6th Order Hydrologic Unit | Different Species | Highest TE | Highest Tier |
|---|---|---|---|---|
| PL29 | Pohick Creek | 75 | ST | I |
| PL30 | Accotink Creek | 81 | SE | I |
| PL48 | Occoquan River-Belmont Bay | 74 | ST | I |
| PL50 | Potomac River-Occoquan Bay | 74 | ST | I |

Compiled on 8/31/2021, 2:12:46 PM V1125036.0 reportV searchType= R dist= 4828.032 pol= 38,39,31.0 -77,11,41.0

# Attachment 10

# Pt. of View

02 September, 2021

**Input Parameters:**

| | |
|---|---|
| Parameter Analyzed: | Ammonia (old criteria) |
| Chronic Averaging Period: | 30 day |
| $WLA_a$: | 2.102 mg/L |
| $WLA_c$: | NA |
| Q.L.: | 1 mg/L |
| # Samples/Mo.: | 1 |
| # Samples/Wk.: | 1 |

**Statistical Results**

| | |
|---|---|
| # Observations: | 1 |
| Expected Value: | 9.0000 mg/L |
| Variance: | 29.1600 $mg^2/L^2$ |
| C.V.: | 0.6000 |
| $97^{th}$ percentile daily values: | 21.8983 mg/L |
| $97^{th}$ percentile 4 day average: | 14.9732 mg/L |
| $97^{th}$ percentile 30 day average: | 10.8543 mg/L |
| # Observations < Q.L.: | 0 |

**Limit Results**

| | |
|---|---|
| Model Used: | BPJ Assumptions, Type 2 data |
| Limit Needed?: | YES |
| Basis for Limit?: | Acute Toxicity |
| Maximum Daily Limit: | 2.1020 mg/L |
| Weekly Average Limit: | 2.1020 mg/L |
| Monthly Average Limit: | 2.1020 mg/L |

**Input Data** 9 mg/L

# Pt. of View

24 September, 2021

**Input Parameters:**

| | |
|---|---|
| Parameter Analyzed: | Chlorine |
| Chronic Averaging Period: | 4 day |
| $WLA_a$: | 0.00475 mg/L |
| $WLA_c$: | 0.00275 mg/L |
| Q.L.: | 0.1 mg/L |
| # Samples/Mo.: | 30 |
| # Samples/Wk.: | 7 |

**Statistical Results**

| | |
|---|---|
| # Observations: | 1 |
| Expected Value: | 0.2000 mg/L |
| Variance: | 0.0144 $mg^2/L^2$ |
| C.V.: | 0.6000 |
| $97^{th}$ percentile daily values: | 0.4866 mg/L |
| $97^{th}$ percentile 4 day average: | 0.3327 mg/L |
| $97^{th}$ percentile 30 day average: | 0.2412 mg/L |
| # Observations < Q.L.: | 0 |

**Limit Results**

| | |
|---|---|
| Model Used: | BPJ Assumptions, Type 2 data |
| Limit Needed?: | YES |
| Basis for Limit?: | Chronic Toxicity |
| Maximum Daily Limit: | 0.0040 mg/L |
| Weekly Average Limit: | 0.0025 mg/L |
| Monthly Average Limit: | 0.0020 mg/L |

**Input Data** 0.2 mg/L

# Attachment 11

# ARLINGTON COUNTY, VIRGINIA

**County Board Agenda Item**
**Meeting of July 18, 2015**

**DATE:** July 9, 2015

**SUBJECT:** Approval of the sale of nutrient allocations representing 183 pounds of nitrogen and three (3) pounds of phosphorus to George Mason University for a 6-year, 7-month term.

**C. M. RECOMMENDATIONS:**

1. Approve the County's sale of nutrient allocations to George Mason University;
2. Authorize the County Manager to execute the attached Agreement "(Agreement") with George Mason University, subject to review by the County Attorney.
3. Authorize the County Manager to execute future similar agreements without Board approval.

**ISSUES:** There are no outstanding issues. The Agreement does not alter The County's pre-existing agreement with the Virginia Nutrient Credit Exchange Association.

**SUMMARY:** George Mason University (GMU) recently approached the Water Pollution Control Bureau (WPCB) with a request to purchase nutrient allocations representing 183 pounds of nitrogen and three (3) pounds of phosphorus to make up for a shortfall at a new wastewater treatment plant they are constructing in Occoquan, Virginia. One pound of the nutrient allocation represents one pound of nitrogen or phosphorus that is treated and removed from the Water Pollution Control Plant's ("Plant") effluent below the levels allowed by the Plant's discharge permit. The County has sufficient allocation to sell.

The price negotiated with GMU for the nutrient allocation is $20 per pound per year. The annual revenue for this sale is $3,720. The term of the agreement is June 1, 2015 (retroactive) through December 31, 2021.

Virginia Department of Environmental Quality ("DEQ") approval of this sale is required to ensure that local water quality standards and all regulatory requirements are achieved.

County Manager: mgp / cqm

County Attorney:

32.

Staff: Mary Strawn, Department of Environmental Services

Provisional approval from DEQ has been obtained and final approval will be granted following a 30-day comment period on the proposed trade.
Similar private agreements may be negotiated in the future. As long as the terms and conditions remain similar to the GMU agreement and DEQ approval has been provided to ensure local water quality criteria are met, the County Manager recommends that authorization of these agreements be delegated to the County Manager.

**BACKGROUND:** In 2012, the County Board approved joining the Virginia Nutrient Credit Exchange. The purpose of the WPCB's participation in the Exchange is to support the water quality goals for the Chesapeake Bay by making credits available to others within the Shenandoah/Potomac watershed. A secondary goal is to return money to the Utility Fund when credits are purchased from the Exchange by other parties. Beginning in 2015, the County is now able to sell credits on the Exchange, in the form of Class B credits, which have a lower value. The County can sell the higher-value Class A credits starting in 2017.

The current Nutrient Credit Exchange system is complementary with existing nutrient discharge permit limits and local water quality standards. This nutrient credit trading system does not allow for any degradation of receiving water quality, is strongly supported by the Chesapeake Bay Foundation, and was unanimously supported by the Environment and Energy Conservation Commission on November 14, 2011 when the Board approved the County's entry into the Nutrient Credit Exchange.

**DISCUSSION:** The recent upgrades to the WPCB to increase the plant's capacity and improve the ability to reduce nitrogen and phosphorus in the plant's effluent were necessary and timely. Since these new treatment processes have been in place, the WPCB has consistently removed nitrogen and phosphorus significantly below permitted levels, creating excess allocation or nutrient credits that can be sold through the Nutrient Credit Exchange or otherwise.

The Exchange is a tool for facilities that are performing well to assist those who are unable to meet their goals. The Exchange incentivizes good performance by coupling environmental nutrient reduction with financial motivation. This market-based solution is more flexible, cost effective, and more rapidly meets the water quality goals for the Chesapeake Bay than a mandated regulatory solution. DEQ policies ensure that credit trading does not result in a degradation of water quality in local receiving streams or the Chesapeake Bay, and performance among the facilities participating in the Exchange shows that maximizing the credits is a common goal. The nutrient trading program has already exceeded DEQ's goals for the Exchange in terms of the reductions in nitrogen and phosphorus to the Bay and has resulted in Virginia being the best performing state contributing flow to the Bay. This program is similar to the power plant acid rain emissions trading program which was very successful in generating significant sulfur dioxide and nitrogen oxide emission reductions to improve air quality.

Joining the Exchange in 2012 allowed the WPCB an opportunity to obtain a return on investment for the recent facility upgrades and offset some of the incremental operating costs at the plant. It also allows us to sell credits on the Exchange or make private sales of our excess allocation outside of the Exchange.

GMU recently contacted the WPCB about the possible purchase of a portion of our allocation in order to offset the shortage in the capacity of their new wastewater treatment facility. The Department of Environmental Quality (DEQ) is requiring GMU to purchase the allocation in order to approve their new discharge permit. This sale is a good fit for the County because it makes use of some of the County's reserve allocation (which would otherwise not generate any revenue) and also aligns with the County's mission of protecting the environment in a safe and economical manner. All nutrient credit or allocation sales require DEQ approval. DEQ has reviewed the Agreement and has provided provisional approval with final approval to be granted following a 30-day comment period on the proposed sale.

GMU is requesting to buy allocations representing 183 pounds of nitrogen and three (3) pounds of phosphorus from the County. Each year, the WPCB has held some credits in reserve for the purposes of providing credits to the Stormwater Program, or to the County's Interjurisdictional (IJ) partners (Falls Church, Fairfax and AlexRenew, whose sewage flows are treated at the Plant) in the event that they should have a need for them. This sale would not deplete the allocation held in reserve. In 2015, the reserved allocation is 813 pounds of nitrogen and 105 pounds of phosphorus, rising to 6,524 pounds of nitrogen and 833 pounds of phosphorus in 2018. Therefore, a comfortable margin continues to be reserved should the Stormwater Program or one of the IJ partners need it in the future. The WPCB also maintains a buffer between our operating range and the projected performance to ensure that process upsets or bypasses do not impact the amount of credits available to the Exchange. The sale to GMU is a private sale that will not affect the amount of credits that are going to the Exchange.

The price negotiated with GMU for the nutrient allocation is $20 per pound per year, which is well above the incremental cost of treating the wastewater and is above the rate for private sales published by the Exchange. The annual revenue for this sale is $3,720. The term of the agreement is June 1, 2015 (retroactive) through December 31, 2021.

**FISCAL IMPACT:** The Utility Fund will receive $3,720 annually for this sale (7/12ths of the annual amount for 2015 retroactive starting June 1) through calendar year 2021, for a grand total of $24,490 over the term of the agreement.

# CHESAPEAKE BAY NUTRIENT OFFSET AGREEMENT

This Chesapeake Bay Nutrient Offset Agreement (this "Agreement") is made this 1 day of June, 2015, by and between Commonwealth of Virginia by the Rectors and Visitors of George Mason University ("Mason") and Arlington County, Virginia ("Arlington"), (each a "Party" and collectively the "Parties").

## BACKGROUND

A. To address public health and environmental concerns associated with the anticipated wastewater discharge from the academic and residential buildings of its School for Conflict Analysis and Resolution, Mason designed and constructed a new municipal wastewater treatment plant (the "Point of View Wastewater Treatment Plant").

