Fact Sheet Attachments – Table of Contents

Waterford Sewage Treatment Plant

VA0060500

Attachment 1

Facility Schematic/Diagram

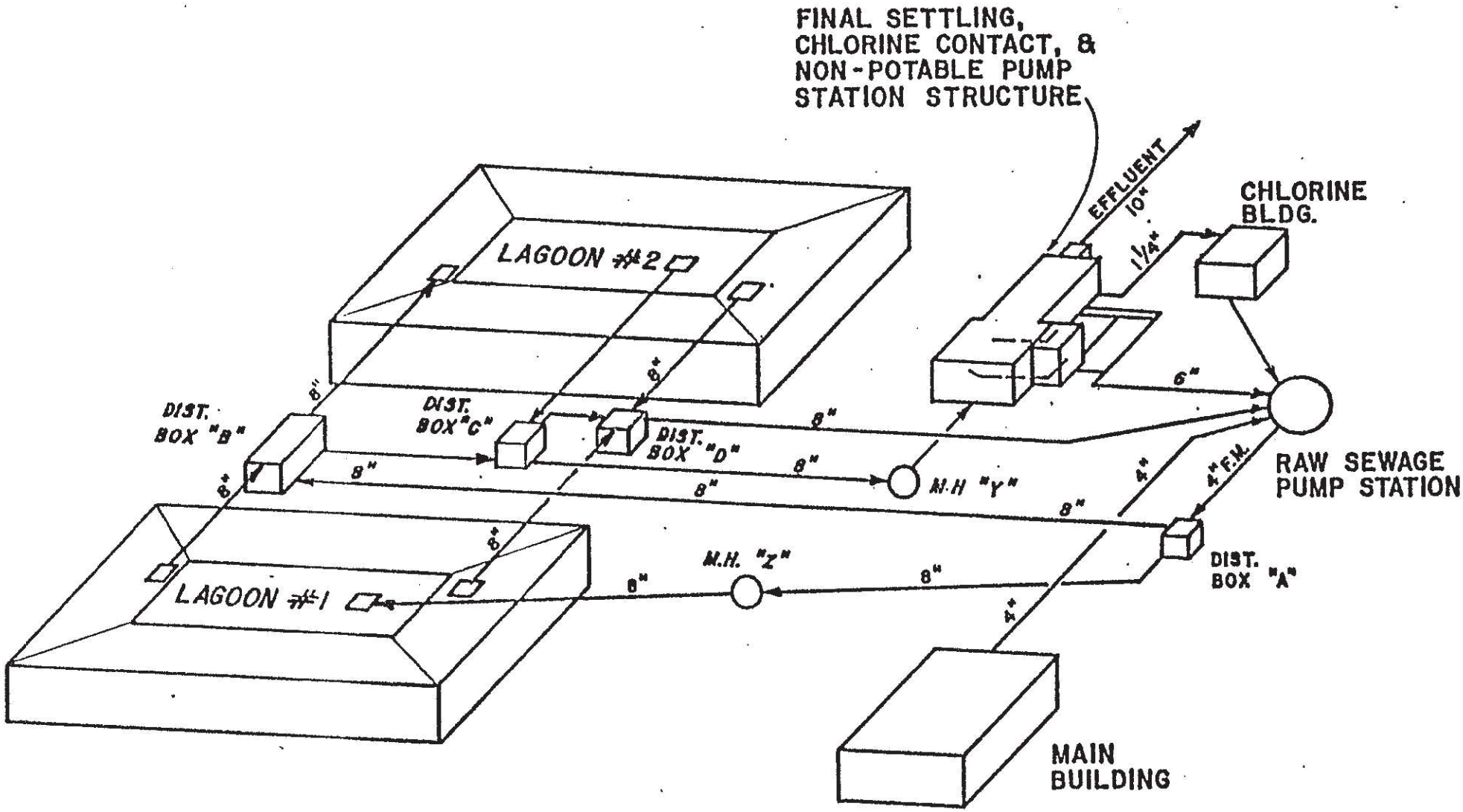
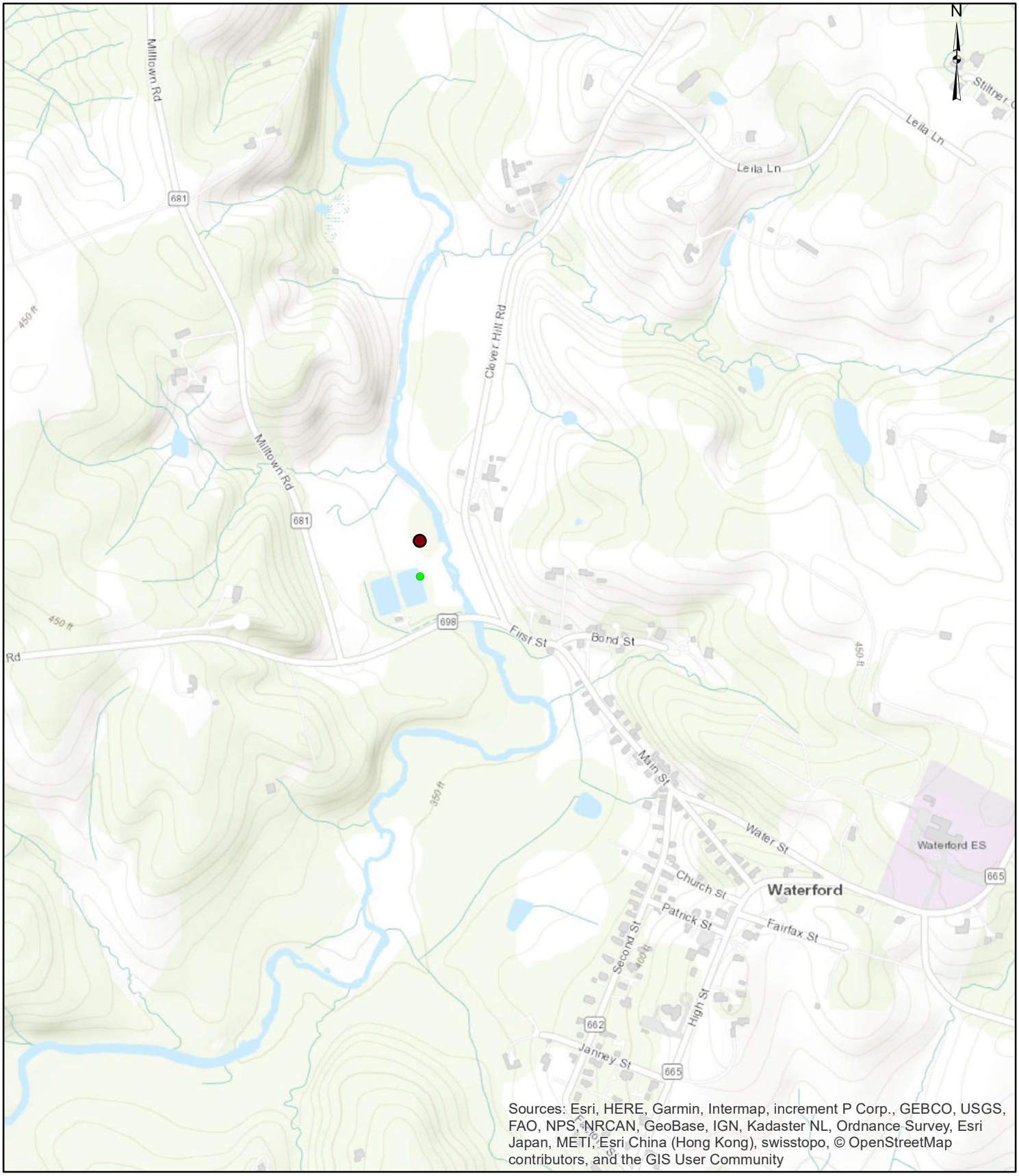


FIG. II SCHEMATIC FLOW DIAGRAM

Attachment 2

Topographic Map of Waterford (215A)

Waterford Sewage Treatment Plant



Legend

- VA0060500 Outfall 001
- VA0060500 Waterford Sewage Treatment Plant

Attachment 3

Facility Site Inspection Report 2019

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193

(703) 583-3800

www.deq.virginia.gov

David K. Paylor
Director

Thomas A. Faha
Regional Director

Matthew J. Strickler
Secretary of Natural Resources

July 1, 2019

By email: wdownes@loudounwater.org

Mr. Kinsey Downes
Director, Water Reclamation
Loudoun Water
44771 Loudoun Water Way
P.O. Box 4000
Ashburn, VA 20147

Re: LCSA – Waterford STP – Permit # VA0060500

Dear Mr. Downes:

Attached is a copy of the Inspection Report generated while conducting a Facility Technical Inspection at the Waterford - Sewage Treatment Plant (STP) on May 29, 2019. This letter is not intended as a case decision under the Virginia Administrative Process Act, Va. Code § 2.2-4000 *et seq*. (APA).

Please review the requirements and recommendations addressed in the "Request for Corrective Action", section and submit in writing, a progress report to this office by August 1, 2019. Your response may be sent either via the US Postal Service or electronically, via E-mail. If you choose to send your response electronically, we recommend sending it as an Acrobat PDF or in a Word-compatible, write-protected format. Additional inspections may be conducted to confirm the facility is in compliance with permit requirements.

If you have any questions or comments concerning this report, please contact Mark Evans at the Northern Regional Office at (703) 583-3811 or by E-mail at Mark.Evans@deq.virginia.gov

Sincerely,

Mark Evans
Environmental Specialist II

cc: Permit/DMR File;
Water Compliance Manager
Electronic Copy:
Mr. Raymond Kirkpatrick Jr. Rkirkpatrick@loudounwater.org
Mr. Charles Triplett ctriplett@loudounwater.org
Shipman, Caitlin Caitlin.Shipman@deq.virginia.gov

PREFACE

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0060500	**February 12, 2014**	**Continued on January 14, 2019**	**February 11, 2019**
Facility Name	Address		Telephone Number
Waterford STP	**40024 Old Wheatland Road Waterford, VA 20197**		--
Owner Name	Address		Telephone Number
Loudoun County Sanitation Authority (LCSA)	**44771 Loudoun Water Way, P.O. Box 4000 Ashburn, VA 20147**		--
Responsible Official	Title		Telephone Number
Mr. Kinsey Downes	**LCSA Director, Water Reclamation**		**(571) 919-9814**
Responsible Operator	Operator Cert. Class/number		Telephone Number
Austin Kirkpatrick	**Class 2 / 1965008923**		**(703) 687-7712**

TYPE OF FACILITY:

DOMESTIC - STP				**INDUSTRIAL**			
Federal		Major		Major		Primary	
Non-federal	**X**	Minor	**X**	Minor		Secondary	

INFLUENT CHARACTERISTICS: **STP**		DESIGN:	
	Flow	**0.058 MGD**	

OUTFALL 001 (Wastewater Treatment Plant) EFFLUENT LIMITS (mg/L unless otherwise indicated):

Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
Flow (MGD)	**NA**	**NL**	**NL**	**Ammonia**	**NA**	**12**	**18**
pH (S.U.)	**6.0**	**NA**	**9.0**	**DO (mg/L)**	**6.8**	**NA**	**NA**
TSS (mg/L; kg/day)	**NA**	**30; 6.6**	**45; 9.9**	**TRC[1] (after contact)**	**1.0**	**NA**	**NA**
BOD5 (mg/L; kg/day)[1]	**NA**	**24; 5.3**	**36; 7.9**	**TRC[2] (after dechlor.)**	**NA**	**0.017**	**0.019**
E. Coli (#/100 ml)	**NA**	**126**	**NA**				

Receiving Stream	**South Fork Catoctin Creek**
Basin	**Potomac River**
Discharge Point (LAT)	**39° 11' 30" N**
Discharge Point (LONG)	**77° 37 00" W**

1. Total Residual Chlorine (TRC) after chlorine contact tank and after dechlorination.

DEQ
WASTEWATER FACILITY
INSPECTION REPORT
PART 1

FACILITY NAME: **Waterford STP**	**INSPECTION DATE:** **05/29/2019** **INSPECTOR:** Mark Evans
PERMIT No.: **VA0060500**	**REPORT DATE:** **06/03/2019**
TYPE OF FACILITY: ☑ **Domestic:** ☐ Major ☑ Minor ☐ Federal ☑ Non-Federal	☐ **Industrial** ☐ Major ☐ Minor ☐ Primary ☐ Secondary
TOTAL TIME SPENT **24 hours w/ travel & report**	**UNANNOUNCED INSPECTION?** ☑ Yes ☐ No
REVIEWED BY / DATE: 6/30/19	
PRESENT DURING INSPECTION: Caitlin Shipman - DEQ and Charles Triplett and Austin Kirkpatrick - Loudoun Water– LCSA	
TYPE OF INSPECTION: ☑ Routine ☐ Compliance/Assistance/Complaint ☐ Re-inspection	
DATE OF LAST INSPECTION: 06/30/16 (CEI)	
POPULATION SERVED: **Approx. 275**	**CONNECTIONS SERVED:** **Approx. 100**