B. The Virginia Department of Environmental Quality ("DEQ") has issued the necessary Virginia Pollutant Discharge Elimination System ("VPDES") Permit for the Point of View Wastewater Treatment Plant. The Point of View Wastewater Treatment Plant is also subject to the General Virginia Pollutant Discharge Elimination System Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia, 9 VAC 25-820, issued by the State Water Control Board and DEQ effective January 1, 2012, as hereafter modified or reissued from time to time (the "Watershed General Permit").

C. Pursuant to the above-referenced permits, DEQ has required Mason to offset the Point of View Wastewater Treatment Plant's anticipated discharge of the nutrients total nitrogen ("Nitrogen") and total phosphorus ("Phosphorus"). Mason has determined the need to obtain an offset in the amount of 183 pounds per year Nitrogen and 3 pounds per year Phosphorous.

D. In 2005, the State Water Control Board adopted amendments to its Water Quality Management Planning Regulation, 9 VAC 25-720, to establish Nitrogen and Phosphorus wasteload allocations for all then-existing significant wastewater treatment plants in the Chesapeake Bay watershed, including Arlington County's Water Pollution Control Plant.

E. Arlington's plant is also subject to the Watershed General Permit.

F. Due to exceptional performance and because Arlington's plant currently discharges less Nitrogen and Phosphorus than allowed under Arlington's Nitrogen and Phosphorus Allocations, Arlington currently has the ability to provide Nitrogen and Phosphorus offsets on a temporary basis sufficient to meet the offset requirements applicable to the new Point of View Wastewater Treatment Plant.

G. Pursuant to Code of Virginia sections 62.1-44.19:12 *et seq.*, 9 VAC 25-720-40 A, and 9 VAC 25-820-70, Part II B 1 a, Arlington is authorized to transfer in its discretion, and Mason is authorized to acquire, a portion of Arlington's Nitrogen and Phosphorous Allocations to satisfy Mason's offset obligation under the Watershed General Permit.

H. Based on Arlington's exceptional Nitrogen and Phosphorous treatment, DEQ recommended Arlington to Mason as a potential source of Nitrogen and Phosphorous offsets. Accordingly, in May 2015, Mason requested Arlington to provide Nitrogen allocation in the amount of 183 pounds Nitrogen per year and Phosphorus allocation in the amount of 3 pounds per year for a six-year and seven-month period.

I. DEQ confirmed that Arlington would retain its full Nitrogen and Phosphorous allocations following the term of an offset agreement, and DEQ expressed its appreciation for Arlington's leadership and partnership in the Chesapeake Bay cleanup program.

## AGREEMENT

In consideration of the mutual covenant and conditions herein, and for good and valuable consideration, the receipt and sufficient of which the Parties hereby acknowledge, the Parties agree as follow:

1. Temporary Offset Allocation. Beginning from June 1, 2015 and for each compliance year starting January 1, 2016 thereafter through and including compliance year 2021 (ending December 31, 2021), Arlington hereby transfers from Arlington's Nitrogen and Phosphorous Allocations to Mason, and Mason hereby accepts, a temporary allocation of 183 pounds per year of Nitrogen and 3 pounds per year of Phosphorus (the "Offset Allocations"). Arlington shall have no obligation to extend the availability of the Offset Allocations beyond compliance year 2021, but may elect to do so in its discretion following a request for such an extension from Mason. Any such extension shall be in writing as an amendment to this Agreement pursuant to Paragraph 16 below. Notwithstanding the other provisions of this Paragraph 1, this Agreement and the Offset Allocations transfer are expressly contingent upon the continued ability of Arlington to provide the Offset Allocations under actual operating conditions and current laws and regulations including without limitation Arlington's Nitrogen and Phosphorous Allocations. If, by any order, law, regulation, local legal obligations or requirements, facility operating conditions, or

any changes thereto such ability were to cease, Arlington's obligation to provide the Offset Allocations shall cease and this Agreement may be renegotiated by the parties.

2. Offset Allocation Price and Payment. The price for the Offset Allocations under this Agreement is $20.00 per pound per year for a total annual cost of $3,720.00. With issuance of an invoice by Arlington, Mason shall pay such annual amount by each January 31 at the beginning of the compliance year. For example, the annual payment for the first full compliance year (2016) shall be paid no later than January 31, 2016. The first payment for the period between June 1, 2015 to December 31, 2015 shall be made no later than July 31, 2015 and shall be 7/12ths of the annual amount. Payment shall be in the form of a check made payable to "Arlington County Treasurer" and delivered to Arlington County at the following address ATTN: Utility Fund Manager, 2100 Clarendon Blvd, Suite 900, Arlington, VA 22201.

3. Limitation on Use of Offset Allocations. Mason agrees that its sole and limited use of the Offset Allocations shall be to offset Nitrogen and Phosphorus discharges from the Point of View Wastewater Treatment Plant under the Watershed General Permit and that it shall not transfer any portion of the Offset Allocations to any other person or entity. In the event that operations of the Point of View Wastewater Treatment Plant for any compliance year generate Nitrogen or Phosphorus credits within the meaning for the Watershed General Permit as a result of discharging less Nitrogen or Phosphorus than the sum of the Offset Allocations (and any other Nitrogen and Phosphorus allocations to which Mason may be entitled, if any), upon request Mason shall transfer such Nitrogen and Phosphorus credits, up to183 pounds Nitrogen peryear and 3 pounds Phosphorus per year, to Arlington for Arlington's use or exchange for that compliance year. Any such credit transfer shall be without cost to Arlington.

4. Mason's Watershed General Permit Registration. By January 26, 2016, or as soon as practical thereafter, Mason shall file a registration statement for the Point of View Wastewater Treatment Plant with DEQ under the provisions of the Watershed General Permit. Any offset plan submitted by Mason to DEQ shall be consistent with the provisions of this Agreement, including but not limited to the temporary nature of the Offset Allocations. Mason shall submit to Arlington a draft of its registration statement and offset plan for Arlington's review and approval before submittal to DEQ. Arlington's review and approval shall not be unreasonably delayed or conditioned.

5. Arlington's Compliance Plan Modification. Arlington is a member of the Nutrient Exchange or a participant in its Exchange Compliance Plan. On an annual basis, Arlington's Compliance Plan due to DEQ on or before January 1, 2016, shall be reviewed to ensure that adequate credits have been held in reserve for the

purposes of trading with Mason. If adequate credits have not been set aside, subject to Paragraph 1 above Arlington shall (a) modify such plan with respect to the Arlington Nitrogen and Phosphorus Allocations to make appropriate revisions consistent with the temporary Offset Allocations provided under this Agreement and (b) submit such modification to DEQ for approval.

6. Regulatory Approval. Arlington shall bear no responsibility for the failure of DEQ to approve Arlington's Compliance Plan as modified in the manner contemplated by this Agreement or for any other permits or approvals necessary for the accomplishment or completion of the Offset Allocations transfer under this Agreement.

7. Mutual Cooperation. Subject to Paragraph 6, the Parties shall continue to cooperate with each other as reasonably necessary to confirm or bring about the transfer of the Offset Allocations to Mason as provided herein.

8. Term. This Agreement shall be in effect on June 1, 2015 and shall expire on December 31, 2021. Notwithstanding the preceding sentence, if either Party fails to perform a material obligation hereunder, and fails to cure such failure to perform within sixty (60) days of written notice from the non-faulting Party, the non-defaulting Party may terminate this Agreement upon written notice to the other Party.

9. Authorization. Each Party represents that its execution, delivery and performance under this Agreement have been duly authorized by all necessary action on its behalf, and do not and will not violate any provision of its charter or other governing legal requirements, or result in a material breach of or constitute a material default under any agreement, indenture or instrument of which it is a party or by which it or its properties may be bound or affected. To each Party's knowledge there are no actions, suits or proceedings, pending or threatened against such Party or any of its properties, before any court or governmental authority that, if determined adversely to such Party, would have a material adverse effect on the transactions contemplated by this Agreement.

10. No Third Party Beneficiaries. This Agreement is solely for the benefit of the Parties hereto and their permitted successors and assignees and shall not confer any rights or benefits on any other person.

11. No Assignment. This Agreement, and the rights and obligations hereunder, shall inure to the benefit of and shall be binding upon any successors of such Parties. Mason may not transfer or assign this Agreement, or its rights or obligations hereunder, without the prior written consent of Arlington, which consent may be withheld in Arlington's discretion.

12. Brokerage Commissions. The Parties represent and warrant to each other that

they have not dealt with any business broker or agent who would be entitled to a brokerage commission or finder's fees as a result of this Agreement or any related transactions. Each Party agrees, to the extent permitted under law and without waiving sovereign immunity, to indemnify and hold the other harmless from any and all claims for commissions of brokers or finder's fees claimed by, through or under the indemnifying Party, including any direct losses related to any such claim.

13. Notices. All notices, request, demands, claims and other communications hereunder shall be in writing, shall be delivered in person or by mail (first class, postage pre- paid) or overnight delivery, and shall be deemed given when delivered in person or, if not delivered in person, when received (or delivery is refused) by the Party to whom such notice, request, demand, claim or other communication is directed, at the following address, or at such other address as a Party shall designate by written notice to the other Party.

If to George Mason University
George Mason University
Thomas G. Calhoun
Facilities Administration
4400 University Drive, MSN 1E4
Fairfax, VA 22030

With a copy to:

George Mason University
Office of University Counsel
4400 University Drive, MSN 2A3
Fairfax, VA 22030

If to Arlington:

Arlington County
ATTN: County Manager
2100 Clarendon Blvd, Suite 300
Arlington, VA 22201

With a copy by first class mail to:

Arlington County
ATTN: County Attorney
2100 Clarendon Blvd, Suite XXX
Arlington VA 22201

And:
Arlington County Water Pollution Control Bureau

ATTN: Bureau Chief
3402 S Glebe Rd
Arlington, VA 22202

14. Governing Law; Venue; Severability. This Agreement shall be construed in accordance with and governed for all purposes by the laws of the Commonwealth of Virginia. In the event of any dispute concerning this Agreement that the Parties are unable to settle informally, exclusive venue for any legal action shall be the Commonwealth of Virginia. If any word or provision of this Agreement as applied to any Party or to any circumstance is adjudged by a court to be invalid or unenforceable, the same shall in no way affect any other circumstance or the validity or enforceability of any other word or provision.

15. No Waiver. Neither any failure to exercise or any delay in exercising any right, power or privilege under this Agreement by either Party shall operate as a waiver, nor shall any single or partial exercise of any right, power or privilege hereunder preclude the exercise of any other right, power or privilege. No waiver of any breach of any provision shall be deemed to be a waiver of any preceding or succeeding breach of the same or any other provision, nor shall any waive be implied from any course of dealing.

16. Entire Agreement; Amendments. This Agreement contains the entire Agreement between the Parties as to the subject matter hereof and supersedes all previous written and oral negotiations, commitments, proposals and writings. No amendments may be made to this Agreement except by a writing signed by both Parties.

17. Appropriations. Agencies of the Commonwealth of Virginia cannot expend funds unless appropriated by the Virginia General Assembly and may not obligate a future session of the Virginia General Assembly. Therefore, notwithstanding any provision in this Agreement to the contrary, if any session of the Virginia General Assembly fails to appropriate funds for the continuance of this Agreement, this Agreement and all obligations hereunder shall automatically terminate upon depletion of the then currently appropriated or allocated funds.

18. No Waiver of Sovereign Immunity. Nothing in this Agreement, nor any action taken by any of the parties pursuant to this Agreement, nor any document or documents that arise out of this Agreement, shall constitute or be construed as a waiver of the sovereign immunity of either party, including their elected and appointed officials, officers, and employees.

19. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties hereto have caused the execution of this Agreement.

GEORGE MASON UNIVERSITY

By: Thomas G. Calh
Thomas G. Calhoun
Vice President, Facilities

ARLINGTON COUNTY

By: Mark J Schwartz July 29, 2015
Mark Schwartz
Acting County Manager

Approved as to Form:
By: Julie A. Massie
Name: Julie A. Massie
Title: Asst. County Attorney

**FIRST AMENDMENT TO CHESAPEAKE BAY NUTRIENT OFFSET AGREEMENT**
**BY AND BETWEEN**
**GEORGE MASON UNIVERSITY**
**AND**
**ARLINGTON COUNTY**

THIS FIRST AMENDMENT TO CHESAPEAKE BAY NUTRIENT OFFSET AGREEMENT ("Amendment"), is made by and between George Mason University ("Mason"), an educational institution and agency of the Commonwealth of Virginia, and Arlington County, ("Arlington"), a governmental entity within the Commonwealth of Virginia, together the ("Parties").

WHEREAS, the Parties entered into that certain Agreement dated June 1, 2015 (the "Agreement"), and

WHEREAS, the Parties wish to amend the terms of the Agreement;

NOW, THEREFORE, IN CONSIDERATION of the mutual promises and benefits hereunder and other good valuable consideration, the Parties mutually agree to all of the following:

1. Paragraph 8 is hereby amended to extend the Term of the Agreement. The Agreement shall expire December 31, 2026.

2. Paragraph 2, Offset Allocation Price and Payment, is hereby modified as follows:

   Beginning January 1, 2022 through December 31, 2026, the price for the Offset Allocations under the Agreement shall be $25.31 per pound of nitrogen and $23.57 per pound of phosphorus for a total annual cost of $4702.71.

3. Except as modified herein, all other terms of the Agreement shall remain in full force and effect.

WITNESS the following signatures of the Parties:

GEORGE MASON UNIVERSITY

By: DocuSigned by: Frank Strike CA5C3B12C1DE410... _____

Name: Frank Strike

Title: Vice President, Facilities

Date: 6/14/2021

ARLINGTON COUNTY

By: DocuSigned by: Mark Schwartz 3B97A255DD9741F... _____

Name: Mark Schwartz

Title: County Manager

Date: 6/5/2021

# Attachment 12

# Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater in a water body in Fairfax County, Virginia.

PUBLIC COMMENT PERIOD: October 30, 2021 through November 29, 2021

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board.

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: George Mason University, 4400 University Drive, MS 1E4, Fairfax, VA 22030. VA0090221.

FACILITY NAME AND LOCATION: Point of View WWTP, 7301 Old Spring Drive, Lorton, VA 22079.

PROJECT DESCRIPTION: George Mason University has applied for a reissuance of a permit for the public Point of View WWTP. The applicant proposes to release treated sewage wastewaters from a conference center and one residential building at a rate of 0.005 million gallons per day in a water body with future expansion to 0.01 million gallons per day. Sludge from the facility will be disposed by pump and haul to an approved facility. The facility proposes to release the treated sewage wastewater in Thompson Creek in Fairfax County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: physical and chemical properties, nutrients, organic matter, solids, bacteria, and inorganics.

This facility is subject to the requirements of 9VAC25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (Nutrient GP). As a condition of this permit, the permittee will be required to offset in advance, any loads of total nitrogen or total phosphorus that are expected to be discharged in a given calendar year. Nutrient offsets for the Total Nitrogen and Total Phosphorus loadings were obtained from Arlington County to cover the expected loadings from January 1, 2022 through December 31, 2026.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing {on the draft permit} {on the draft modifications to the permit} by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. DEQ must receive hand-delivery and postal mail by close of business and email and fax comments by 11:59 p.m. on the last day of the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION:
Name: Ann Zimmerman
Address: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193.
Phone: (703) 583 – 3805
E-mail: Ann.Zimmerman@deq.virginia.gov
Fax: (804) 698 - 4178
The public may review the draft permit and application at the DEQ office named above or may request copies of the documents from the contact person listed above.

GEORGE MASON UNIVERSITY

Purchasing Department
4400 University Drive, MS 3C1, Fairfax, VA 22030
Phone: 703.993.2580; http://fiscal.gmu.edu/purchasing/

VIRGINIA ASSOCIATION OF STATE COLLEGE & UNIVERSITY PURCHASING PROFESSIONALS
VASCUPP

**REQUEST FOR PROPOSALS**
**GMU-CM0220-25**

| | |
|---|---|
| **ISSUE DATE:** | March 10, 2025 |
| **TITLE:** | Waste Water Treatment Plant Operations and Maintenance – Point of View (POV) Facility |
| **PRIMARY PROCUREMENT OFFICER:** | Christopher Mullins, Senior Buyer, cmullin4@gmu.edu |
| **SECONDARY PROCUREMENT OFFICER:** | James Russell, Director, Purchasing, jrussell@gmu.edu |
| **MANDATORY PRE-PROPOSAL CONFERENCE:** | **March 17, 2025 at 9:00AM.** See Section XVII. Item m. |

**QUESTIONS/INQUIRIES:** Submit all inquiries through Mason's Bonfire Portal, no later than 4:00 PM Eastern Time (ET) on March 21, 2025. **All questions must be submitted through Mason's Bonfire portal**. For assistance with technical questions related to Bonfire, contact Support@GoBonfire.com or visit Bonfire's help forum at https://vendorsupport.gobonfire.com/hc/en-us. Responses to questions will be posted to Mason's Bonfire portal and by 5:00 PM ET on March 27, 2025.

**PROPOSAL DUE DATE AND TIME:** April 8, 2025 @ 2:00 PM ET. ATTENTION: PROPOSALS WILL NOT BE ACCEPTED VIA EMAIL, MAIL, THROUGH eVA OR IN PERSON. SEE SECTION XIII.A.1 FOR DETAILS ON ELECTRONIC PROPOSAL SUBMISSION.

**IMPORTANT!** All communication with Offerors will take place in Bonfire, to include negotiations. Mason can only message individuals at your organization that have interacted in Bonfire for this specific RFP. Please ensure that the appropriate person responsible for negotiations and RFP communication has individually logged into the system and either downloaded documents, submitted your proposal or asked a question.

**In Compliance With This Request For Proposal And To All The Conditions Imposed Therein And Hereby Incorporated By Reference, The Undersigned Offers And Agrees To Furnish The Goods/Services In Accordance With The Attached Signed Proposal Or As Mutually Agreed Upon By Subsequent Negotiations.**

Name and Address of Firm:

Legal Name: Environmental Systems Service, Ltd.

DBA: Environmental Systems Service, Ltd.

Address: 218 North Main Street

Culpeper, VA 22701

Date: April 8, 2025

By: _____
Signature

FEI/FIN No. 54-0949197

Name: Cody J. Hoehna

Fax No. 540-825-4961

Title: Environmental Services Director

Email: codyh@ess-services.com

Telephone No. 540-825-6660

SWaM Certified: Yes: X No: _____ (See Section VII. SWaM CERTIFICATION for complete details).

SWaM Certification Number: 656830

☑ Check box to confirm your proposal contains any exceptions to Mason's Standard Contract and all terms and conditions or subsequent Statements of Work that could apply over the life of any resulting contract. See section IV. Final Contract for additional information.

This public body does not discriminate against faith-based organizations in accordance with the *Governing Rules, § 36* or against a Bidder/Offeror because of race, religion, color, sex, national origin, age, disability, or any other prohibited by state law relating to discrimination in employment.

# ENVIRONMENTAL SYSTEMS SERVICE, LTD.
# RESPONSE TO *GMU-CM0220-25*

# Wastewater Treatment Plant Operations and Maintenance at GMU Point of View (POV) Facility

**Due April 8, 2025 at 2:00PM ET**

**Submitted By:**
**Cody J. Hoehna**
**Environmental Services Director**
**codyh@ess-services.com**
**(540) 825-6660**

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# 1.0 PROCEDURAL INFORMATION

## a. Signed cover page - submitted separately as requested

## 1.0 PROCEDURAL INFORMATION (CONT.)

### b. Attachment A, Small Business Subcontracting Plan - submitted separately as requested

# 1.0 PROCEDURAL INFORMATION (CONT.)

## c. Attachment B, Standard Contract

GEORGE MASON UNIVERSITY
Purchasing Department
4400 University Drive, MS 3C1, Fairfax, VA 22030
Phone: 703.993.2580; http://fiscal.gmu.edu/purchasing/



## ATTACHMENT B – STANDARD CONTRACT

**Note: Other documents may be incorporated into this document, either by way of attachment or by reference, but in all cases this contract document shall take precedence over all other documents and will govern the terms and conditions of the contract.**

This Contract entered on this ____ day of April, 2025 (Effective Date) by Environmental Systems Service, Ltd (ESS) hereinafter called "Contractor" (located at Culpeper, VA) and George Mason University hereinafter called "Mason," "University".