LAST MONTH (April):

Effluent (from DMR):

Avg./Max. Flow: **0.042/0.057 MGD**	pH range: **7.0 S.U. to 7.7 S.U.**	D.O. min: **9.8 mg/L**

1. Data Verified in Preface:	☑ Updated ☐ No change
2. Has there been any new construction? • If so, were plans and specifications approved? DEQ Approval Date: **Not Applicable (NA)**	☐ Yes ☑ No

(A) PLANT OPERATION AND MAINTENANCE

1. Class and number of licensed operators: I: **0** II: **2** III: **0** IV: **0** Trainee: **1** Comments:	
2. Hours per day plant is manned: Comments: **5 days/week and days when discharging.**	**5 hours a day**
3. Describe adequacy of staffing.	☑ Good ☐ Average ☐ Poor
4. Is there an established and adequate program for training personnel? Comments: **On-the-job training, VA Rural Water Association guides, and VA Tech. Short School**	☑ Yes ☐ No
5. Are preventive maintenance task schedules being met? Comments:	☑ Yes ☐ No
6. Describe the adequacy of the training program. Comments:	☐ Good ☑ Average ☐ Poor
7. Does the plant experience any organic or hydraulic overloading? Comments:	☐ Yes ☑ No
8. Has there been any bypassing or overflows since the last inspection? Comments:	☐ Yes ☑ No
9. Is the standby generator (including power transfer switch) operational and exercised regularly? Comments:	☑ Yes ☐ No
10. Is the plant alarm system operational and tested regularly? Comments:	☑ Yes ☐ No
11. How often is the: a. Standby generator exercised? b. Power Transfer Switch? c. Alarm System? Comments: **9 operators are on the Verbatim™ auto-dialer system.**	a. **Weekly** b. **Weekly** c. **Weekly**
12. When was the cross connection control device last tested on the potable water service?	**NA**
13. Is sludge disposed of in accordance with the approved sludge management plan? Comments: **Approximately 2,000 gallons of sludge is transported once/year to the Broad Run Water Reclamation Facility (VA0091383)**	☑ Yes ☐ No
14. Is septage received? If so, is septage loading controlled, and are appropriate records maintained? Comments: **NA**	☐ Yes ☑ No ☐ Yes ☐ No
Overall Appearance of Plant	☑ **Good** ☐ **Average** ☐ **Poor**

(B) PLANT RECORDS

1. Which of the following records does the plant maintain? a. Operational Logs for each unit process b. Instrument maintenance and calibration c. Mechanical equipment maintenance d. Industrial waste contribution (Municipal Facilities) Comments:	a. ☑ Yes ☐ No b. ☑ Yes ☐ No c. ☑ Yes ☐ No d. ☐ Yes ☑ No
2. What does the operational log contain? ☑ Visual observations ☑ Flow measurement ☑ Laboratory results ☑ Process adjustments ☐ Control calculations ☐ Other (specify) Comments:	
3. What do the mechanical equipment records contain? ☑ As built plans and specs ☑ Spare parts inventory ☑ Manufacturer's instructions ☑ Equipment/parts suppliers ☑ Lubrication schedules ☐ Other (specify)	

Comments:	
4. What do the industrial waste contribution records contain (Municipal Only)? ☐ Waste Characteristics ☐ Locations and discharge types ☐ Impact on plant ☐ Other (specify) Comments: **NA**	
5. Which of the following records are kept at the plant and available to personnel? ☑ Equipment maintenance records ☑ Operational Log ☐ Industrial contributor records ☑ Instrumentation records ☑ Sampling and testing records Comments:	
6. Records not normally available to plant personnel and their location: **All records available onsite.**	
7. Were the records reviewed during the inspection?	☑ Yes ☐ No
8. Are the records adequate and the O & M Manual current?	☑ Yes ☐ No
9. Are the records maintained for the required 3-year time period?	☑ Yes ☐ No

(C) SAMPLING

1. Do sampling locations appear to be capable of providing representative samples? Comments:	☑ Yes ☐ No
2. Do sample types correspond to those required by the VPDES permit? Comments:	☑ Yes ☐ No
3. Do sampling frequencies correspond to those required by the VPDES permit? Comments:	☑ Yes ☐ No
4. Are composite samples collected in proportion to flow? Comments:	☑ Yes ☐ No
5. Are composite samples refrigerated during collection? Comments:	☑ Yes ☐ No
6. Does plant maintain required records of sampling? Comments:	☑ Yes ☐ No
7. Does plant run operational control tests? Comments:	☑ Yes ☐ No

NR = Not Reviewed

(D) TESTING

1. Who performs the testing?	☑ Plant	☑ Central Lab	☐ Commercial Lab
Name: **Loudoun Water Laboratory**			
If plant performs any testing, complete 2-4. **Plant performs pH, DO, and TRC**			
2. What method is used for chlorine analysis?	**DPD Colorimetric**		
3. Does plant appear to have sufficient equipment to perform required tests?	☑ Yes ☐ No		
4. Does testing equipment appear to be clean and/or operable?	☑ Yes ☐ No		
Comments: **See laboratory inspection report below**			

(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY

1. Is the production process as described in the permit application? (If no, describe changes in comments)?	☐ Yes ☐ No
2. Do products and production rates correspond as provided in the permit application? (If no, list differences in comments.)	☐ Yes ☐ No
3. Has the State been notified of the changes and their impact on plant effluent? Date:	☐ Yes ☐ No
Comments: **NA**	

Problems identified at last inspection: 06/30/16	**Corrected?**
No major problems were identified.	☐ Yes ☐ No

SUMMARY

Prior to this inspection, DEQ reviewed the permit factsheet, which states: "The Waterford Wastewater Treatment Plant (WWTP) is an enhanced aerated lagoon facility designed to treat an average of 58,000 GPD, but normally treats about 18,000 GPD; discharge is intermittent, with up to 28-32 discharge events per year on a weekly basis. Each weekly discharge event typically averages about 42,000 GDP. Discharge during the winter is limited to occasional events to maintain pond level. Treatment consists of the following stages: aerated lagoon, secondary clarification enhanced with aluminum sulfate addition, tablet chlorination and dechlorination, and post aeration. The facility serves a population of about 275 people.

The wastewater enters the facility by gravity sewer discharging to an influent sewage pump station. The station contains two submersible sewage pumps that discharge through a 4-inch force main to Distribution Box (D-Box) A. The wastewater flows from D-Box A by 8-inch gravity sewer to the aerated lagoons.

There are two aerated lagoons, normally operating in series, to provide the initial stage of secondary treatment. Wastewater enters one end of Lagoon 1 from D-Box A. Lagoon 1 provides about 8.25 days of detention for treatment at design flow. At the opposite end of lagoon 1 is an 8-inch outlet that allows the wastewater to flow by gravity, through D-Box B to Lagoon 2. Lagoon 2 provides another 8.25 days of detention to complete biological treatment. Each lagoon has a normal water surface of 194 feet by 120 feet at a depth of 10 feet. The lagoons have sloped sides, and the earthen bottom and sides are sealed with bentonite clay. Aeration is provided by air diffusion through a grid of 1/2- inch, slotted, polyethylene tubing laid in rows across the lagoon bottom and fed by a 4-inch PVC header. Air is supplied by two, positive displacement blowers.

After biological treatment the wastewater exits Lagoon 2 through an 8-inch-line and flows by gravity to D-Box C. Aluminum sulfate (alum) is added at this point in the process and the wastewater continues its flow by gravity to the two secondary clarifiers. The incoming flow is split between the clarifiers and any solids escaping from the lagoons are settled out to complete secondary treatment. Each clarifier is 10-foot by 10-foot square with a hopper bottom and provides about 4.2 hours of detention at design flow. Solids that settle to the hopper bottoms are drained off periodically to the influent pump station.

After pond treatment and clarification, the wastewater is disinfected in the two chlorine contact tanks. Disinfection is achieved using a 4-tube, tablet feed system that allows calcium hypochlorite tablets to dissolve into the waste stream as it flows through the feeder. The tanks are fitted with over/under baffles to prevent short circuiting. Each tank has a volume of 2100 gallons and provides about 50 minutes of detention time at design flow. Following the chlorine contact tank is a post aeration and dechlorination tank. Water leaving the chlorine contact tank passes through a 4-tube tablet feeder that provides a dose of sodium bi-sulfite to de-chlorinate the wastewater prior to discharge. When a discharge event is initiated the post aeration air diffuser in the tank is manually turned on. Sampling is conducted after the dechlorination chamber as the flow enters the outfall line. After all treatment, flow is discharged from the plant through a 10-inch diameter pipe (Outfall 001) into the South Fork of Catoctin Creek using a shore-based headwall with a backwater flap valve."

Mr. Evans and Caitlin Shipman (hereinafter DEQ) arrived at 10:30 am, met with Mr. Kirkpatrick and Mr. Triplett (hereinafter the operators) and explained that the purpose of the visit was a technical inspection to observe the facility's level of compliance with its discharge permit.

DEQ asked the operators the general and process specific questions presented on standard DEQ inspection checklists and about the unit processes at the facility. The responses to the general questions are shown above and the unit process checklists are shown on pages 8 through 15 of this report. DEQ also inspected

the on-site field laboratory and observed as Mr. Kirkpatrick calibrated the field instruments and conducted in-situ pH and dissolved oxygen measurements on the facility's effluent (see pages 19 through 27 of this report). The field laboratory inspection resulted in the following observations:

- **The dissolved oxygen concentration at Outfall 001 was measured at 6.68 standard units (S.U.), which rounds to 6.7 mg/L;**

- **DEQ requested certificates of analyses (CoA) data (including bench and log information) for all the samples collected to support the DMRs for the months of February, March, and April of 2019; however, the facility provided only the laboratory's general Certificate and Scope for the analyses they are permitted to conduct, and DEQ has not received the requested information as of the date of this report;**

- **There were no records on the site for the operators to reference the NIST annual thermometer verification dates, offset values, and validation inspection temperatures for the pH and DO instruments and sample refrigerators #1 and #2 (these records were received by DEQ after the inspection).**

+

After going through the checklists, the operators and DEQ walked through the facility's main processes. DEQ observed a clean and well-run facility, as reflected in **photos 1 through 8**.

DEQ departed at approximately 12:30 pm.

REQUEST for CORRECTIVE ACTION

Recommendation 1: Provide DEQ with a plan to increase the dissolved oxygen concentration at Outfall 001 and revise the May DMR to reflect 6.7 mg/L of dissolved oxygen, as observed during the inspection.

Basis for recommendation1: Permit No. VA0060500, Part I.A., "Effluent Limitations and Monitoring Requirements,," states: "The minimum Dissolved Oxygen concentration is 6.8 mg/L"

Recommendation 2: Provide certificates of analyses (CoA) data (including bench and log information) for all the samples collected to support the DMRs for the months of February, March, and April of 2019.

Basis for recommendation 2: Permit No. VA0060500, Part I.D., "Duty to Provide Information," states: "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 me 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."

Recommendation *3:* Provide stickers on the pH and DO instruments and sample refrigerators #1 and #2 to display NIST annual thermometer verification dates, offset values, and validation inspection temperatures.

Basis for recommendation 3: Permit No. VA0060500, Part II.Q., "Proper Operation and Maintenance," states: "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."

NOTES and COMMENTS:

DEQ requested that the facility identify which EPA approved method is used for pH analyses, and the facility responded that it uses EPA-approved Hach Method 815; DEQ noted that the facility most likely meant Hach Method 8156. Please confirm or revise the facility's response.