**I.** **WITNESSETH** that the Contractor and Mason, in consideration of the mutual covenants, promises and agreement herein contained, agree as follows:

**II.** **SCOPE OF CONTRACT:** The Contractor shall provide O&M Services for the Wastewater Treatment Plant of George Mason University as set forth in the Contract documents.

During the term of this Contract, Contractor may issue Statements of Work ("SOW") to modify the scope of the engagement or otherwise change the work to be performed under this Contract. All SOW's must be on a form approved by Mason prior to the start of this Contract. Any SOW that does not conform to the pre-approved SOW form shall be void even if approved by Mason. Additionally, the SOW shall be limited to modifications to the scope of the engagement or other changes to the work to be performed under this Contract; any other terms contained in a SOW shall be void and have no effect even if approved by Mason. Other than changes to the scope of the engagement or the work to be performed under this Contract, Contractor may not change, modify, add, supersede, or remove any term from this Contract through a SOW.

**III.** **PERIOD OF CONTRACT:** One year from the Effective Date with four (4) successive one-year renewal options. *(or as negotiated)*

**IV.** **PRICE SCHEDULE:** The pricing specified in this section represents the complete list of charges from the Contractor. Mason shall not be liable for any additional charges.

*Negotiated price schedule will be inserted here.*

**V.** **CONTRACT ADMINISTRATION:** _____ shall serve as Contract Administrator for this Contract and shall use all powers under the Contract to enforce its faithful performance. The Contract Administrator shall determine the amount, quality and acceptability of work and shall decide all other questions in connection with the work. All direction and order from Mason shall be transmitted through the Contract Administrator, however, the Contract Administrator shall have no authority to approve changes which shall alter the concept or scope or change the basis for compensation.

**VI.** **METHOD OF PAYMENT:** *As selected from RFP Payment Term Options / Method of Payment.* Contractor shall submit invoices directly to acctpay@gmu.edu and copy the Contract Administrator. Invoices must reference a Mason Purchase Order number to be considered valid. Invoices will only be accepted if submitted after services rendered or goods received. All invoice will be paid Net 30 *(or as selected in Payment Terms / Method of Payment)*, after receipt of invoice in the accounts payable email inbox.

**VII.** **THE CONTRACT DOCUMENTS SHALL CONSIST OF (In order of precedence):**

A. This signed form;
B. Negotiation Response(s) dated XXXXX (attached);
C. RFP No. GMU-XXXX-XX, in its entirety (attached);
D. Contractor's proposal dated XXXXXX (attached);
E. Contractor's Statement of Work template (attached).

**VIII.** **GOVERNING RULES:** This Contract is governed by the provisions of the Restructured Higher Education Financial and Administrative Operations Act, Chapter 10 (§ 23.1-1000 et seq.) of Title 23.1 of the Code of Virginia, and the *"Governing Rules"* and the *Purchasing Manual for Institutions of Higher Education and their Vendors.* Documents may be viewed at: https://vascupp.org.

**IX.** **CONTRACT PARTICIPATION:** It is the intent of this Contract to allow for cooperative procurement. Accordingly, any public body, public or private health or educational institutions, or affiliated corporations may access this Contract if authorized by the Contractor.

Participation in this Contract is strictly voluntary. If authorized by the Contractor, the contract will be extended to the entities indicated above to purchase goods and services in accordance with contract terms. As a separate contractual relationship, the participating entity will place its own orders directly with the Contractor and shall fully and independently administer its use of the contract to include contractual disputes, invoicing and payments without direct administration from the University. No modification of this Contract or execution of a separate agreement is required to participate; however, the participating entity and the Contractor may modify the terms and conditions of the contract to accommodate specific governing laws, regulations, policies, and business goals required by the participating entity. Any such modification will apply solely between the participating entity and the Contractor.

The University may request the Contractor provide semi-annual usage reports for all entities accessing the Contract. The University shall not be held liable for any costs or damages incurred by any other participating entity as a result of any authorization by the Contractor to extend the Contract. It is understood and agreed that the University is not responsible for the acts or omissions of any entity and will not be considered in default of the contract no matter the circumstances.

Use of this Contract does not preclude any participating entity from using other contracts or competitive processes as needed.

## X. STANDARD TERMS AND CONDITIONS:

A. APPLICABLE LAW AND CHOICE OF FORUM: This Contract shall be construed, governed, and interpreted pursuant to the laws of the Commonwealth of Virginia. All disputes arising under this Contract shall be brought before an appropriate court in the Commonwealth of Virginia.

B. ANTI-DISCRIMINATION: By entering into this Contract, Contractor certifies to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians with Disabilities Act, the Americans with Disabilities Act and §§ 9&10 of the *Governing Rules.* If Contractor is a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the Contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Governing Rules*, § 36).

In every contract over $10,000 the provisions in 1. and 2. below apply:

1. During the performance of this Contract, the Contractor agrees as follows:

   a. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

   b. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

   c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting these requirements.

2. The Contractor will include the provisions of 1. above in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or Contractor.

C. ANTITRUST: By entering into this Contract, the Contractor conveys, sells, assigns, and transfers to the Commonwealth of Virginia all rights, title and interest in and to all causes of action it may now have or hereafter acquire under the antitrust laws of the United States and the Commonwealth of Virginia, relating to the particular goods or services purchased or acquired by the Commonwealth of Virginia under this Contract.

D. ASSIGNMENT: Neither party will assign or otherwise transfer its rights or obligations under this Contract without both parties' prior written consent. Any attempted assignment, transfer, or delegation without such consent is void.

E. AUDIT: The Contractor shall retain all books, records, and other documents relative to this Contract for five (5) years after final payment, or until audited by the Commonwealth of Virginia, whichever is sooner. Mason, its authorized agents, and/or state auditors shall have full access to and the right to examine any of said materials during said period.

F. AVAILABILITY OF FUNDS: It is understood and agreed between the parties herein that Mason shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this Contract.

G. AUTHORIZED SIGNATURES: The signatory for each Party certifies that he or she is an authorized agent to sign on behalf such Party.

H. BACKGROUND CHECKS: Prior to any of Contractors employees, agents, or subcontractors (collectively "Personnel") performing services on any Mason campus, Contractor shall, at its sole expense, obtain comprehensive background checks on all Personnel. Such background checks shall include, at minimum: a review of the Personnel's records to include social security number search, local and federal criminal records (any misdemeanor convictions and/or felony convictions), the Sex Offender Registry, and the SanctionsBase+ Search or equivalent. In addition, for sensitive financial work or when operating a motor vehicle in the performance of duties for Mason, the background investigation shall include a credit report or motor vehicle check, respectively. Contractor warrants that all such Personnel have successfully passed these background checks and are qualified to perform the contracted services. Contractor shall maintain records of all background checks and make them available to Mason upon request. Mason reserves the right to deny access to its premises to any Personnel based on the results of these background checks or for any other reason at Mason's sole discretion. Contractor shall immediately remove any Personnel from Mason's premises upon Mason's request. Signature on this Contract confirms your compliance with this requirement.

I. CANCELLATION OF CONTRACT: Mason reserves the right to cancel this Contract, in part or in whole, without penalty, for any reason, upon 60 days written notice to the Contractor. Upon written notice of cancellation from Mason, Mason shall be fully released from any further obligation under the Contract and Contractor agrees to directly refund all payments, for services not already performed, to Mason, including any pre-paid deposits, within 14 days. Any contract cancellation notice shall not relieve the Contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

J. CHANGES TO THE CONTRACT: Changes can be made to this Contract in any of the following ways:

1. The parties may agree in writing to modify the scope of this Contract.

2. Mason may order changes within the general scope of Contract at any time by written notice to Contractor. Changes within the scope of this Contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. Contractor shall comply with the notice upon receipt. Contractor shall be compensated for any additional costs incurred as the result of such order and shall give Mason a credit for any savings. Said compensation shall be determined by one of the following methods:

   a. By mutual agreement between the parties in writing; or

   b. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the Mason's right to audit Contractor's records and/or to determine the correct number of units independently; or

   c. By ordering Contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the Contract. The same markup shall be used for determining a decrease in price as the result of savings realized. Contractor shall present Mason with all vouchers and records of expenses incurred and savings realized. Mason shall have the right to audit the records of Contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to Mason within thirty (30) days from the date of receipt of the written order from Mason. If the Parties fail to agree on an amount of adjustment, the question of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for resolving disputes provided by the Disputes Clause of this Contract or, if there is none, in accordance with the disputes provisions of the Commonwealth of Virginia Purchasing Manual for Institutions of Higher Education and Their Contractors. Neither the existence of a claim

nor a dispute resolution process, litigation or any other provision of this Contract shall excuse the Contractor from promptly complying with the changes ordered by Mason or with the performance of the contract generally.

K. CLAIMS: Contractual claims, whether for money or other relief, shall be submitted in writing no later than 60 days after final payment. However, written notice of the Contractor's intention to file a claim shall be given at the time of the occurrence or beginning of the work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance of the goods. Pendency of claims shall not delay payment of amounts agreed due in the final payment.

1. The Contractor must submit written claim to:
Chief Procurement Officer
George Mason University
4400 University Drive, MSN 3C5
Fairfax, VA 22030

2. The Contractor must submit any unresolved claim in writing no later than 60 days after final payment to the Chief Procurement Officer.

3. Upon receiving the written claim, the Chief Procurement Officer will review the written materials relating to the claim and will mail their decision to the Contractor within 60 days after receipt of the claim.

4. The Contractor may appeal the Chief Procurement Officer's decision in accordance with §55 of the *Governing Rules.*

L. COLLECTION AND ATTORNEY'S FEES: The Contractor shall pay to Mason any reasonable attorney's fees or collection fees, at the maximum allowable rate permitted under Virginia law, incurred in enforcing this Contract or pursuing and collecting past-due amounts under this Contract.

M. COMPLIANCE: All goods and services provided to Mason shall be done so in accordance with any and all applicable local, state, federal, and international laws, regulations and/or requirements and any industry standards, including but not limited to: the Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH), Government Data Collection and Dissemination Practices Act, Gramm-Leach-Bliley Financial Modernization Act (GLB), Payment Card Industry Data Security Standards (PCI-DSS), Americans with Disabilities Act (ADA), and Federal Export Administration Regulations. Any Contractor personnel visiting Mason facilities will comply with all applicable Mason policies regarding access to, use of, and conduct within such facilities. Mason's policies can be found at https://universitypolicy.gmu.edu/all-policies/ and any facility specific policies can be obtained from the facility manager.

N. CONFIDENTIALITY OF PERSONALLY IDENTIFIABLE INFORMATION: The Contractor shall ensure that personally identifiable information ("PII") which is defined as any information that by itself or when combined with other information can be connected to a specific person and may include but is not limited to personal identifiers such as name, address, phone, date of birth, Social Security number, student or personal identification numbers, driver's license numbers, state or federal identification numbers, biometric information, religious or political affiliation, non-directory information, and any other information protected by state or federal privacy laws, will be collected and held confidential and in accordance with this Contract, during and following the term of this Contract, and will not be divulged without the individual's and Mason's written consent and only in accordance with federal law or the Code of Virginia.

O. CONFLICT OF INTEREST: Contractor represents to Mason that its entering into this Contract with Mason and its performance through its agents, officers and employees does not and will not involve, contribute to nor create a conflict of interest prohibited by Virginia State and Local Government Conflict of Interests Act (Va. Code 2.2-3100 *et seq*), the Virginia Ethics in Public Contracting Act (§57 of the *Governing Rules)*, the Virginia Governmental Frauds Act (Va. Code 18.2 – 498.1 *et seq*) or any other applicable law or regulation.

P. CONTINUITY OF SERVICES:

1. The Contractor recognizes that the services under this Contract are vital to Mason and must be continued without interruption and that, upon Contract expiration, a successor, either Mason or another contractor, may continue them. The Contractor agrees:

a. To exercise its best efforts and cooperation to affect an orderly and efficient transition to a successor;

b. To make all Mason owned facilities, equipment, and data available to any successor at an appropriate time prior to the expiration of the Contract to facilitate transition to successor; and

c. That the University Procurement Officer shall have final authority to resolve disputes related to the transition of the Contract from the Contractor to its successor.

2. The Contractor shall, upon written notice from the Procurement Officer, furnish phase-in/phase-out services for up to ninety (90) days after this Contract expires and shall negotiate in good faith a plan with the successor to execute the phase-in/phase-out services. This plan shall be subject to the Procurement Officer's approval.

3. The Contractor shall be reimbursed for all reasonable, pre-approved phase-in/phase-out costs (i.e., costs incurred within the agreed period after Contract expiration that result from phase-in, phase-out operations). All phase-in/phase-out work fees must be approved by the Procurement Officer in writing prior to commencement of said work.

Q. DEBARMENT STATUS: As of the Effective Date, the Contractor certifies that it is not currently debarred by the Commonwealth of Virginia from submitting bids or proposals on contracts for the type of services covered by this Contract, nor is the Contractor an agent of any person or entity that is currently so debarred.

R. DEFAULT: In the case of failure to deliver goods or services in accordance with this Contract, Mason, after due oral or written notice, may procure them from other sources and hold Contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to any other remedies which Mason may have.

S. DRUG-FREE WORKPLACE: Contractor has, and shall have in place during the performance of this Contract, a drug-free workplace policy (DFWP), which it provides in writing to all its employees, vendors, and subcontractors, and which specifically prohibits the following on company premises, during work-related activities, or while conducting company business: the sale, purchase, manufacture, dispensation, distribution possession, or use of any illegal drug under federal law (including marijuana). For purposes of this section, "drug-free workplace" covers all sites at which work is done by Contractor in connection with this Contract.

T. ENTIRE CONTRACT: This Contract constitutes the entire understanding of the Parties with respect to the subject matter herein and supersedes all prior oral or written contracts with respect to the subject matter herein. This Contract can be modified or amended only by a writing signed by all of the Parties.

U. EXPORT CONTROL:

1. **Munitions Items**: If the Contractor is providing any items, data or services under this order that are controlled by the Department of State, Directorate of Defense Trade Controls, International Traffic in Arms Regulations ("ITAR"), or any items, technology or software controlled under the "600 series" classifications of the Bureau of Industry and Security's Commerce Control List ("CCL") (collectively, "Munitions Items"), prior to delivery, Contractor must:

   a. notify Mason (by sending an email to export@gmu.edu), and

   b. receive written authorization for shipment from Mason's Director of Export Controls.

The notification provided by the Contractor must include the name of the Mason point of contact, identify and describe each ITAR or CCL-controlled commodity, provide the associated U.S. Munitions List (USML) category number(s) or Export Control Classification Number, and indicate whether or not the determination was reached as a result of a commodity jurisdiction determination, or self-classification process. The Contractor promises that if it fails to obtain the required written pre-authorization approval for shipment to Mason of any Munitions Item, it will reimburse Mason for any fines, legal costs and other fees imposed for any violation of export controls regarding the Munition Item that are reasonably related to the Contractor's failure to provide notice or obtain Mason's written pre-authorization.

2. **Dual-Use Items**: If the Contractor is providing any dual-use items, technology or software under this order that are listed on the CCL in a series other than a "600 series", Contractor must (i) include the Export Control Classification Number (ECCN) on the packing or other transmittal documentation traveling with the item(s)

and, (ii) send a description of the item, its ECCN, and the name of the Mason point of contact to: export@gmu.edu.

V. FORCE MAJEURE: Mason shall be excused from any and all liability for failure or delay in performance of any obligation under this Contract resulting from any cause not within the reasonable control of Mason, which includes but is not limited to acts of God, fire, flood, explosion, earthquake, or other natural forces, war, civil unrest, accident, any strike or labor disturbance, travel restrictions, acts of government, disease, pandemic, or contagion, whether such cause is similar or dissimilar to any of the foregoing. Upon written notification from Mason that such cause has occurred, Contractor agrees to directly refund all payments to Mason, for services not yet performed, including any pre-paid deposits within 14 days.

W. FUTURE GOODS AND SERVICES: Mason reserves the right to have Contractor provide additional goods and/or services that may be required by Mason during the term of this Contract. Any such goods and/or services will be provided by the Contractor under the same pricing, terms and conditions of this Contract. Such additional goods and/or services may include other products, components, accessories, subsystems or related services that are newly introduced during the term of the Contract. Such newly introduced additional goods and/or services will be provided to Mason at Favored Customer pricing, terms and conditions.

X. IMMIGRATION REFORM AND CONTROL ACT OF 1986: By entering into this Contract Contractor certifies that they do not and will not during the performance of this Contract employ illegal alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986.

Y. INDEMNIFICATION: Contractor agrees to indemnify, defend and hold harmless Mason, the Commonwealth of Virginia, its officers, agents, and employees from any claims, damages and actions of any kind or nature, whether at law or in equity, arising from or caused by the use of any materials, goods, or equipment of any kind or nature furnished by the Contractor/any services of any kind or nature furnished by the Contractor, provided that such liability is not attributable to the sole negligence of Mason or to the failure of Mason to use the materials, goods, or equipment in the manner already and permanently described by the Contractor on the materials, goods or equipment delivered. Contractor understands and acknowledges that Mason has not agreed to provide any indemnification or save harmless agreements running to Contractor.

Z. INDEPENDENT CONTRACTOR: The Contractor is not an employee of Mason, but is engaged as an independent contractor. The Contractor shall indemnify and hold harmless the Commonwealth of Virginia, Mason, and its employees and agents, with respect to all withholding, Social Security, unemployment compensation and all other taxes or amounts of any kind relating to the Contractor's performance of this Contract. Nothing in this Contract shall be construed as authority for the Contractor to make commitments which will bind Mason or to otherwise act on behalf of Mason, except as Mason may expressly authorize in writing.

AA. INFORMATION TECHNOLOGY ACCESS ACT: Computer and network security is of paramount concern at Mason. Mason wants to ensure that computer/network hardware and software does not compromise the security of its IT environment. Contractor agrees to use commercially reasonable measures in connection with any offering your company makes to avoid any known threat to the security of the IT environment at Mason.

All e-learning and information technology developed, purchased, upgraded or renewed by or for the use of Mason shall comply with all applicable University policies, Federal and State laws and regulations including but not limited to Section 508 of the Rehabilitation Act (29 U.S.C. 794d), the Information Technology Access Act, §§2.2-3500 through 2.2-3504 of the Code of Virginia, as amended, and all other regulations promulgated under Title II of The Americans with Disabilities Act which are applicable to all benefits, services, programs, and activities provided by or on behalf of the University. The Contractor shall also comply with the Web Content Accessibility Guidelines (WCAG) 2.0. For more information, please visit http://ati.gmu.edu, under Policies and Procedures.

BB. INSURANCE: The Contractor shall maintain all insurance necessary with respect to the services provided to Mason. The Contractor further certifies that they will maintain the insurance coverage during the entire term of the Contract and that all insurance is to be placed with insurers with a current reasonable A.M. Best's rating authorized to sell insurance in the Commonwealth of Virginia by the Virginia State Corporation Commission. The Commonwealth of Virginia and Mason shall be named as an additional insured. By requiring such minimum insurance, Mason shall not be deemed or construed to have assessed the risk that may be applicable to the Contractor. The Contractor shall assess its own risks and, if it deems appropriate and/or prudent, maintain higher limits and/or broader coverage. The Contractor is not relieved of any liability or other obligations assumed or pursuant to this Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

1. Commercial General Liability Insurance in an amount not less than one million dollars ($1,000,000) per

occurrence for bodily injury or property damage, personal injury and advertising injury, products and completed operations coverage;

2. Workers Compensation Insurance in an amount not less than that prescribed by statutory limits; and, as applicable;

3. Commercial Automobile Liability Insurance applicable to bodily injury and property damage, covering owned, non-owned, leased, and hired vehicles in an amount not less than one million dollars ($1,000,000) per occurrence; and

4. An umbrella/excess policy in an amount not less than five million dollars ($5,000,000) to apply over and above Commercial General Liability, Employer's Liability, and Commercial Automobile Liability Insurance.