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UNIT PROCESS: Sewage Pumping

1. Name of station: **Plant Influent**

2. Location (if not at STP):

3. Following equipment operable:

a. all pumps	☑ Yes	☐ No*	
b. ventilation	☑ Yes	☐ No*	
c. control system	☑ Yes	☐ No*	
d. sump pump	☑ Yes	☐ No*	
e. seal water system	☑ Yes	☐ No*	

4. Reliability considerations:

a. Class	☐ I	☑ II	☐ III
b. Alarm system operable:	☑ Yes	☐ No*	
c. Alarm conditions monitored:			
1. high water level	☑ Yes	☐ No*	
2. high liquid level in dry well	☑ Yes	☐ No	☐ NA
3. main electric power	☑ Yes	☐ No	☐ NA
4. auxiliary electric power	☑ Yes	☐ No*	☐ NA
5. failure of pump motors to start	☑ Yes	☐ No	☐ NA
6. test function	☑ Yes	☐ No*	
7. other	☐ Yes	☐ No	
d. Backup for alarm system operational:	☐ Yes	☑ No	☐ NA

e. Alarm signal reported to (identify): **9 operators**

f. Continuous operability provisions:

☐ generator	☑ two sources of power	
☐ portable pump	☐ One day storage	☐ other

5. Does station have bypass:

	☐ Yes*	☑ No	
a. evidence of bypass use	☐ Yes*	☐ No	☑ NA
b. can bypass be disinfected	☐ Yes	☐ No	☑ NA
c. can bypass be measured	☐ Yes	☐ No	☑ NA

6. How often is station checked? **Daily**

7. General condition: ☑ Good ☐ Fair ☐ Poor

Comments:

UNIT PROCESS: Ponds/Lagoons

1. Type:		☑ Aerated	☐ Unaerated	☐ Polishing	
2. No. of cells:		**2**	In operation:	**2**	
3. Color:	☑ Green	☐ Brown	☐ L. Brown	☐ Grey	☐ Other:
4. Odor:	☐ Septic*	☐ Earthy	☑ None	☐ Other:	
5. System operated in:		☑ Series	☐ Parallel	☐ NA	
6. If aerated, are lagoon contents mixed adequately?			☑ Yes	☐ No*	☐ NA
7. If aerated, is aeration system operating properly?			☑ Yes	☐ No*	☐ NA
8. Evidence of following problems:					
a. vegetation in lagoon or dikes			☐ Yes*	☑ No	
b. rodents burrowing on dikes			☐ Yes*	☑ No	
c. erosion			☐ Yes*	☑ No	
d. sludge bars			☐ Yes*	☑ No	
e. excessive foam			☐ Yes*	☑ No	
f. floating material			☐ Yes*	☑ No	
9. Fencing intact:			☑ Yes	☐ No*	
10. Grass maintained properly:			☑ Yes	☐ No	
11. Level control valves working properly:			☑ Yes	☐ No*	
12. Effluent discharge elevation:		☐ Top	☐ Middle	☑ Bottom	
13. Freeboard:		**>3** ft.			
14. Appearance of effluent:		☑ Good	☐ Fair	☐ Poor	
15. General condition:		☑ Good	☐ Fair	☐ Poor	
16. Are monitoring wells present?			☑ Yes	☐ No	
Are wells adequately protected from runoff?			☑ Yes	☐ No*	☐ NA
Are caps on and secured?			☑ Yes	☐ No*	☐ NA

Comments:

UNIT PROCESS: Sedimentation

☐ Primary ☑ Secondary ☐ Tertiary

1. Number of units **2**	In operation: **2**			
2. Proper flow distribution between units:	☐ Yes	☐ No*	☐ NA	
3. Signs of short circuiting and/or overloads:	☐ Yes	☑ No		
4. Effluent weirs level:	☑ Yes	☐ No*		
Clean:	☑ Yes	☐ No*		
5. Scum collection system working properly:	☑ Yes	☐ No*	☐ NA	
6. Sludge collection system working properly:	☑ Yes	☐ No*		
7. Influent, effluent baffle systems working properly:	☑ Yes	☐ No*		
8. Chemical addition:	☑ Yes	☐ No		
Chemicals: **Alum**				
9. Effluent characteristics: **Clear**				
10. General condition:	☑ Good	☐ Fair	☐ Poor	

Comments**: The sludge in the clarifiers is pumped back to Pond #1 three times per day, and all the sludge in the clarifiers (approximately 2,000 gallons) is cleaned out once per year and transported to the Broad Run Water Reclamation Facility (VA0091383).**

UNIT PROCESS: Chlorination

1. No. of chlorinators:	**2**	In operation:	**2**	
2. No. of evaporators:	**NA**	In operation:	**NA**	
3. No. of chlorine contact tanks:	**2**	In operation:	**2**	
4. Proper flow distribution between units:		☑ Yes	☐ No*	☐ NA

5. How is chlorine introduced into the wastewater?
   - ☐ Perforated diffusers
   - ☐ Injector with single entry point
   - ☑ Other **Tablet feeders**

6. Chlorine residual in basin effluent:	**3.8 mg/L**		
7. Applied chlorine dosage:	**Use tablets (refill as needed)**		
8. Contact basins adequately baffled:	☑ Yes	☐ No*	
9. Adequate ventilation:			
a. cylinder storage area **NA**	☐ Yes	☐ No*	
b. equipment room **NA**	☐ Yes	☐ No*	
10. Proper safety precautions used:	☑ Yes	☐ No*	
11. General condition:	☑ Good	☐ Fair	☐ Poor

Comments:

UNIT PROCESS: Dechlorination

1. Chemical used:	☐ Sulfur Dioxide		☐ Bisulfite	☑ Other
2. No. of sulfonators:	0	In operation:	0	
3. No. of evaporators:	0	In operation:	0	
4. No. of chemical feeders:	0	In operation:	0	
5. No. of contact tanks:	**2**	In operation:	**2**	
6. Proper flow distribution between units:		☑ Yes	☐ No*	☐ NA

7. How is chemical introduced into the wastewater?
   - ☐ Perforated diffusers
   - ☐ Injector with single entry point?
   - ☑ Other **Tablet feeders**

8. Control system operational:	☑ Yes	☐ No*	
a. residual analyzers:	☑ Yes	☐ No*	
b. system adjusted:	☐ Automatic	☑ Manual	☐ Other:
9. Applied dechlorination dose:	**Use tablets (refill as needed)**		
10. Chlorine residual in basin effluent:	**0.0 mg/L**		
11. Contact basins adequately baffled:	☑ Yes	☐ No	☐ NA
12. Adequate ventilation:			
a. cylinder storage area: **NA**	☐ Yes	☐ No*	
b. equipment room: **NA**	☐ Yes	☐ No*	
13. Proper safety precautions used:	☑ Yes	☐ No*	
14. General condition:	☑ Good	☐ Fair	☐ Poor

Comments:

UNIT PROCESS: Post Aeration

1. Number of units: **1** In operation: **1**
2. Proper flow distribution between units: ☐ Yes ☐ No* ☑ NA
3. Evidence of following problems:
   a. dead spots ☐ Yes* ☑ No
   b. excessive foam ☐ Yes* ☑ No
   c. poor aeration ☐ Yes* ☑ No
   d. mechanical equipment failure ☐ Yes* ☑ No ☐ NA
4. How is the aerator controlled? ☑ Manual ☐ Time clock ☐ Continuous ☐ Other ☐ NA
5. What is the current operating schedule? **Manually turned on when a discharge is occurring**
6. Step weirs level: ☑ Yes ☐ No ☐ NA
7. Effluent D.O. level: **6.68 S.U.**
8. General condition: ☑ Good ☐ Fair ☐ Poor

Comments: The D.O. reading during the inspection was 6.68 S.U., which is below the minimum limit of 6.8 S.U.

UNIT PROCESS: Flow Measurement

☐ Influent ☐ Intermediate ☑ Effluent

1. Type measuring device: **Mag meter**

2. Present reading: **Not recorded**

3. Bypass channel: ☐ Yes ☑ No
   Metered: ☐ Yes ☐ No ☑ NA

4. Return flows discharged upstream from meter: ☐ Yes ☑ No
   Identify:

5. Device operating properly: ☑ Yes ☐ No *

6. Date of last calibration: **Not recorded**

7. Evidence of following problems:

   a. obstructions ☐ Yes* ☑ No
   b. grease ☐ Yes* ☑ No

8. General condition: ☑ Good ☐ Fair ☐ Poor

Comments:

UNIT PROCESS: Effluent/Plant Outfall

1. Type Outfall: ☑ Shore based ☐ Submerged
2. Type if shore based: ☐ Wingwall ☑ Headwall ☐ Rip Rap
3. Flapper valve: ☑ Yes ☐ No ☐ NA
4. Erosion of bank: ☐ Yes* ☑ No ☐ NA
5. Effluent plume visible? ☐ Yes* ☑ No
6. Condition of outfall and supporting structures: ☑ Good ☐ Fair ☐ Poor
7. Final effluent, evidence of following problems:
    a. oil sheen ☐ Yes* ☑ No
    b. grease ☐ Yes* ☑ No
    c. sludge bar ☐ Yes* ☑ No
    d. turbid effluent ☐ Yes* ☑ No
    e. visible foam ☐ Yes* ☑ No
    f. unusual color ☐ Yes* ☑ No

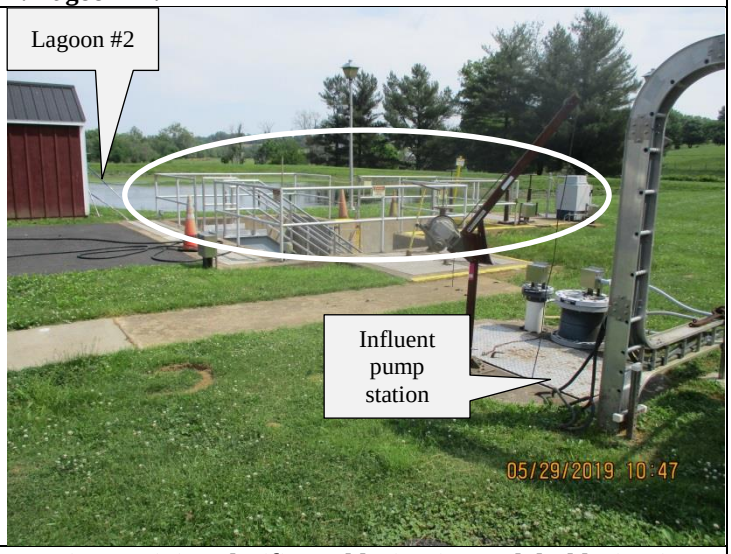
Comments: **Clear effluent and clear receiving stream.**

PHOTOS

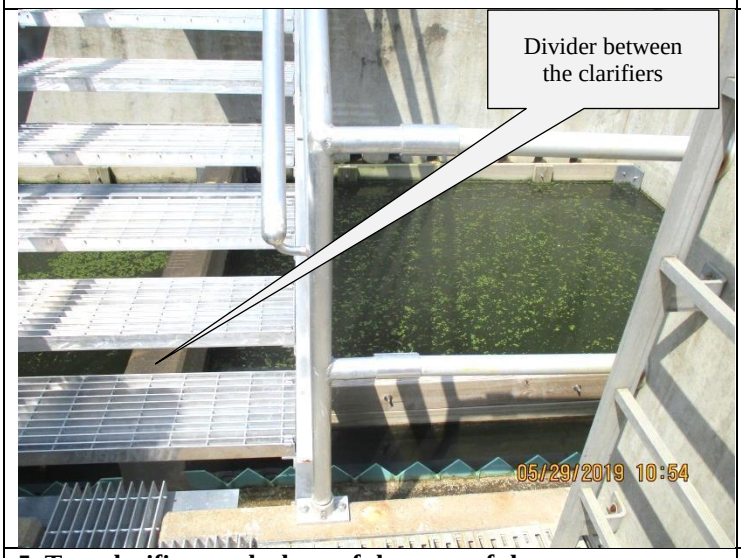
1. Influent pump station (white circle).

2. Lagoon #1.

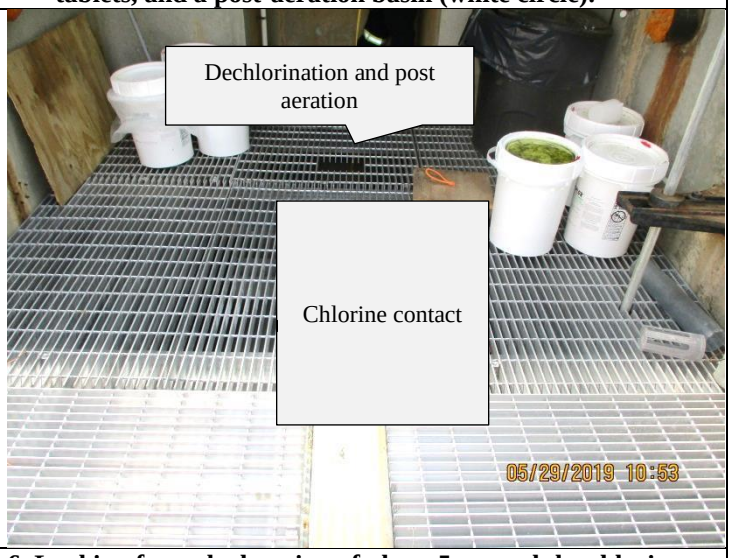
3. Lagoons #1 and #2.