CC. INTELLECTUAL PROPERTY: Contractor warrants and represents that it will not violate or infringe any intellectual property right or any other personal or proprietary right and shall indemnify and hold harmless Mason against any claim of infringement of intellectual property rights which may arise under this Contract.

1. Unless expressly agreed to the contrary in writing, all goods, products, materials, documents, reports, writings, video images, photographs or papers of any nature including software or computer images prepared or provided by Contractor (or its subcontractors) for Mason will not be disclosed to any other person or entity without the written permission of Mason.

2. Work Made for Hire. Contractor warrants to Mason that Mason will own all rights, title and interest in any and all intellectual property rights created in the performance or otherwise arising from the Contract and will have full ownership and beneficial use thereof, free and clear of claims of any nature by any third party including, without limitation, copyright or patent infringement claims. Contractor agrees to assign and hereby assigns all rights, title, and interest in any and all intellectual property created in the performance or otherwise arising from the Contract, and will execute any future assignments or other documents needed for Mason to document, register, or otherwise perfect such rights. Notwithstanding the foregoing, for research collaboration pursuant to subcontracts under sponsored research contracts administered by the University's Office of Sponsored Programs, intellectual property rights will be governed by the terms of the grant or contract to Mason to the extent such grant or contract requires intellectual property terms to apply to subcontractors.

DD. NON-DISCRIMINATION: All parties to this Contract agree to not discriminate on the basis of race, color, religion, national origin, sex, pregnancy, childbirth or related medical conditions, age (except where sex or age is a bona fide occupational qualification, marital status or disability).

EE. NON-EXCLUSIVITY: Nothing herein is intended nor shall be construed as creating any exclusive arrangement with Contractor. This Contract will not restrict or prohibit Mason from acquiring the same or similar goods and/or services from other entities or sources.

FF. PAYMENT TO SUBCONTRACTORS: The Contractor shall take the following actions upon receiving payment from Mason: (1) pay the subcontractor within seven days for the proportionate share of the total payment received from Mason attributable to the work performed by the subcontractor under that Contract; or (2) notify Mason and subcontractor within seven days, in writing, of its intention to withhold all or a part of the subcontractor's payment with the reason for non-payment. The Contractor shall collect the appropriate Tax Identification Number (Either SSN# or EIN#) based on the entity type of the subcontractor. The Contractor shall pay interest to subcontractors on all amounts owed by the Contractor that remain unpaid after seven days following receipt by the Contractor of payment from Mason for work performed by the subcontractor under that contract, except for amounts withheld as allowed by prior notification. Unless otherwise provided under the terms of this Contract, interest shall accrue to subcontractors at the rate of one percent per month. The Contractor shall include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower-tier subcontractor. A contractor's obligation to pay an interest charge to a subcontractor may not be construed to be an obligation of Mason. A contract modification may not be made for the purpose of providing reimbursement for such interest charge. A cost reimbursement claim may not include any amount for reimbursement for such interest charge.

GG. PUBLICITY: Contractor shall not use, in its external advertising, marketing programs, or promotional efforts, any data, name, insignia, trademarks, pictures or other representation of the University or its employees except on the specific written authorization in advance by the University. The University must receive all requests for authorization

in writing no later than ten (10) days in advance of the use date.

HH. REMEDIES: If the Contractor breaches this Contract, in addition to any other rights or remedies, Mason may terminate this Contract without prior notice.

II. RENEWAL OF CONTRACT: This Contract may be renewed by Mason for four (4) successive one-year renewal options under the terms and conditions of this Contract except as stated in 1. and 2. below. Price increases may be negotiated only at the time of renewal. Written notice of the University's intention to renew shall be given approximately 90 days prior to the expiration date of each contract period.

1. If the University elects to exercise the option to renew the Contract for an additional one-year period, the Contract price(s) for the additional one year shall not exceed the Contract price(s) of the original Contract increased/decreased by more than the percentage increase/decrease of the "other goods and services" category of the CPI-U section of the Consumer Price Index of the United States Bureau of Labor Statistics for the latest twelve months for which statistics are available or 2%, whichever is lower.

2. If during any subsequent renewal periods, the University elects to exercise the option to renew the Contract, the Contract price(s) for the subsequent renewal period shall not exceed the Contract price(s) of the previous renewal period increased/decreased by more than the percentage increase/decrease of the "other goods and services" category of the CPI-U section of the Consumer Price Index of the United States bureau of Labor Statistics for the latest twelve months for which statistics are available, or 2%, whichever is lower.

JJ. REPORTING OF CRIMES, ACCIDENTS, FIRES AND OTHER EMERGENCIES: Any Mason Employee, including contracted service providers, who is not a staff member in Counseling and Psychological Services (CAPS) or a pastoral counselor, functioning within the scope of that recognition, is considered a "Campus Security Authority (CSA)." CSAs must promptly report all crimes and other emergencies occurring on or near property owned or controlled by Mason to the Department of Police & Public Safety or local police and fire authorities by dialing 9-1-1. At the request of a victim or survivor, identifying information may be excluded from a report (e.g., names, initials, contact information, etc.). Please visit the following website for more information and training: http://police.gmu.edu/clery-act-reporting/campus-security-authority-csa/."

KK. RESPONSE TO LEGAL ORDERS, DEMANDS, OR REQUESTS FOR DATA: Except as otherwise expressly prohibited by law, Contractor will: i) immediately notify Mason of any subpoenas, warrants, or other legal orders, demands or requests received by Contractor seeking University Data; ii) consult with Mason regarding its response; iii) cooperate with Mason's reasonable requests in connection with efforts by Mason to intervene and quash or modify the legal order, demand or request; and iv) upon Mason's request, provide Mason with a copy of its response.

If Mason receives a subpoena, warrant, or other legal order, demand (including request pursuant to the Virginia Freedom of Information Act) or request seeking University Data maintained by Contractor, Mason will promptly provide a copy to Contractor. Contractor will promptly supply Mason with copies of data required for Mason to respond, and will cooperate with Mason's reasonable requests in connection with its response.

LL. SEVERABILITY: Should any portion of this Contract be declared invalid or unenforceable for any reason, such portion is deemed severable from the Contract and the remainder of this Contract shall remain fully valid and enforceable.

MM. SOVEREIGN IMMUNITY: Nothing in this Contract shall be deemed a waiver of the sovereign immunity of the Commonwealth of Virginia and of Mason.

NN. SUBCONTRACTS: No portion of the work shall be subcontracted without prior written consent from Mason. In the event that the Contractor desires to subcontract some part of the work specified herein, the Contractor shall furnish Mason the names, qualifications and experience of their proposed subcontractors. The Contractor shall, however, remain fully liable and responsible for the work to be done by its subcontractor(s) and shall assure compliance with all requirements of this Contract. This paragraph applies to, but is not limited to, subcontractor(s) who process University Data.

OO. SWaM CERTIFICATION: Contractor agrees to fully support the Commonwealth of Virginia and Mason's efforts related to SWaM goals. Upon contract execution, Contractor (as determined by Mason and the Virginia Department of Small Business and Supplier Diversity) shall submit all required documents necessary to achieve SWaM certification to the Department of Small Business and Supplier Diversity within 90 days. If Contractor is currently SWaM certified, Contractor agrees to maintain their certification for the duration of the Contract and shall submit all

required renewal documentation at least 30 days prior to existing SWaM expiration at https://www.sbsd.virginia.gov/.

PP. UNIVERSITY DATA: University Data includes all Mason owned, controlled, or collected PII and any other information that is not intentionally made available by Mason on public websites, including but not limited to business, administrative and financial data, intellectual property, and patient, student and personnel data. Contractor agrees to the following regarding University Data it may collect or process as part of this Contract:

1. Contractor will use University Data only for the purpose of fulfilling its duties under the Contract and will not share such data with or disclose it to any third party without the prior written consent of Mason, except as required by the Contract or as otherwise required by law. University Data will only be processed by Contractor to the extent necessary to fulfill its responsibilities under the Contract or as otherwise directed by Mason.

2. University Data, including any back-ups, will not be accessed, stored, or transferred outside the United States without prior written consent from Mason. Contractor will provide access to University Data only to its employees and subcontractors who need to access the data to fulfill Contractor's obligations under the Contract. Contractor will ensure that employees who perform work under the Contract have read, understood, and received appropriate instruction as to how to comply with the data protection provisions of the Contract and to maintain the confidentiality of the University Data.

3. The parties agree that as between them, all rights including all intellectual property rights in and to University Data shall remain the exclusive property of Mason, and Contractor has a limited, nonexclusive license to use the University Data as provided in the Contract solely for the purpose of performing its obligations under the Contract. The Contract does not give a party any rights, implied or otherwise, to the other party's data, content, or intellectual property, except as expressly stated in the Contract.

4. Contractor will take reasonable measures, including audit trails, to protect University Data against deterioration or degradation of data quality and authenticity. Contractor shall be responsible for ensuring that University Data, per the Virginia Public Records Act, is preserved, maintained, and accessible throughout their lifecycle, including converting and migrating electronic data as often as necessary so that information is not lost due to hardware, software, or media obsolescence or deterioration.

5. Contractor shall notify Mason within three business days if it receives a request from an individual under any applicable law regarding PII about the individual, including but not limited to a request to view, access, delete, correct, or amend the information. Contractor shall not take any action regarding such a request except as directed by Mason.

6. If Contractor will have access to University Data that includes "education records" as defined under the Family Educational Rights and Privacy Act (FERPA), the Contractor acknowledges that for the purposes of the Contract it will be designated as a "school official" with "legitimate educational interests" in the University education records, as those terms have been defined under FERPA and its implementing regulations, and the Contractor agrees to abide by the limitations and requirements imposed on school officials. Contractor will use the education records only for the purpose of fulfilling its duties under the Contract for Mason's and its end user's benefit, and will not share such data with or disclose it to any third party except as provided for in the Contract, required by law, or authorized in writing by the University.

QQ. UNIVERSITY DATA SECURITY: Data security is of paramount concern to Mason. Contractor will utilize, store and process University Data in a secure environment in accordance with commercial best practices, including appropriate administrative, physical, and technical safeguards, to secure such data from unauthorized access, disclosure, alteration, and use. Such measures will be no less protective than those used to secure Contractor's own data of a similar type, and in no event less than reasonable in view of the type and nature of the data involved. At a minimum, Contractor shall use industry-standard and up-to-date security tools and technologies such as anti-virus protections and intrusion detection methods to protect University Data.

1. Immediately upon becoming aware of circumstances that could have resulted in unauthorized access to or disclosure or use of University Data, Contractor will notify Mason, fully investigate the incident, and cooperate fully with Mason's investigation of and response to and remediation of the incident. Except as otherwise required by law, Contractor will not provide notice of the incident directly to individuals who's PII was involved, regulatory agencies, or other entities, without prior written permission from Mason.

2. Mason reserves the right in its sole discretion to perform audits of Contactor, at Mason's expense, to ensure compliance with all obligations regarding University Data. Contractor shall reasonably cooperate in the

performance of such audits. Contractor will make available to Mason all information necessary to demonstrate compliance with its data processing obligations. Failure to adequately protect University Data or comply with the terms of this Contract with regard to University Data may be grounds to terminate this Contract.

RR. UNIVERSITY DATA UPON TERMINATION OR EXPIRATION: Upon termination or expiration of the Contract, Contractor will ensure that all University Data are securely returned or destroyed as directed by Mason in its sole discretion within 180 days of the request being made. Transfer to Mason or a third party designated by Mason shall occur within a reasonable period of time, and without significant interruption in service. Contractor shall ensure that such transfer/migration uses facilities and methods that are compatible with the relevant systems of Mason or its transferee, and to the extent technologically feasible, that Mason will have reasonable access to University Data during the transition. In the event that Mason requests destruction of its data, Contractor agrees to destroy all data in its possession and in the possession of any subcontractors or agents to which the Contractor might have transferred University Data. Contractor agrees to provide documentation of data destruction to the University.

Contractor will notify the University of any impending cessation of its business and any contingency plans. This includes immediate transfer of any previously escrowed assets and University Data and providing Mason access to Contractor's facilities to remove and destroy Mason-owned assets and University Data. Contractor shall implement its exit plan and take all necessary actions to ensure a smooth transition of service with minimal disruption to Mason. Contractor will also provide a full inventory and configuration of servers, routers, other hardware, and software involved in service delivery along with supporting documentation, indicating which if any of these are owned by or dedicated to Mason. Contractor will work closely with its successor to ensure a successful transition to the new equipment, with minimal downtime and effect on Mason, all such work to be coordinated and performed in advance of the formal, final transition date.

SS. UNIVERSITY REVIEW/APPROVAL: All goods, services, products, design, etc. produced by the Contractor for or on behalf of Mason are subject to Mason's review and approval.

TT. WAIVER: The failure of a party to enforce any provision in this Contract shall not be deemed to be a waiver of such right.

| **Contractor Name** | **George Mason University** |
|---|---|
| Environmental Systems Service, Ltd. | |
| Signature | Signature |
| Name: Cody J. Hoehna | Name: |
| Title: Environmental Services Director | Title: |
| Date: April 8, 2025 | Date: |

## 1.0 PROCEDURAL INFORMATION (CONT.)

**d. Exceptions –** none noted

**e. Supplemental documents for SOW –** not applicable

**f. Payment terms --** ESS would prefer payment terms via Option #3, Net 30 day.

## 2.0 EXECUTIVE SUMMARY

ESS is located at 218 North Main Street Culpeper, Virginia 22701 and is an independent company offering high quality technical services in the disciplines of environmental consulting, water and wastewater treatment, field sampling, and environmental testing. The firm is a privately held corporation and is not a subsidiary of any other company.

ESS's Environmental Services Division specializes in contract operations and maintenance services for wastewater and water treatment facilities throughout the State of Virginia. Clients include industrial facilities, municipalities, private business of all sizes, trade associations, public schools, universities, State and Federal Governments. ESS operates and maintains facilities that range in size from several million gallons per day of treatment capacity down to several thousand gallons.

In addition to the above services, ESS also is supported by a team of qualified Environmental Scientists with experience in a wide range of field sample collection of drinking water, wastewater, stormwater, and groundwater.

ESS maintains a VELAP accredited environmental laboratory located in Culpeper, Virginia, which provides analytical testing services to clients throughout the State. This facility provides both permit required and process control analyses for treatment systems operated by ESS in addition to many other surrounding customers. By design, management structure of the laboratory is maintained separately from other environmental services. This structure allows autonomous operation and unbiased reporting of sample results by the laboratory. The majority of services provided by ESS are conducted from the corporate headquarters located in Culpeper, Virginia.

ESS performs administrative and financial processes from the central office in Culpeper, Virginia. Hiring staff, payroll processing, accounts payable, accounts receivable, and general ledger functions are all controlled by this office. Monthly financial statements for each division and/or contract are generated for managerial review. In addition to these functions, the administrative office provides support for procurement of supplies, including cost control and review.

ESS is proud of continuing growth and expansion of services. This growth is a direct result of providing high quality service and individual attention to each client. ESS places great emphases on hiring and retention of highly qualified employees. Skilled members of the ESS work force are the primary factor in allowing the company to expand, and at the same time, maintain an established customer base.

ESS's primary point of contact for this proposal is Detric Murray. Mr. Murray has a Virginia Class I Wastewater Operators License and serves as the Environmental Services Operations Manager for ESS directing approximately 40 employees for over 70 facilities in Virginia.

Detric Murray, Operations Manager
Environmental Systems Service, Ltd.
218 North Main Street
Culpeper, VA 22701
540-825-6660
detricm@ess-services.com

# 3.0 QUALIFICATIONS & EXPERIENCE

## a. Company History

ESS, tax identification number 54-0949197, was organized in Culpeper, Virginia in 1973 as a contract operations company providing water and wastewater operations and maintenance services. These services included operation and maintenance of municipal and industrial water and wastewater treatment facilities. ESS maintains a staff of highly qualified system operators with various degrees of licensure. The Environmental Services Division located in Culpeper, Virginia directs all operations and maintenance programs. Subsequent to the establishment of the contract operations division of ESS, an in-house laboratory was established to support plant operation programs. In addition, our capabilities in field sampling and general environmental consulting have been developed over the past 52 years to provide a wide range of services.

ESS currently employs a total of approximately 60 full and part time employees. Approximately 40 employees of varying wastewater operator levels and environmental professionals work within the Environmental Services Division to provide O&M services. The Environmental Services Division provides O&M services to over 70 facilities throughout the State of Virginia ranging in size from 0.005 MGD to 3.5 MGD. Companywide, ESS has experience operating every type of wastewater technology.

The ESS corporate office, which houses all environmental consulting, field sampling, and environmental laboratory services, is located in Culpeper, Virginia. A satellite facility is located in Chesterfield County for Sales and Marketing.

Country Water Systems is a division of ESS that sells and services water treatment systems and sells water treatment chemicals. Additionally, ESS maintains a subsidiary comapny, Commonwealth Utilities, based in Culpeper, Virginia. Commonwealth Utilities is a water utility company that owns several local water systems.

The majority of ESS clients are in the Mid-Atlantic States, but ESS serves customers over the entire country. Clients include private individuals, private business of all sizes, trade associations, universities, and State and Federal Governments.

ESS complies with all applicable laws regarding equal employment opportunity. ESS does not unlawfully discriminate in employment opportunities or practices on the basis of race, color, religion, sex, national origin, citizenship status, age, physical or mental disability, past present or future membership in a U.S. Uniformed Service or any other characteristics protected by law.

## b. Key Individuals

Key individuals who will be involved in this project shall be:
**ESS Personnel**

OPERATIONS MANAGER – Detric Murray
Mr. Murray will have direct oversite of this project and shall be the interface with GMU, Operations Staff, Reporting, Laboratory, and Regulatory Agencies. He holds a Class I Wastewater License and has been in the industry for over 12 years.

ENVIRONMENTAL SERVICES DIRECTOR – Cody Hoehna
Mr. Hoehna will have back up oversight to the Operations Manager as necessary. He holds a Class II Wastewater License and has been employed with ESS for over 20 years.

EH&S MANAGER – Jessica Young
Mrs. Young is responsible for all environmental health and safety of ESS employees and facilities, and has been employed with ESS for over 26 years.

## c. References

**REFERENCE #1**

| | |
|---|---|
| Facility and location: | Chesterfield County Public Schools, Chesterfield County, VA |
| Facility description: | Since 2017, ESS operates two facilities for Chesterfield County Public Schools. The two facilities are designed for a flowrate of 0.040 MGD and 0.016 MGD respectively. Each facility is designed with a flow equalization tank, activated sludge treatment, secondary clarification, and disinfection. Each facility is staffed on a full time basis. |

Contact: Ms. Lisa Dutton, Environmental Health and Safety Manager
Phone– (804) 318-8800
Email – DuttonL@Chesterfield.gov

**REFERENCE #2**

Facility and Location: Prince William County Public Schools, Prince William County, VA

Facility description: Since 2011, Operation of three water systems at the Prince William County Schools, and operation of a small wastewater treatment facility at one location. Due to the size of the systems, they are only required to be operated two to three times per week.

Contact: Mr. Wayne French, Administrative Coordinator, Environmental Compliance
Phone – (703) 791-7205
Email – FrenchWJ@pwcs.edu

**REFERENCE #3**

Facility and Location: FCPS Gunston Elementary School, Fairfax County, VA

Facility description: For more than 30 years, ESS has provided services for the 0.006 MGD activated sludge treatment with tertiary treatment and UV disinfection. The plant is operated on a full-time basis.

Contact: Mr. Guyron Brock, Environmental Engineer
Phone– (703) 764-4388
Email – GRBrock@fcps.edu

ESS has not had any contracts cancelled prior to the contract end date in the past five (5) years.

# 4.0 SPECIFIC PLAN (METHODOLOGY)

## a. Approach to Providing Services

Environmental Systems Service, Ltd. (ESS) is offering this proposal for the operation of the Point Of View (POV) wastewater treatment facility owned by George Mason University (GMU) in response to RFP# GMU-CM0220-25.

With a staff of over 40 wastewater operators of varying levels and environmental professionals, ESS intends to provide a minimum of a Virginia Class III wastewater operator (s) or higher for the operation of these facilities whether fully operational or in in shutdown mode.

ESS shall provide Operational services for the WWTPs located at GMU POV in accordance with the VPDES Permits and Operation and Maintenance Manuals.