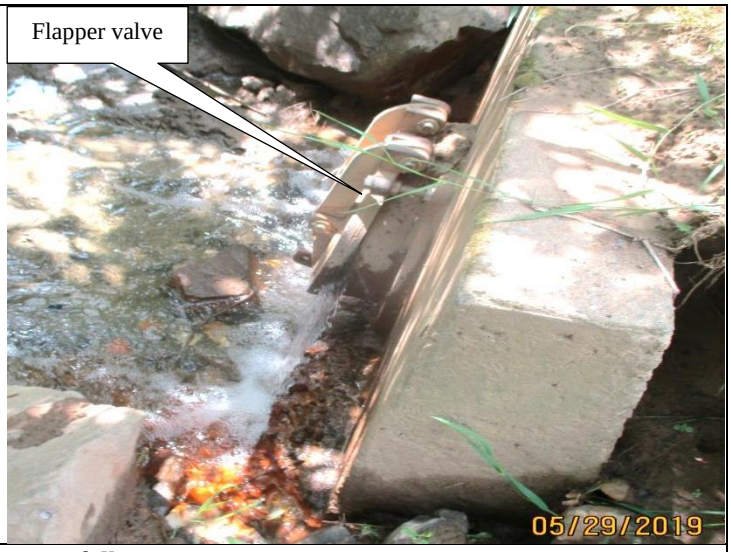
4. Unit containing clarifiers, chlorination and dechlorination tablets, and a post-aeration basin (white circle).



5. Two clarifiers at the base of the steps of the structure shown in photo 4.



6. Looking form the location of photo 5 toward the chlorine contact, dechlorination and post-aeration areas.

	
7. Close-up view of dechlorination tablet feeders.	**8. Outfall 001.**
Photos and layout by Mark Evans	

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION

LABORATORY INSPECTION REPORT

11/2014

PERMIT #: VA0060500	INSPECTION DATE: 05/29/2019	PREVIOUS INSP. DATE: 06/30/16	PREVIOUS EVALUATION: No deficiencies	TIME SPENT: 2 hours w/ travel & report

NAME/ADDRESS OF FACILITY:	FACILITY CLASS:	FACILITY TYPE:	UNANNOUNCED INSPECTION?
Waterford STP **40024 Old Wheatland Road** **Waterford, VA 20197**	☐ MAJOR ☑ MINOR ☐ MINOR (Small) ☐ VPA	☑ MUNICIPAL ☐ INDUSTRIAL ☐ FEDERAL	☑ YES ☐ NO **FFY-SCHEDULED INSPECTION?** ☐ YES ☑ NO

INSPECTOR(S): Mark Evans	REVIEWER(S):	PRESENT AT INSPECTION: Caitlin Shipman - DEQ and Charles Triplett and Austin Kirkpatrick - Loudoun Water– LCSA

LABORATORY EVALUATION	DEFICIENCIES? Yes	No
LABORATORY RECORDS	☐	☒
GENERAL SAMPLING AND ANALYSIS	☐	☑
pH PROCEDURE	☐	☑
TOTAL RESIDUAL CHLORINE PROCEDURE	☐	☑
DISSOLVED OXYGEN PROCEDURES	☐	☑
TEMPERATURE PROCEDURES	☐	☑

VELAP CERTIFICATION (on site Environmental Laboratory)	Yes	No
Does the laboratory have VELAP certification (interim or final)?	☐	☑
– Document the laboratory's VELAP laboratory number:		
– Document the effective date of the VELAP certification:		
– Document the expiration date of the VELAP certification:		
– List the certified parameters:		

VELAP ACCREDITATION (Commercial Environmental Laboratory)	Yes	No
IS A VELAP ACCREDITED LAB USED FOR OTHER PERMIT REQUIRED ANALYSES? VELAP#, LAB NAME, ADDRESS and LIST PARAMETERS:	☑	☐

VELAP #	LAB NAME[1]	ADDRESS	PARAMETERS
450115	**Loudoun Water Laboratory**	**44961 Loudoun Water Way Ashburn, VA 20146**	**Ammonia, BOD_5, TSS, and *E.coli***

IF PERMIT REQUIRED SAMPLE ANALYSIS IS PERFORMED AT ANOTHER LOCATION, ARE SHIPPING PROCEDURES ADEQUATE?	☑	☐

COPIES: ☑ DEQ - RO; ☐ Owner, ☐ Other:

1. Provide the names of <u>all</u> laboratories that contributed analytical results to DMRs for the inspected facility.

PERMIT #: VA0060500

***LABORATORY RECORDS SECTION*[1]**

LABORATORY RECORDS INCLUDE THE FOLLOWING:

☑	SAMPLING DATE	☑	ANALYSIS DATE	☐	CONT MONITORING CHART
☑	SAMPLING TIME	☑	ANALYSIS TIME	☑	INSTRUMENT CALIBRATION
☑	SAMPLE LOCATION	☑	TEST METHOD	☑	INSTRUMENT MAINTENANCE
				☐	CERTIFICATE OF ANALYSIS

WRITTEN INSTRUCTIONS INCLUDE THE FOLLOWING:

☐	SAMPLING SCHEDULES	☐	CALCULATIONS	☐	ANALYSIS PROCEDURES

	YES	NO	N/A
DO ALL ANALYSTS INITIAL THEIR WORK?	☑	☐	☐
DO BENCH SHEETS (or LOG BOOK) INCLUDE ALL INFORMATION NECESSARY TO DETERMINE RESULTS? **Certificates of Analysis requested but not provided prior to this report.**	☐	☐	☐
IS THE DMR COMPLETE AND CORRECT? LIST MONTH(S) REVIEWED: **Records for the months of February, March, and April of 2019.**	☑	☐	☐
ARE ALL MONITORING VALUES REQUIRED BY THE PERMIT REPORTED? **See above.**	☑	☐	☐
DOES CHAIN OF CUSTODY DOCUMENT PROPER SAMPLE PRESERVATION WAS MET? **See footnote [1]**	☑	☐	☐
WHEN THE CERTIFICATE OF ANALYSIS CONTAINS FLAGGED DATA IS THE 'FLAG' REPORTED ON THE DMR? **Certificates of Analyses requested but not provided prior to this report.**	☐	☐	☑

GENERAL SAMPLING AND ANALYSIS SECTION

	YES	NO	N/A
ARE SAMPLE LOCATIONS ACCORDING TO PERMIT REQUIREMENTS?	☑	☐	☐
ARE PERMIT REQUIRED SAMPLE COLLECTION PROCEDURES APPROPRIATE?	☑	☐	☐
ARE EFFLUENT SAMPLES REPRESENTATIVE OF THE MONITORED ACTIVITY?	☑	☐	☐
ARE PERMIT REQUIRED COMPOSITE SAMPLES FLOW PROPORTIONAL? **NOTE:** Equal volume composite aliquots are acceptable ***if the instantaneous flow is within ± 10% of the daily average flow during the monitoring period***. Some permits specify how the composite is to be taken (e.g., 5G/8HC).*	☑	☐	☐
IS COLLECTION SAMPLE EQUIPMENT ADEQUATE?	☑	☐	☐
IS FLOW MEASUREMENT ACCORDING TO PERMIT REQUIREMENTS?	☑	☐	☐

DEPARTMENT OF ENVIRONMENTAL QUALITY – WATER DIVISION

LABORATORY INSPECTION REPORT SUMMARY

FACILITY NAME:	**Waterford STP**	Permit #:	**VA0060500**	INSPECTION DATE:	**05/29/2019**
LABORATORY EVALUATION		☑	No required actions at this time		
		☐	**REQUIRED CORRECTIVE ACTION(s) IDENTIFIED**		

SUMMARY of REQUEST FOR CORRECTIVE ACTION

Lab Records

Laboratory Records section deficiency and required action:

- None

General Sampling and Analysis

General Sampling and Analysis section deficiency and required action:

- None

pH Analysis

pH deficiency and required action:

- None

TRC Analysis

TRC deficiency and required action:

- None

D.O. Analysis

D.O. deficiency and required action: D.O. during the inspection was measured at 6.7 mg/L, which is below the limit of 6.8 mg/L; the facility operators should develop and execute a plan to increase the D.O. of the effluent.

- None

Temperature Analysis

Temperature deficiency and required action:

- None

OTHER – Comments or Observations

- None

ANALYST:	**Austin Kirkpatrick**	VPDES NO	**VA0060500**

Meter: **HQ40d**

Parameter: Hydrogen Ion (pH)
Method: Electrometric (3/2015)

METHOD OF ANALYSIS[1]

☐	21st Edition of Standard Methods (SM 21) – 4500-H^+ B-2000 (SM 21 pH)
☐	22nd Edition of Standard Methods (SM 22), or Online Editions of Standard Methods – 4500-H^+ B-2011 (SM 22 pH)

	pH is a method-defined analyte so modifications are not allowed. [40 CFR Part 136.6]	**Y**	**N**
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? **NOTE**: Analyze 4 samples of known pH; you may use an external source of buffers or other known standards (different lot/manufacturer than buffers used to calibrate meter). Recovery for each of the 4 samples must be +/- 0.2 SU of the known concentration of the sample or within "Acceptable Range" specified by the PT provider. [SM 1020 B.1] **NOTE: The same pH buffer [values] used for calibration of the instrument can be used as LCS if from a different source or different lot.**	☑	☐
2)	**IF** a replicate sample is analyzed is there a written procedure for which result will be reported on DMR (Sample or Replicate) and is this procedure being followed? [DEQ – based on EPA Good Laboratory Practices Standards] **NA**	☐	☐
3)	Is a Laboratory Control Sample (LCS) tested at least annually and are results within acceptance criteria? [SM 21 B.2 or SM 22 1020 B.3.] **NOTE:** LCS should be a purchased Proficiency Test (PT) sample or a different buffer other than ones used for calibration of the meter [with a ±0.2 SU acceptance range or within "Acceptable Range" specified by the PT provider].. **NOTE: The same pH buffer [values] used for calibration of the instrument can be used as LCS if from a different source or different lot.**	☑	☐
4)	Is the electrode in good condition (no chloride precipitate, scratches, deterioration, etc.)? [SM 21 pH or SM 22 pH 2.b./c. and 5.b.]	☑	☐
5)	Is electrode storage solution in accordance with manufacturer's instructions? [SM 21 pH or SM 22 pH 4.a. and Mfr.]	☑	☐
6)	Is meter calibrated on at least a daily basis using three buffers all of which are at the same temperature? [SM 21 pH or SM 22 pH 4.a.] **NOTE**: Start with Buffer 7 unless manufacturer's instructions state otherwise. [**NOTE:** If meter is not capable of 3 buffer calibration use 2 buffers bracketing the expected sample pH and then measure a 3rd buffer (the measurement value recorded must be ±0.1 SU), and then reread and record value of buffer 7 to ensure ±0.1 SU.]	☑	☐
7)	After calibration, is a buffer analyzed as a check sample to verify that calibration is correct? Verification measurement should be within +/- 0.1 SU. [SM 21 1020 B 10.c. or SM 22 1020 B 11.c.]	☑	☐
8)	Is calibration verification measurement repeated with every 10 samples and at the end of a series of samples? Verification measurement should be within +/- 0.1 SU. [SM 21 pH or SM 22 pH 4020 B 2.b.] **NOTE:** Not applicable if pH meter is calibrated before taking any measurement (e.g., if operator monitors daily pH at more than one facility and calibrates before each measurement). **NA**	☑	☐
9)	Do the buffer solutions appear to be free of contamination or growths? [SM 21 pH or SM 22 pH 3.a.]	☑	☐
10)	Are buffer solutions within the listed shelf-life or have they been prepared within the last 4 weeks? [SM 21 pH or SM 22 pH 3.a.]	☑	☐
11)	Is the cap or sleeve covering the access hole on the reference electrode removed when measuring pH? [Mfr.]	☑	☐

12)	Is sample analyzed within 15 minutes of collections? [40 CFR Part 136]	☑	☐
13)	Is the electrode rinsed and then blotted dry between reading solutions (Disregard if a portion of the next sample analyzed is used as the rinsing solution.)? [SM 21 pH or SM 22 pH 4.a and 4.b]	☑	☐
14)	Is the sample stirred gently at a constant speed during measurement? [SM 21 pH or SM 22 pH 4.b.]	☑	☐
15)	Does the meter hold a steady reading after reaching equilibrium? [4.b.]	☑	☐

Comments referenced to checklist items above:

None

Other comments:

The pH meter was calibrated successfully by Austin Kirkpatrick. pH measurements were made in-situ, and the pH during the inspection was measured at 7.16 standard units (S.U.).

1. DEQ requested that the facility identify which EPA approved method is used for pH analyses, and the facility responded that it uses EPA-approved Hach Method 815; DEQ noted that the facility most likely meant Hach Method 8156.