## b. What, When and How Services will be Provided

During the shutdown phase, ESS anticipates visiting the site approximately 1-2 hours in duration for two visits per week. The one hour will be necessary to inspect the lift station and treatment plant, tank levels, log information, coordinate pump and haul efforts, and periodic addition of chlorine to maintain the membrane and prevent fouling. ESS also will provide 24 hour alarm response to system alarms within 2 hours.

In the event that the plant is started up, ESS shall convert to daily operation, 7 days per week. When the system is online and operational, a licensed operator will be required to conduct daily operations at approximately 2-4 hours in duration to complete all permit required tasks, as well as maintaining adequate process control on the system. ESS's rates include all labor, testing equipment, and miscellaneous lab and PM consumables required to conduct operations. ESS intends to provide routine preventative maintenance for the facility as required by the Operation and Maintenance Manual. Routine preventative maintenance is defined as materials and labor costs for each facility consisting of greasing of blowers, changing of belts, air filters and oil, and housekeeping at the facility. Routine preventative maintenance does not include snow removal or grounds keeping outside of the treatment facility fenced area, equipment replacement such as pump, blower, motor, or electrical component replacement. Further services not included are electrical troubleshooting, replacement of piping, valves, painting, etc. It is our understanding that these types of services are provided by GMU, unless requested by ESS. As part of our service, ESS will notify the point of contact at GMU of the need of equipment replacement or issues with the system.

Process chemicals needed for the system operation is based on specific rates and dosages as determined when the plant goes fully operational. The proposed way to handle chemical usage of the process is based on actual usage and need of chemicals. ESS can provide chemicals when the plant goes fully operational based on the cost of the material needed plus an admin fee.

Should there be any capital repairs required, ESS shall assist GMU personnel with obtaining quotes for repairs. ESS shall operate each facility in accordance with the VPDES permit.

ESS shall provide all daily, weekly, monthly, and quarterly wastewater sampling and recordkeeping as required by the VPDES permit.

ESS shall provide the required monthly Discharge Monitoring Report (DMR) for each facility as required by the DEQ and VDPES permit.

ESS staff will be available to respond to plant emergencies within two (2) hours of notification of the plant automated alarm dialing system.

ESS will provide all on and offsite laboratory services as required by each VPDES permit and for this RFP. All testing shall be done in accordance with 40 CFR 136 and the VPDES permits. Offsite laboratory testing shall include CBOD, TSS, Ammonia, TKN, NO2/NO3, Total Nitrogen, Total Phosphorus, and E. Coli with VELAP accreditation. ESS will provide all onsite laboratory test equipment for Total Residual Chlorine, pH, and Dissolved Oxygen and other process control equipment and maintain calibration and standardization records in accordance with DEQ requirements.

While the facility is in the shutdown phase, most of the above services will not be required other than the monthly DMR submittal which is currently handled as a no-discharge on the eDMR system and response to plant alarms.

## 5.0 PRICING SCHEDULE

ESS has provided the pricing schedule below in accordance with this RFP. Pricing includes the annual lump sum fee of all services requested by school.

| | | |
|---|---|---|
| Per Visit Fee – Including Travel Expenses and up to two hours on site. | Per visit | $185.00 |
| Additional Time On Site – Regular Hours (Mon.-Fri.- 7:00 AM – 3:00PM | Hour | $45.00* |
| Additional Time On Site – Overtime Hours (Mon.-Fri.- 3:30 PM – 8:00AM | Hour | $62.00 |
| Additional Time On Site – Emergency Response (Weekends) | Hour | $132.00 |
| Maintenance Fees Outside of Base Contract Fee – Scheduled – Work Day | Hour | $90.00 |
| Maintenance Fees Outside of Base Contract Fee – Emergency Response (afterhours & weekends) | Hour | $132.00 |
| Maintenance Fees Outside of Base Contract Fee – Maintenance Helper | Hour | $50.00 |
| Onsite Laboratory Equipment Rental (per month) | Month | $285.00 |
| Laboratory Services Unit Pricing -- BOD | Each | $46.00 |
| Laboratory Services Unit Pricing – CBOD | Each | $48.00 |
| Laboratory Services Unit Pricing – TSS | Each | $33.00 |
| Laboratory Services Unit Pricing – NO2/NO3 | Each | $58.00 |
| Laboratory Services Unit Pricing – E. Coli (w/Dilutions) | Each | $65.00 ($95.00) |
| Laboratory Services Unit Pricing – Total Phosphorus | Each | $56.00 |
| Laboratory Services Unit Pricing – Ammonia | Each | $47.00 |
| Laboratory Services Unit Pricing – TKN | Each | $58.00 |
| Process Chemicals or Repair Parts | Each | Cost of Material |
| Fixed Fee for Processing Parts and Chemical Orders | Each Order/Invoice | $68.00 |

*Please note that while the plant is shutdown, we propose keeping costs to a minimum to GMU, as we always have, by billing at a rate of Additional Time On Site – Regular Hours of $45.00/hour. Generally, we have found that around 1.0 hour twice per week is adequate to inspect the system and coordinate pump and haul activities provided flow is minimal. In the event that flow is increased for events, we may need to visit additional times per week to keep up with the flow.

## 6.0 ADDITIONAL REQUIRED RESPONSES

**a. Are you and/or your subcontractor currently involved in litigation with any party?** ESS is not currently involved in litigation and will not have any subcontractors on site.

**b. Please list any investigation or action from any state, local, federal or other regulatory body (OSHA, IRS, DOL, etc.) related to your firm or any subcontractor in the last three years.**
In 2024, ESS received a DOLI site citation for the following items: an electrical cord was across a walkway which could present a trip hazard, the entrance covers for a grit chamber were not guarded per requirements and the space in front of an electrical panel was not clear. All items were corrected to the approval of the VA DOLI. There have been no other citations regarding safety against ESS.

**c. Please list all lawsuits that involved your firm or any subcontractor in the last three years.** ESS has not been involved in any lawsuits in the past three years.

**d. In the past ten years, has your firm's name changed?** No, Environmental Systems Service, Ltd. (ESS) has been the company name for the duration of the time in business.

# 7.0 SAFETY

## Safety Audit and Hazard Assessment

Prior to beginning work ESS may conduct a comprehensive safety audit and hazard assessment of the site and related equipment included under ESS operational and maintenance responsibilities. The audit and assessment shall be based on OSHA and other applicable standards designed to ensure a safe workplace. Areas of focus shall include, but not limited to, fall hazards, electrical hazard exposure, machine guarding, noise, chemical exposure, drowning, dust and fumes, and other hazards as may be identified. All safety and hazardous areas identified shall be documented and presented to the owner for corrective action. In the event identified items cannot be eliminated or mitigated prior to beginning work, ESS will work with the owner to implement control measures to ensure worker safety and minimize exposure to the identified hazard.

Should hazardous situations arise following ESS assumption of O&M services, ESS and the owner shall implement corrective measures to eliminate or mitigate exposure to the identified hazard. In the event that hazards or safety concerns are identified and no action is taken or authorized on the part of the owner to eliminate or mitigate the hazard ESS reserves the right to implement corrective measures and bill the owner for expenses related to the corrective actions. In the event identified hazards are ignored with no action on the part of the owner following notification of the hazard by ESS, ESS reserves the right to terminate services immediately following notification of the intent to do so.

# 8.0 SIGNATURE

This document has been prepared by Environmental Systems Service, Ltd in response to RFP# GMU-CM0220-25 for GMU.

Name:___Cody J. Hoehna_____ Title:_Environmental Services Director_

Signature:_____Date:__April 8, 2025 _____

**ATTACHMENT A**
**SMALL BUSINESS SUBCONTRACTING PLAN**
**TO BE COMPLETED BY OFFEROR**

Offerors must advise any portion of this contract that will be subcontracted. All potential offerors are required to include this document with their proposal in order to be considered responsive.

**Small Business:** "Small business (including micro)" means a business which holds a certification as such by the Virginia Department of Small Business and Supplier Diversity (DSBSD) on the due date and time for proposals. This shall also include DSBSD certified women- owned and minority-owned businesses and businesses with DSBSD service disabled veteran owned status when they also hold a DSBSD certification as a small business on the proposal due date. Currently, DSBSD offers small business certification and micro business designation to firms that qualify.

Certification applications are available through DSBSD online at www.SBSD.virginia.gov (Customer Service).

**Offeror Name:** Environmental Systems Service, Ltd.

**Preparer Name:** Cody J. Hoehna **Date:** April 8, 2025

**Who will be doing the work: □ I plan to use subcontractors ☑ I plan to complete all work**

**Instructions**

A. If you are certified by the DSBSD as a micro/small business, complete Section A of this form.

B. If the "I plan to use subcontractors" box is checked, complete Section B of this form. For the proposal to be considered and the offeror to be declared responsive, the offeror shall identify the portions of the contract that will be subcontracted to any subcontractor, to include DSBSD certified small business for the initial contract period in relation to the offeror's total price for the initial contract period in Section B.

**Section A**

If your firm is certified by the DSBSD provide your certification number and the date of certification.

Certification Number: 656830 Certification Date: 02/21/2025 - 02/21/2030

**Section B**

If the "I plan to use subcontractors" box is checked, populate the requested information below, per subcontractor to show your firm's plans for utilization of any subcontractor, to include DSBSD-certified small businesses, in the performance of this contractfor the initial contract period in relation to the offeror's total price for the initial contract period. Certified small businesses includebut are not limited to DSBSD-certified women-owned and minority-owned businesses and businesses with DSBSD service disabled veteran-owned status that have also received the DSBSD small business certification. Include plans to utilize small businesses as part of joint ventures, partnerships, subcontractors, suppliers, etc. It is important to note that these proposed participation will be incorporated into the subsequent contract and will be a requirement of the contract. Failure to obtain the proposed participation dollar value or percentages may result in breach of the contract.

**Plans for Utilization of Any subcontractor, to include DSBSD-Certified Small Businesses, for this Procurement**

**Subcontract #1**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #2**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #3**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #4**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____

**Subcontract #5**

Company Name: _____ SBSD Cert #: _____
Contact Name: _____ SBSD Certification: _____
Contact Phone: _____ Contact Email: _____
Value % or $ (Initial Term): _____ Contact Address: _____
Description of Work: _____