ANALYST:	**Austin Kirkpatrick**	VPDES NO	**VA0060500**

Meter: **HQ40d**

Parameter: Dissolved Oxygen
Method: Membrane Electrode **(**11/2014)

METHOD OF ANALYSIS:[1]

☐	21st Edition of Standard Methods (SM 21) – 4500-O G-2001 (SM 21 DO)
☐	22nd of Standard Methods, or Online Editions of Standard Methods (SM 22) – 4500-O G-2011 (SM 22 DO)

	Dissolved Oxygen (D.O.) is a method-defined analyte so modifications are not allowed. [40 CFR Part 136.6]	***Y***	***N***
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? **NOTE**: Analyze 4 samples of air-saturated water. Recovery for each of the 4 samples must be +/- 4% of the calculated oxygen saturation for the altitude/barometric pressure and temperature of the samples. {Alternatively analyze 4 samples of water of known concentration (verified by iodometric titration procedure SM 21 or SM 22 4500-O C). Instrument measurements must agree within +/-0.1 mg/L of verified concentration.} [SM 21 or SM 22 1020 B.1 and 4020 B.1]	☑	☐
2)	Are calibration results (mg/L) within ± 4% of the barometric (or altitude) corrected oxygen saturated water value? [SM 21 B.2 or SM 22 1020 B.2.]	☑	☐
3)	If samples are collected, is collection carried out with a minimum of turbulence and air bubble formation and is the sample bottle allowed to overflow several times its volume? [SM 21 DO or SM 22 B 3.]	**In situ**	
4)	Are meter and electrode operable and providing consistent readings? [SM 21 DO G 2. or SM 22 DO G 2.]	☑	☐
5)	Is membrane in good condition without trapped air bubbles? **NOTE: No air bubbles ≥ 1/8 inch (total area of all bubbles).** [SM 21 DO G 3.b. or SM 22 DO G 3.b.]	☑	☐
6)	Is correct filling solution used in electrode? [Mfr.]	☑	☐
7	Are water droplets shaken off the membrane prior to calibration? [Mfr.]	☑	☐
8)	Is meter calibrated before use or at least daily? [Mfr. & SM 21 1020 B 10.a. or SM 22 1020 B 11.a]	☑	☐
9)	Is calibration procedure performed according to manufacturer's instructions? [Mfr.]	☑	☐
10)	Is sample stirred during analysis (or is there sufficient flow across probe's membrane surface)? [SM 21 DO or SM 22 DO G 3.b. and Mfr.]	☑	☐
11)	Is the sample analysis procedure performed according to manufacturer's instructions? [Mfr.]	☑	☐
12)	Is meter stabilized before reading D.O.? [Mfr.]	☑	☐
13)	Is electrode stored according to manufacturer's instructions? [Mfr.]	☑	☐

Comments referenced to checklist items above:
None

Other comments:
The D.O. meter was calibrated successfully by Austin Kirkpatrick. D.O. measurements were made in-situ, and the D.O. during the inspection was measured at 6.68 mg/L (below the limit of 6.8 mg/L).

1. DEQ requested that the facility identify which EPA approved method is used for D.O. analyses, and the facility responded that it uses EPA-approved Hach LDO Method 10360.

ANALYST:	**Austin Kirkpatrick**	VPDES NO.	**VA0062189**

Parameter: Total Residual Chlorine (TRC)
Method: DPD Colorimetric (HACH Pocket and Pocket II Colorimeter (11/2014)

X	HACH Manufacturer's Instructions (Method 8167)
	21st Edition of *Standard Methods* 4500-Cl G-2000 (SM 21 Cl)
	22nd Edition of *Standard Methods* 4500-Cl G-2011 (SM 22 Cl)

		Y	**N**
1)	Is a certificate of operator competence or initial demonstration of capability available for each analyst/operator performing this analysis? **NOTE:** Analyze 4 samples of known TRC. Must use a lot number or source that is different from that used to prepare calibration standards. May not use Spec√ ™. Acceptance range is 70-130% recovery **and** 20% Relative Standard Deviation (RSD) **or** within PT specified acceptance range **and** 20% RSD. [SM 1020 B.1]	☑	☐
2)	Is calibration curve verification checked daily using a high and a low standard? **NOTE:** May use manufacturer's installed calibration and commercially available chlorine standards, or Spec√ ™, for daily calibration verifications. [SM 21 1020]	☑	☐
3)	**IF** a replicate sample is analyzed is there a written procedure for which result will be reported on DMR (Sample or Replicate) and is this procedure being followed? [DEQ – based on EPA Good Laboratory Practices Standards] **NA**	☐	☐
4)	Is a Laboratory Control Sample (LCS) tested at least annually and are results within acceptance criteria? [SM 21 B. 2. or SM 22 1020 B 3.] **NOTE:** LCS should be a purchased Proficiency Test (PT) sample or if a known standard different from the calibration standards is used. Use the PT acceptance criteria when given or use 70-130% recovery **and** 20% Relative Standard Deviation (RSD) as the acceptance criteria.	☑	☐
5)	Are the DPD Powder Pillows stored in a cool, dry place? [Mfr.]	☑	☐
6)	Are the pillows within the manufacturer's expiration date? [Mfr.]	☑	☐
7	Are pillows appropriate for the sample size being analyzed and for Total Residual Chlorine	☑	☐
8)	Has buffering capability of DPD pillows been checked annually? (Pillows should adjust sample pH to between 6 and 7) [Mfr.]	☑	☐
9)	When pH adjustment is required, is H_2SO_4 or NaOH used? [Hach 11.3.1]	☑	☐
10)	Are cells clean and in good condition? [Mfr]	☑	☐
11)	Is the Hach colorimeter program set to measure "TRC, mg/L"? [Mfr.]	☑	☐
12)	Is the low range (0.01 mg/L resolution) used for samples containing residuals from 0.1 mg/L - 2.00 mg/L? [Mfr.]	☑	☐
13)	Is the 10-mL cell (2.5-cm diameter) used for samples from 0-2.00 mg/L? [Mfr.]	☑	☐
14)	Are samples analyzed within 15 minutes of collection? [40 CFR Part 136]	☑	☐
15)	Is meter zeroed correctly using sample for the blank analysis? [Mfr. and SM 21 1020 B.4. or SM 22 1020 B.5.]]	☑	☐
16)	Is the instrument light screen placed correctly on the meter body when the meter is zeroed and when the sample is analyzed? [Mfr.]	☑	☐

17)	Is the DPD Total Chlorine Powder Pillow mixed into the sample? [Hach 11.1]	☑	☐
18)	Is the analysis made at least three minutes but not more than six minutes after Powder Pillow addition? [Hach 11.2]	☑	☐
19)	If read-out exceeds "2.19 mg/L", is the original sample diluted correctly, and then reanalyzed within 15 minutes of the original collection time? [Hach 1.2 & 2.0]	☑	☐

Comments referenced to checklist items above:

Other comments:

- **HACH Colorimeter was calibrated successfully by Mr. Austin Kirkpatrick. TRC measurements were made in the field laboratory of the facility, and the TRC during the inspection was measured at 3.8 mg/L after chlorine contact chamber and at 0.0 mg/L after the tablet dechlorination units mg/L**

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
EQUIPMENT TEMPERATURE LOG/THERMOMETER VERIFICATION CHECK SHEET
11/2014

FACILITY NAME:	**Waterford STP**			**PERMIT NO:**	**VA0060500**	**DATE:**	**05/29/19**			
						ANNUAL THERMOMETER VERIFICATION				
						Is the NIST / NIST-Traceable Reference Thermometer within the manufacturer's expiration date or recertified yearly?				Yes/No **Yes**
EQUIPMENT	**Preservation Range**	**In Range?**	**Inspector Reading**	**Checked & Logged Daily?**	**Correct Increment?**	**DATE CHECKED**	**MARKED**		**OFFSET VALUE (Correction)**	**INSPECT TEMP**
	[redacted]						Yes	No	°C	°C
pH METER						**9/11/18**	☐	☑	**0.0**	**22.1**
D.O. METER						**9/11/18**	☐	☑	**0.0**	**22.0**
#1 Sample Refrigerator						**9/11/18**	☐	☑	**0.0**	**3**
#2 Sample Refrigerator						**9/11/18**	☐	☑	**0.1**	**3.1**

PROBLEMS: None

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
SAMPLE ANALYSIS HOLDING TIME/CONTAINER/PRESERVATION CHECK SHEET
Revised 02/2015 [40 CFR, Part 136.3, Table II]

FACILITY NAME:	**Waterford STP**	VPDES NO	**VA0060500**	DATE:	**05/29/19**

HOLDING TIMES *[Note: Collection period (for composites) and Sample Collection time (end of collection period) must be recorded on the COC.]*						**SAMPLE CONTAINER**				**PRESERVATION** *[Note: Preservation is to occur within 15 minutes of the end of the collection period.]*				
PARAMETER	APPROVED	MET?		LOGGED?		ADEQ. VOLUME		APPROP. TYPE		APPROVED	MET?		CHECKED?	
		Y	N	Y	N	Y	N	Y	N		Y	N	Y	N[1]
pH	15 MIN.	☑	☐	☑	☐	☐	☐	☐	☐	Within 15 minutes				
DISSOLVED 0_2	15 MIN	☑	☐	☑	☐	☐	☐	☐	☐	Within 15 minutes				
TRC	15 MIN	☑	☐	☑	☐	☐	☐	☐	☐	Within 15 minutes				
BOD5 & CBOD5	48 HOURS									$\leq 6^o$ C	☐	☐	☐	☑
TSS	7 DAYS									$\leq 6^o$ C	☐	☐	☐	☑
FECAL COLIFORM / *E. coli* / *Enterococci*	8 HRS									$<10^o$ C+0.008% $Na_2S_20_3$	☐	☐	☐	☑
AMMONIA	28 DAYS									$\leq 6^o$ C+H_2S0_4 pH<2	☐	☐	☐	☑
NITRATE+NITRITE[1]	28 DAYS									$\leq 6^o$ C+H_2S0_4 pH<2	☐	☐	☐	☐
METALS[1]	6 MONTHS									HNO3 pH<2 Dissolved Metals: 0.45 µm filter immediately	☐	☐	☐	☐
TKN[1]	28 DAYS									DECHLOR $\leq 6^o$ C+H_2S0_4 pH<2	☐	☐	☐	☐
PHOSPHORUS[1]	28 DAYS									$\leq 6^o$ C+H_2S0_4 pH<2	☐	☐	☐	☐

PROBLEMS:	**None**

Holding Times and Preservation References (VELAP except for Field Tests)

Comments: 1. Metals, nitrate/nitrite, TKN, and phosphorous analyses are not required in the permit.

Attachment 4

Flow Frequency Determination

Flow Frequency Determination
Waterford Sewage Treatment Plant (VA0060500)
Revised: August 22, 2019

Catoctin Creek at Taylorstown, VA (Gaging Station #01638480)
Drainage Area at the Gauging Station: 89.5 mi^2

Flow Statistic	CFS	MGD
1Q10	0.51	0.33
7Q10	0.64	0.41
30Q10	1.50	0.97
HF1Q10	6.41	4.14
HF7Q10	8.27	5.34
HF30Q10	13.1	8.47
Harmonic Mean	11.0	7.11
30Q5	2.66	1.72

High flow months: December - May
High flow statistics period: April 1, 1972 - March 31, 2007

(DA,Outfall/DA,Gauge)(Q,Gauge) = Q,Outfall

South Fork Catoctin Creek, at Outfall 001:
Drainage area at Outfall 001: 31.98 mi^2

Flow Statistic	MGD
1Q10	0.12
7Q10	0.15
30Q10	0.35
HF1Q10	1.48
HF7Q10	1.91
HF30Q10	3.03
Harmonic Mean	2.54
30Q5	0.61

Attachment 5

Planning Statement

MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE

VPDES PERMIT NO.: VA0060500

FACILITY NAME: Waterford Sewage Treatment Plant

SUBJECT: Planning Coordination Request

PERMIT WRITER: Samantha Sifre

DATE SUBMITTED FOR PLANNING REVIEW: July 30, 2024

PLANNING STAFF: Rebecca Shoemaker

DATE PLANNING REVIEW COMPLETED: August 5, 2024

Outfall Number:	**001**		
Coordinates:	39° 11' 28.93560" N, 77° 36' 56.89080" W		
Discharge Flow:	0.058 MGD		
Discharge Type:	Municipal		
Receiving Stream:	South Fork Catoctin Creek		
Stream Basin:	Potomac River	**River Mile:**	1.63
Subbasin:	Potomac River	**Stream Code:**	1ASOC
Stream Class:	III	**6th Order HUC:**	PL02
Section:	10b	**Special Standards:**	None
Salinity:	☒ Freshwater ☐ Transition Zone ☐ Saltwater		
Tidal:	☐ Yes ☒ No		
Drainage Area:	31.98 mi^2		

1. Provide ambient water quality monitoring information for the receiving stream segment. If monitoring information for the specific receiving stream segment is unavailable, please provide information on the nearest downstream monitoring station, including the station number and the distance from the outfall.

This facility discharges to South Fork Catoctin Creek. The nearest DEQ ambient monitoring station is 1ASOC001.66, which is located on South Fork Catoctin Creek at the Rt. 698 bridge crossing, approximately 0.04 miles upstream of Outfall 001. The following is the water quality summary for this segment of South Fork Catoctin Creek, as taken from the 2022 Integrated Report:

DEQ monitoring stations located in this segment of South Fork Catoctin Creek:
- *ambient water quality monitoring station 1ASOC001.66 at Route 698*
- *freshwater probabilistic monitoring station 1ASOC002.93, at 1.2 miles upstream from Route 698*

The aquatic life use is assessed as impaired based on benthic macroinvertebrate bioassessment and observed effects are noted due to previous monitoring for mercury in sediment and total phosphorus. The recreation use is assessed as impaired based on E. coli data; this impairment is included in the Catoctin Creek bacteria TMDL for the Lower South Fork Catoctin Creek watershed and the Catoctin Creek bacteria TMDL Implementation Plan is

complete. The wildlife use is considered fully supporting. There are insufficient water metals data to assess the fish consumption use.

2. Indicate below whether this facility discharges into a segment that is listed on the current 303(d) list and the WLA specified in any applicable approved TMDL.

Water Name	Impaired Use	Cause	Year First Listed as Impaired	TMDL	WLA	Basis for WLA
Impairment Information in the 2022 Integrated Report						
South Fork Catoctin Creek	Aquatic Life	Benthic Macro-invertebrate Bioassessment	2008	No	---	---
	Recreation	*E. coli*	1996	Catoctin Creek Bacteria 05/31/2002	1.60E+11 cfu/year fecal coliform 1.01E+11 cfu/year *E. coli**	200 cfu/100ml fecal coliform 126 cfu/100 ml *E. coli** --- 0.058 MGD

* The WLA is expressed in the Catoctin Creek Bacteria TMDL as cfu/year fecal coliform bacteria.

3. Indicate below whether there are downstream segments that are listed on the current 303(d) list and the WLA specified in any applicable approved TMDL.

n/a

4. Identify any monitoring or other conditions that Planning or Assessment requests to be included in the permit.

There is a completed downstream TMDL for the Chesapeake Bay, but the Bay TMDL is not addressed in this planning memorandum. 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).

This facility discharges to a segment with a benthic macroinvertebrate impairment. Planning requested quarterly nutrient monitoring related to this impairment for a previous permit cycle. Planning is not requesting any specific monitoring related to this impairment this cycle.

5. Provide information regarding any drinking water intakes located within a five-mile radius of the discharge point(s).

There are no public water supply intakes located within five miles of this discharge.

Attachment 6

Effluent Data: Ambient pH and Temperature Data

VA0060500 Waterford STP
Ambient pH and Temperature

ID	Date Time	Temp Celsius	Field Ph
1ASOC001.66			
	1/4/2023	8.45	7.6
	2/1/2023	4.28	7.6
	3/16/2023	4.42	7.24
	4/3/2023	10.15	7.95
	5/2/2023	11.53	6.86
	6/14/2023	18.74	6.96
	7/6/2023	24.61	7.46
	8/2/2023	20.15	7.23
	9/26/2023	17.05	7.56
	10/18/2023	10.72	7.58
	11/27/2023	4.01	7.55
	12/12/2023	2.94	7.43

Percentile

	90th	75th	50th	10th
pH	7.6	7.585	7.505	6.987

90th Annual Temp (°C)	20.009
90th Wet Temp (Dec-May) (°C)	10.84

Wet Temp
8.45
4.28
4.42
10.15
11.53
2.94

Attachment 7

Effluent Data: DMR Effluent and pH and Temperature Data

Permit Number: VA0060500
Due Date between
2020-03-10 and 2024-11-10

Permit Number	Outfall Number	Parameter ID	Par Desc	Quantity Average	Quantity Maximum	Quc Description	Concentration Min	Concentration Avg	Concentration Max	Cuc Description	Excursions	Monitoring Start Date	Monitoring End Date	Due Date
VA0060500	001	001	FLOW	0.027	0.071	MGD					0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	001	FLOW	0.032	0.051	MGD					0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	001	FLOW	0.043	0.060	MGD					0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	001	FLOW			MGD						5/1/2020	5/31/2020	6/10/2020
VA0060500	001	001	FLOW	0.035	0.058	MGD					0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	001	FLOW	0.018	0.026	MGD					0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	001	FLOW	0.036	0.058	MGD					0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	001	FLOW	0.041	0.065	MGD					0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	001	FLOW			MGD						10/1/2020	10/31/2020	11/10/2020
VA0060500	001	001	FLOW			MGD						11/1/2020	11/30/2020	12/10/2020
VA0060500	001	001	FLOW	0.023	0.047	MGD					0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	001	FLOW	0.035	0.054	MGD					0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	001	FLOW	0.040	0.048	MGD					0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	001	FLOW	0.040	0.058	MGD					0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	001	FLOW			MGD						4/1/2021	4/30/2021	5/10/2021
VA0060500	001	001	FLOW	0.031	0.057	MGD					0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	001	FLOW			MGD						6/1/2021	6/30/2021	7/10/2021
VA0060500	001	001	FLOW			MGD						7/1/2021	7/31/2021	8/10/2021
VA0060500	001	001	FLOW			MGD						8/1/2021	8/31/2021	9/10/2021
VA0060500	001	001	FLOW	0.023	0.051	MGD					0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	001	FLOW	0.018	0.041	MGD					0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	001	FLOW			MGD						11/1/2021	11/30/2021	12/10/2021
VA0060500	001	001	FLOW	0.047	0.066	MGD					0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	001	FLOW			MGD						1/1/2022	1/31/2022	2/10/2022
VA0060500	001	001	FLOW			MGD						2/1/2022	2/28/2022	3/10/2022
VA0060500	001	001	FLOW			MGD						3/1/2022	3/31/2022	4/10/2022
VA0060500	001	001	FLOW	0.035	0.059	MGD					0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	001	FLOW	0.048	0.063	MGD					0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	001	FLOW			MGD						6/1/2022	6/30/2022	7/10/2022
VA0060500	001	001	FLOW			MGD						7/1/2022	7/31/2022	8/10/2022
VA0060500	001	001	FLOW			MGD						8/1/2022	8/31/2022	9/10/2022
VA0060500	001	001	FLOW			MGD						9/1/2022	9/30/2022	10/10/2022
VA0060500	001	001	FLOW	0.042	0.079	MGD					0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	001	FLOW			MGD						11/1/2022	11/30/2022	12/10/2022
VA0060500	001	001	FLOW			MGD						12/1/2022	12/31/2022	1/10/2023
VA0060500	001	001	FLOW	0.056	0.064	MGD					0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	001	FLOW	0.051	0.062	MGD					0	2/1/2023	2/28/2023	3/10/2023
VA0060500	001	001	FLOW			MGD						3/1/2023	3/31/2023	4/10/2023
VA0060500	001	001	FLOW			MGD						4/1/2023	4/30/2023	5/10/2023
VA0060500	001	001	FLOW			MGD						5/1/2023	5/31/2023	6/10/2023
VA0060500	001	001	FLOW	0.042	0.062	MGD					0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	001	FLOW	0.044	0.059	MGD					0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	001	FLOW			MGD						8/1/2023	8/31/2023	9/10/2023
VA0060500	001	001	FLOW			MGD						9/1/2023	9/30/2023	10/10/2023
VA0060500	001	001	FLOW			MGD						10/1/2023	10/31/2023	11/10/2023
VA0060500	001	001	FLOW			MGD						11/1/2023	11/30/2023	12/10/2023
VA0060500	001	001	FLOW	0.036	0.093	MGD					0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	001	FLOW	0.052	0.198	MGD					0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	001	FLOW	0.042	0.050	MGD					0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	001	FLOW	0.052	0.068	MGD					0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	001	FLOW	0.055	0.065	MGD					0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	001	FLOW	0.054	0.085	MGD					0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	001	FLOW			MGD						6/1/2024	6/30/2024	7/10/2024
VA0060500	001	001	FLOW			MGD						7/1/2024	7/31/2024	8/10/2024
VA0060500	001	001	FLOW			MGD						8/1/2024	8/31/2024	9/10/2024
VA0060500	001	001	FLOW	0.024	0.072	MGD					0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	001	FLOW	0.042	0.054	MGD					0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	002	pH				6.7		7.5	SU	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	002	pH				6.7		7.8	SU	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	002	pH				6.8		7.6	SU	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	002	pH							SU		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	002	pH				7.4		8.1	SU	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	002	pH				7.7		8.2	SU	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	002	pH				7.3		7.9	SU	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	002	pH				7.2		8.2	SU	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	002	pH							SU		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	002	pH							SU		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	002	pH				7.1		8.3	SU	0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	002	pH				7.3		8.3	SU	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	002	pH				7.7		8.0	SU	0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	002	pH				6.9		8.6	SU	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	002	pH							SU		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	002	pH				7.6		8.0	SU	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	002	pH							SU		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	002	pH							SU		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	002	pH							SU		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	002	pH				7.3		7.7	SU	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	002	pH				7.2		7.7	SU	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	002	pH							SU		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	002	pH				7.4		8.1	SU	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	002	pH							SU		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	002	pH							SU		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	002	pH							SU		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	002	pH				7.5		8.2	SU	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	002	pH				7.7		8.2	SU	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	002	pH							SU		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	002	pH							SU		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	002	pH							SU		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	002	pH							SU		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	002	pH				7.6		8.0	SU	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	002	pH							SU		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	002	pH							SU		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	002	pH				7.6		8.1	SU	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	002	pH				7.2		8.1	SU	0	2/1/2023	2/28/2023	3/10/2023
VA0060500	001	002	pH							SU		3/1/2023	3/31/2023	4/10/2023
VA0060500	001	002	pH							SU		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	002	pH							SU		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	002	pH				7.7		8.3	SU	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	002	pH				7.8		8.0	SU	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	002	pH							SU		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	002	pH							SU		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	002	pH							SU		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	002	pH							SU		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	002	pH				7.7		8.3	SU	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	002	pH				7.8		8.4	SU	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	002	pH				7.0		8.7	SU	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	002	pH				7.6		8.2	SU	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	002	pH				7.9		8.2	SU	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	002	pH				7.7		8.6	SU	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	002	pH							SU		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	002	pH							SU		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	002	pH							SU		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	002	pH				7.2		8.0	SU	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	002	pH				7.5		8.1	SU	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	003	BOD5	0.9	1.0	KG/D		8	9	MG/L	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	003	BOD5	1.4	3.2	KG/D		10	20	MG/L	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	003	BOD5	1.8	4.5	KG/D		9	20	MG/L	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	003	BOD5			KG/D				MG/L		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	003	BOD5	4.9	7.9	KG/D		35	45	MG/L	2	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	003	BOD5	1.1	1.1	KG/D		11	11	MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	003	BOD5	0.3	0.5	KG/D		0	3	MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	003	BOD5	0.41	0.53	KG/D		3	3	MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	003	BOD5			KG/D				MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	003	BOD5			KG/D				MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	003	BOD5	0.4	0.2	KG/D		3	3	MG/L	0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	003	BOD5	0.7	1.1	KG/D		4	5	MG/L	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	003	BOD5	0.7	0.7	KG/D		4	4	MG/L	0	2/1/2021	2/28/2021	3/10/2021

VA0060500	001	003	BOD5	0.8	1.2	KG/D	5	6	MG/L	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	003	BOD5			KG/D			MG/L		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	003	BOD5	0.3	0.7	KG/D	3	3	MG/L	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	003	BOD5			KG/D			MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	003	BOD5			KG/D			MG/L		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	003	BOD5			KG/D			MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	003	BOD5	0.34	0.64	KG/D	2	4	MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	003	BOD5	0.34	0.41	KG/D	2	3	MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	003	BOD5			KG/D			MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	003	BOD5	0.60	1.25	KG/D	4	6	MG/L	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	003	BOD5	0.76	1.07	KG/D	5	7	MG/L	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	003	BOD5	1.29	1.34	KG/D	6	8	MG/L	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	003	BOD5	0.81	1.16	KG/D	3.37	4.51	MG/L	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	003	BOD5			KG/D			MG/L		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	003	BOD5	1.1	1.2	KG/D	4.6	5.1	MG/L	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	003	BOD5	1.9	2.1	KG/D	8.1	9.2	MG/L	0	2/1/2023	2/28/2023	3/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		3/1/2023	3/31/2023	4/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	003	BOD5	0.9	1.0	KG/D	5.22	6.26	MG/L	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	003	BOD5	2.9	3.9	KG/D	14.4	17.6	MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	003	BOD5			KG/D			MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	003	BOD5	1.8	2.2	KG/D	9.9	11.6	MG/L	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	003	BOD5	1.1	1.2	KG/D	8.2	17.4	MG/L	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	003	BOD5	1.0	1.1	KG/D	5.4	5.87	MG/L	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	003	BOD5	1.1	1.5	KG/D	4.7	6.1	MG/L	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	003	BOD5	1.0	1.6	KG/D	4.3	6.8	MG/L	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	003	BOD5	0.8	0.9	KG/D	3.2	4.0	MG/L	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	003	BOD5			KG/D			MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	003	BOD5			KG/D			MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	003	BOD5			KG/D			MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	003	BOD5	0.8	0.9	KG/D	4.1	4.5	MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	003	BOD5	0.7	0.8	KG/D	3.8	4.9	MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	004	TSS	1.6	2.1	KG/D	14	14	MG/L	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	004	TSS	2.8	5.5	KG/D	20	35	MG/L	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	004	TSS	2.7	3.9	KG/D	15	22	MG/L	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	004	TSS			KG/D			MG/L		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	004	TSS	1.3	1.7	KG/D	10	10	MG/L	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	004	TSS	2.6	2.6	KG/D	26	26	MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	004	TSS	0.7	1.0	KG/D	4	6	MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	004	TSS	1.5	2.5	KG/D	9	12	MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	004	TSS			KG/D			MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	004	TSS			KG/D			MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	004	TSS	0.6	0.6	KG/D	5	6	MG/L	0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	004	TSS	2.3	3.6	KG/D	13	18	MG/L	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	004	TSS	1.6	1.6	KG/D	14	14	MG/L	0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	004	TSS	1.8	2.4	KG/D	11	12	MG/L	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	004	TSS			KG/D			MG/L		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	004	TSS	1.0	1.6	KG/D	8	9	MG/L	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	004	TSS			KG/D			MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	004	TSS			KG/D			MG/L		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	004	TSS			KG/D			MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	004	TSS	1.2	1.6	KG/D	8	10	MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	004	TSS	1.2	1.4	KG/D	8	10	MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	004	TSS			KG/D			MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	004	TSS	2.4	4.1	KG/D	14	20	MG/L	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	004	TSS	2.1	3.0	KG/D	13	17	MG/L	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	004	TSS	2.4	3.2	KG/D	11	15	MG/L	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	004	TSS	1.55	2.79	KG/D	6.67	12.48	MG/L	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	004	TSS			KG/D			MG/L		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	004	TSS	5.2	5.3	KG/D	21.7	22.1	MG/L	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	004	TSS	2.2	2.9	KG/D	9.4	13	MG/L		2/1/2023	2/28/2023	3/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		3/1/2023	3/31/2023	4/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	004	TSS	1.4	2.2	KG/D	7.44	9.78	MG/L	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	004	TSS	2.9	3.1	KG/D	15.1	16.1	MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	004	TSS			KG/D			MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	004	TSS	2.5	3.1	KG/D	14.1	17.7	MG/L	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	004	TSS	3.2	3.8	KG/D	18.6	26.7	MG/L	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	004	TSS	1.6	2.6	KG/D	9.0	13.9	MG/L	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	004	TSS	1.5	3.1	KG/D	6.5	12.8	MG/L	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	004	TSS	1.4	2.9	KG/D	5.9	12.0	MG/L	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	004	TSS	1.3	1.8	KG/D	5.3	7.3	MG/L	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	004	TSS			KG/D			MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	004	TSS			KG/D			MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	004	TSS			KG/D			MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	004	TSS	0.8	0.9	KG/D	4.4	5.0	MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	004	TSS	0.2	0.3	KG/D	1.1	1.6	MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	007	DO				11.1		MG/L	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	007	DO				9.6		MG/L	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	007	DO				8.9		MG/L	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	007	DO						MG/L		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	007	DO				7.4		MG/L	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	007	DO				7.4		MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	007	DO				7.4		MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	007	DO				7.4		MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	007	DO						MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	007	DO						MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	007	DO				9.3		MG/L	0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	007	DO				11.8		MG/L	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	007	DO				11.9		MG/L	0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	007	DO				8.4		MG/L	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	007	DO						MG/L		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	007	DO				7.3		MG/L	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	007	DO						MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	007	DO						MG/L		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	007	DO						MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	007	DO				6.8		MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	007	DO				6.8		MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	007	DO						MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	007	DO				9.7		MG/L	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	007	DO						MG/L		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	007	DO						MG/L		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	007	DO						MG/L		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	007	DO				7.1		MG/L	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	007	DO				7.0		MG/L	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	007	DO						MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	007	DO						MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	007	DO						MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	007	DO						MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	007	DO				8.0		MG/L	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	007	DO						MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	007	DO						MG/L		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	007	DO				10.9		MG/L	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	007	DO				9.0		MG/L		2/1/2023	2/28/2023	3/10/2023

VA0060500	001	007	DO			MG/L		3/1/2023	3/31/2023	4/10/2023
VA0060500	001	007	DO			MG/L		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	007	DO			MG/L		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	007	DO	6.8		MG/L		6/1/2023	6/30/2023	7/10/2023
VA0060500	001	007	DO	7.0		MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	007	DO			MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	007	DO			MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	007	DO			MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	007	DO			MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	007	DO	9.6		MG/L	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	007	DO	10.8		MG/L	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	007	DO	10.6		MG/L	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	007	DO	9.0		MG/L	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	007	DO	8.0		MG/L	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	007	DO	7.4		MG/L	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	007	DO			MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	007	DO			MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	007	DO			MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	007	DO	7.3		MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	007	DO	7.7		MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		0.456	MG/L		4/1/2020	6/30/2020	7/10/2020
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		0.33	MG/L		7/1/2020	9/30/2020	10/10/2020
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		.15	MG/L		10/1/2020	12/31/2020	1/10/2021
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		0.46	MG/L		1/1/2021	3/31/2021	4/10/2021
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		0.371	MG/L		4/1/2021	6/30/2021	7/10/2021
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		.339	MG/L		7/1/2021	9/30/2021	10/10/2021
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		3.14	MG/L		10/1/2021	12/31/2021	1/10/2022
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)			MG/L		1/1/2022	3/31/2022	4/10/2022
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		1.34	MG/L		4/1/2022	6/30/2022	7/10/2022
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)			MG/L		7/1/2022	9/30/2022	10/10/2022
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		3.75	MG/L	0	10/1/2022	12/31/2022	1/10/2023
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		2.2	MG/L	0	1/1/2023	3/31/2023	4/10/2023
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		1.97	MG/L		4/1/2023	6/30/2023	7/10/2023
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		3.9	MG/L	0	7/1/2023	9/30/2023	10/10/2023
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		5.1	MG/L	0	10/1/2023	12/31/2023	1/10/2024
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		4.754	MG/L	0	1/1/2024	3/31/2024	4/10/2024
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		2.3	MG/L	0	4/1/2024	6/30/2024	7/10/2024
VA0060500	001	012	PHOSPHORUS, TOTAL (AS P)		2.593	MG/L	0	7/1/2024	9/30/2024	10/10/2024
VA0060500	001	013	NITROGEN, TOTAL (AS N)		7.5	MG/L		4/1/2020	6/30/2020	7/10/2020
VA0060500	001	013	NITROGEN, TOTAL (AS N)		2.232	MG/L		7/1/2020	9/30/2020	10/10/2020
VA0060500	001	013	NITROGEN, TOTAL (AS N)		4.1	MG/L		10/1/2020	12/31/2020	1/10/2021
VA0060500	001	013	NITROGEN, TOTAL (AS N)		12.81	MG/L		1/1/2021	3/31/2021	4/10/2021
VA0060500	001	013	NITROGEN, TOTAL (AS N)		18.8	MG/L		4/1/2021	6/30/2021	7/10/2021
VA0060500	001	013	NITROGEN, TOTAL (AS N)		4.0	MG/L		7/1/2021	9/30/2021	10/10/2021
VA0060500	001	013	NITROGEN, TOTAL (AS N)		10.3	MG/L		10/1/2021	12/31/2021	1/10/2022
VA0060500	001	013	NITROGEN, TOTAL (AS N)			MG/L		1/1/2022	3/31/2022	4/10/2022
VA0060500	001	013	NITROGEN, TOTAL (AS N)		25.3	MG/L		4/1/2022	6/30/2022	7/10/2022
VA0060500	001	013	NITROGEN, TOTAL (AS N)			MG/L		7/1/2022	9/30/2022	10/10/2022
VA0060500	001	013	NITROGEN, TOTAL (AS N)		5.5	MG/L	0	10/1/2022	12/31/2022	1/10/2023
VA0060500	001	013	NITROGEN, TOTAL (AS N)		19.0	MG/L	0	1/1/2023	3/31/2023	4/10/2023
VA0060500	001	013	NITROGEN, TOTAL (AS N)		8.4	MG/L	0	4/1/2023	6/30/2023	7/10/2023
VA0060500	001	013	NITROGEN, TOTAL (AS N)		6.3	MG/L	0	7/1/2023	9/30/2023	10/10/2023
VA0060500	001	013	NITROGEN, TOTAL (AS N)		21.2	MG/L	0	10/1/2023	12/31/2023	1/10/2024
VA0060500	001	013	NITROGEN, TOTAL (AS N)		22.77	MG/L	0	1/1/2024	3/31/2024	4/10/2024
VA0060500	001	013	NITROGEN, TOTAL (AS N)		17.1	MG/L	0	4/1/2024	6/30/2024	7/10/2024
VA0060500	001	013	NITROGEN, TOTAL (AS N)		1.328	MG/L	0	7/1/2024	9/30/2024	10/10/2024
VA0060500	001	068	TKN (N-KJEL)		2.015	MG/L		4/1/2020	6/30/2020	7/10/2020
VA0060500	001	068	TKN (N-KJEL)		1.41	MG/L		7/1/2020	9/30/2020	10/10/2020
VA0060500	001	068	TKN (N-KJEL)		1.13	MG/L		10/1/2020	12/31/2020	1/10/2021
VA0060500	001	068	TKN (N-KJEL)		11.4	MG/L		1/1/2021	3/31/2021	4/10/2021
VA0060500	001	068	TKN (N-KJEL)		17.5	MG/L		4/1/2021	6/30/2021	7/10/2021
VA0060500	001	068	TKN (N-KJEL)		3.9	MG/L		7/1/2021	9/30/2021	10/10/2021
VA0060500	001	068	TKN (N-KJEL)		9.93	MG/L		10/1/2021	12/31/2021	1/10/2022
VA0060500	001	068	TKN (N-KJEL)			MG/L		1/1/2022	3/31/2022	4/10/2022
VA0060500	001	068	TKN (N-KJEL)		21.7	MG/L		4/1/2022	6/30/2022	7/10/2022
VA0060500	001	068	TKN (N-KJEL)			MG/L		7/1/2022	9/30/2022	10/10/2022
VA0060500	001	068	TKN (N-KJEL)		4.57	MG/L	0	10/1/2022	12/31/2022	1/10/2023
VA0060500	001	068	TKN (N-KJEL)		16.8	MG/L	0	1/1/2023	3/31/2023	4/10/2023
VA0060500	001	068	TKN (N-KJEL)		8.1	MG/L	0	4/1/2023	6/30/2023	7/10/2023
VA0060500	001	068	TKN (N-KJEL)		5.8	MG/L	0	7/1/2023	9/30/2023	10/10/2023
VA0060500	001	068	TKN (N-KJEL)		19.9	MG/L	0	10/1/2023	12/31/2023	1/10/2024
VA0060500	001	068	TKN (N-KJEL)		21.979	MG/L	0	1/1/2024	3/31/2024	4/10/2024
VA0060500	001	068	TKN (N-KJEL)		16.1	MG/L	0	4/1/2024	6/30/2024	7/10/2024
VA0060500	001	068	TKN (N-KJEL)		0.992	MG/L	0	7/1/2024	9/30/2024	10/10/2024
VA0060500	001	120	E.COLI		1	N/CML	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	120	E.COLI		1	N/CML	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	120	E.COLI		1	N/CML	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	120	E.COLI			N/CML		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	120	E.COLI		1	N/CML	0	4/1/2020	6/30/2020	7/10/2020
VA0060500	001	120	E.COLI		1	N/CML	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	120	E.COLI		1	N/CML	0	7/1/2020	9/30/2020	10/10/2020
VA0060500	001	120	E.COLI		1	N/CML	0	10/1/2020	12/31/2020	1/10/2021
VA0060500	001	120	E.COLI		1	N/CML	0	1/1/2021	3/31/2021	4/10/2021
VA0060500	001	120	E.COLI		1	N/CML	0	4/1/2021	6/30/2021	7/10/2021
VA0060500	001	120	E.COLI		1.0	N/CML	0	7/1/2021	9/30/2021	10/10/2021
VA0060500	001	120	E.COLI		<1	N/CML	0	10/1/2021	12/31/2021	1/10/2022
VA0060500	001	120	E.COLI			N/CML		1/1/2022	3/31/2022	4/10/2022
VA0060500	001	120	E.COLI		9.6	N/CML	0	4/1/2022	6/30/2022	7/10/2022
VA0060500	001	120	E.COLI			N/CML		7/1/2022	9/30/2022	10/10/2022
VA0060500	001	120	E.COLI		1	N/CML	0	10/1/2022	12/31/2022	1/10/2023
VA0060500	001	120	E.COLI		1	N/CML	0	1/1/2023	3/31/2023	4/10/2023
VA0060500	001	120	E.COLI		1	N/CML	0	4/1/2023	6/30/2023	7/10/2023
VA0060500	001	120	E.COLI		2	N/CML	0	7/1/2023	9/30/2023	10/10/2023
VA0060500	001	120	E.COLI		1	N/CML	0	10/1/2023	12/31/2023	1/10/2024
VA0060500	001	120	E.COLI		1	N/CML	0	1/1/2024	3/31/2024	4/10/2024
VA0060500	001	120	E.COLI		1	N/CML	0	4/1/2024	6/30/2024	7/10/2024
VA0060500	001	120	E.COLI		1	N/CML	0	7/1/2024	9/30/2024	10/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	1.5		MG/L	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	2.0		MG/L	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	1.4		MG/L	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT			MG/L		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	1.4		MG/L	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	3.5		MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	1.2		MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	2.0		MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT			MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT			MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	157	CL2, TOTAL CONTACT	1.2		MG/L	0	12/1/2020	12/31/2020	1/10/2021

VA0060500	001	157	CL2, TOTAL CONTACT	1.0			MG/L	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT	1.1			MG/L	0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT	1.0			MG/L	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT	1.1			MG/L	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT	1.1			MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT	1.0			MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	157	CL2, TOTAL CONTACT	1.2			MG/L	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT	1.2			MG/L	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT	1.0			MG/L	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT	1.0			MG/L	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT	1.9			MG/L	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT	1.4			MG/L	0	2/1/2023	2/28/2023	3/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		3/1/2023	3/31/2023	4/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT	2.1			MG/L	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT	2.0			MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	157	CL2, TOTAL CONTACT	1.9			MG/L	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	1.6			MG/L	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	1.7			MG/L	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	2.0			MG/L	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	2.5			MG/L	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	3.2			MG/L	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT				MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	1.5			MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	157	CL2, TOTAL CONTACT	2.4			MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	165	CL2, INST RES MAX				MG/L		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	165	CL2, INST RES MAX				MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	165	CL2, INST RES MAX				MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	165	CL2, INST RES MAX				MG/L		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	165	CL2, INST RES MAX				MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	165	CL2, INST RES MAX				MG/L		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	165	CL2, INST RES MAX				MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	165	CL2, INST RES MAX				MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	165	CL2, INST RES MAX		0.00	0.00	MG/L	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	165	CL2, INST RES MAX				MG/L		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	2/1/2023	2/28/2023	3/10/2023
VA0060500	001	165	CL2, INST RES MAX				MG/L		3/1/2023	3/31/2023	4/10/2023

VA0060500	001	165	CL2, INST RES MAX				MG/L		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	165	CL2, INST RES MAX				MG/L		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	165	CL2, INST RES MAX				MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	165	CL2, INST RES MAX				MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	165	CL2, INST RES MAX				MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	165	CL2, INST RES MAX				MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	165	CL2, INST RES MAX				MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	165	CL2, INST RES MAX				MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	165	CL2, INST RES MAX				MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	165	CL2, INST RES MAX		<QL	<QL	MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.5			MG/L	0	2/1/2020	2/29/2020	3/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.0			MG/L	0	3/1/2020	3/31/2020	4/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.4			MG/L	0	4/1/2020	4/30/2020	5/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		5/1/2020	5/31/2020	6/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.4			MG/L	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	3.5			MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.2			MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.0			MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.2			MG/L	0	12/1/2020	12/31/2020	1/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1			MG/L	0	1/1/2021	1/31/2021	2/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.1			MG/L	0	2/1/2021	2/28/2021	3/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.0			MG/L	0	3/1/2021	3/31/2021	4/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		4/1/2021	4/30/2021	5/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.1			MG/L	0	5/1/2021	5/31/2021	6/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		7/1/2021	7/31/2021	8/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.1			MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.0			MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.2			MG/L	0	12/1/2021	12/31/2021	1/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		1/1/2022	1/31/2022	2/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		2/1/2022	2/28/2022	3/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		3/1/2022	3/31/2022	4/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.2			MG/L	0	4/1/2022	4/30/2022	5/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1			MG/L	0	5/1/2022	5/31/2022	6/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.0			MG/L	0	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		12/1/2022	12/31/2022	1/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.9			MG/L	0	1/1/2023	1/31/2023	2/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.4			MG/L	0	2/1/2023	2/28/2023	3/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		3/1/2023	3/31/2023	4/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		4/1/2023	4/30/2023	5/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		5/1/2023	5/31/2023	6/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.1			MG/L	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.0			MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.9			MG/L	0	12/1/2023	12/31/2023	1/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.6			MG/L	0	1/1/2024	1/31/2024	2/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.7			MG/L	0	2/1/2024	2/29/2024	3/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.0			MG/L	0	3/1/2024	3/31/2024	4/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.5			MG/L	0	4/1/2024	4/30/2024	5/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	3.2			MG/L	0	5/1/2024	5/31/2024	6/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT				MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	1.5			MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	213	CL2, INST TECH MIN LIMIT	2.4			MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	312	AMMONIA, AS N JUN-NOV		<QL	<QL	MG/L	0	6/1/2020	6/30/2020	7/10/2020
VA0060500	001	312	AMMONIA, AS N JUN-NOV		5	5	MG/L	0	7/1/2020	7/31/2020	8/10/2020
VA0060500	001	312	AMMONIA, AS N JUN-NOV		<QL	<QL	MG/L	0	8/1/2020	8/31/2020	9/10/2020
VA0060500	001	312	AMMONIA, AS N JUN-NOV		<QL	<QL	MG/L	0	9/1/2020	9/30/2020	10/10/2020
VA0060500	001	312	AMMONIA, AS N JUN-NOV				MG/L		10/1/2020	10/31/2020	11/10/2020
VA0060500	001	312	AMMONIA, AS N JUN-NOV				MG/L		11/1/2020	11/30/2020	12/10/2020
VA0060500	001	312	AMMONIA, AS N JUN-NOV				MG/L		6/1/2021	6/30/2021	7/10/2021
VA0060500	001	312	AMMONIA, AS N JUN-NOV				MG/L		7/1/2021	7/31/2021	8/10/2021

VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		8/1/2021	8/31/2021	9/10/2021
VA0060500	001	312	AMMONIA, AS N JUN-NOV	3.68	3.68	MG/L	0	9/1/2021	9/30/2021	10/10/2021
VA0060500	001	312	AMMONIA, AS N JUN-NOV	9.32	11.20	MG/L	0	10/1/2021	10/31/2021	11/10/2021
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		11/1/2021	11/30/2021	12/10/2021
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		6/1/2022	6/30/2022	7/10/2022
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		7/1/2022	7/31/2022	8/10/2022
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		8/1/2022	8/31/2022	9/10/2022
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		9/1/2022	9/30/2022	10/10/2022
VA0060500	001	312	AMMONIA, AS N JUN-NOV	7.25	11.6	MG/L	1	10/1/2022	10/31/2022	11/10/2022
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		11/1/2022	11/30/2022	12/10/2022
VA0060500	001	312	AMMONIA, AS N JUN-NOV	9.1	13.3	MG/L	0	6/1/2023	6/30/2023	7/10/2023
VA0060500	001	312	AMMONIA, AS N JUN-NOV	3.1	3.6	MG/L	0	7/1/2023	7/31/2023	8/10/2023
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		8/1/2023	8/31/2023	9/10/2023
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		9/1/2023	9/30/2023	10/10/2023
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		10/1/2023	10/31/2023	11/10/2023
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		11/1/2023	11/30/2023	12/10/2023
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		6/1/2024	6/30/2024	7/10/2024
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		7/1/2024	7/31/2024	8/10/2024
VA0060500	001	312	AMMONIA, AS N JUN-NOV			MG/L		8/1/2024	8/31/2024	9/10/2024
VA0060500	001	312	AMMONIA, AS N JUN-NOV	0.3	0.5	MG/L	0	9/1/2024	9/30/2024	10/10/2024
VA0060500	001	312	AMMONIA, AS N JUN-NOV	9.2	12.6	MG/L	0	10/1/2024	10/31/2024	11/10/2024
VA0060500	001	313	AMMONIA, AS N DEC-MAY	0.33		MG/L		4/1/2020	6/30/2020	7/10/2020
VA0060500	001	313	AMMONIA, AS N DEC-MAY	<QL		MG/L		7/1/2020	9/30/2020	10/10/2020
VA0060500	001	313	AMMONIA, AS N DEC-MAY	<QL		MG/L		10/1/2020	12/31/2020	1/10/2021
VA0060500	001	313	AMMONIA, AS N DEC-MAY	8.59		MG/L		1/1/2021	3/31/2021	4/10/2021
VA0060500	001	313	AMMONIA, AS N DEC-MAY	15.4		MG/L		4/1/2021	6/30/2021	7/10/2021
VA0060500	001	313	AMMONIA, AS N DEC-MAY	0.043		MG/L		7/1/2021	9/30/2021	10/10/2021
VA0060500	001	313	AMMONIA, AS N DEC-MAY	9.14		MG/L		10/1/2021	12/31/2021	1/10/2022
VA0060500	001	313	AMMONIA, AS N DEC-MAY			MG/L		1/1/2022	3/31/2022	4/10/2022
VA0060500	001	313	AMMONIA, AS N DEC-MAY	19.1		MG/L		4/1/2022	6/30/2022	7/10/2022
VA0060500	001	313	AMMONIA, AS N DEC-MAY			MG/L		7/1/2022	9/30/2022	10/10/2022
VA0060500	001	313	AMMONIA, AS N DEC-MAY	7.25		MG/L	0	10/1/2022	12/31/2022	1/10/2023
VA0060500	001	313	AMMONIA, AS N DEC-MAY	17.6		MG/L	0	1/1/2023	3/31/2023	4/10/2023
VA0060500	001	313	AMMONIA, AS N DEC-MAY	NR		MG/L	0	4/1/2023	6/30/2023	7/10/2023
VA0060500	001	313	AMMONIA, AS N DEC-MAY	NR		MG/L	0	7/1/2023	9/30/2023	10/10/2023
VA0060500	001	313	AMMONIA, AS N DEC-MAY	16		MG/L	0	10/1/2023	12/31/2023	1/10/2024
VA0060500	001	313	AMMONIA, AS N DEC-MAY	20.3		MG/L	0	1/1/2024	3/31/2024	4/10/2024
VA0060500	001	313	AMMONIA, AS N DEC-MAY	17.2		MG/L	0	4/1/2024	6/30/2024	7/10/2024
VA0060500	001	313	AMMONIA, AS N DEC-MAY	NR		MG/L	0	7/1/2024	9/30/2024	10/10/2024
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	5.472		MG/L		4/1/2020	6/30/2020	7/10/2020
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.822		MG/L		7/1/2020	9/30/2020	10/10/2020
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	2.93		MG/L		10/1/2020	12/31/2020	1/10/2021
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	1.41		MG/L		1/1/2021	3/31/2021	4/10/2021
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	1.3		MG/L		4/1/2021	6/30/2021	7/10/2021
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.071		MG/L		7/1/2021	9/30/2021	10/10/2021
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	.793		MG/L		10/1/2021	12/31/2021	1/10/2022
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL			MG/L		1/1/2022	3/31/2022	4/10/2022
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	3.6		MG/L		4/1/2022	6/30/2022	7/10/2022
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL			MG/L		7/1/2022	9/30/2022	10/10/2022
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.924		MG/L	0	10/1/2022	12/31/2022	1/10/2023
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	2.2		MG/L	0	1/1/2023	3/31/2023	4/10/2023
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.3		MG/L	0	4/1/2023	6/30/2023	7/10/2023
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.5		MG/L	0	7/1/2023	9/30/2023	10/10/2023
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	1.3		MG/L	0	10/1/2023	12/31/2023	1/10/2024
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.791		MG/L	0	1/1/2024	3/31/2024	4/10/2024
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.95		MG/L	0	4/1/2024	6/30/2024	7/10/2024
VA0060500	001	389	NITRITE+NITRATE-N, TOTAL	0.336		MG/L	0	7/1/2024	9/30/2024	10/10/2024
VA0060500	101	354	BOD5, INFLUENT	198	198	MG/L		1/1/2020	12/31/2020	1/10/2021
VA0060500	101	625	TSS, INFLUENT	153	153	MG/L		1/1/2020	12/31/2020	1/10/2021

Date	pH (SU)	Temp (°C)
4/4/2022	8.2	9.9
4/5/2022	7.7	11.1
4/6/2022	8.0	11.5
4/7/2022	7.7	12.2
4/8/2022	7.7	11.5
4/9/2022		
4/10/2022		
4/11/2022	7.7	11.5
4/12/2022	7.7	13.1
4/13/2022	7.5	15.8
4/14/2022	7.8	16.7
4/15/2022	7.9	16.3
4/16/2022		
4/17/2022		
4/18/2022	7.7	14.7
4/19/2022	7.9	13.6
4/20/2022	8.0	12.9
4/21/2022	7.7	14.0
4/22/2022		
4/23/2022		
4/24/2022		
4/25/2022	7.8	18.1
4/26/2022	7.7	19.1
4/27/2022	7.8	17.8
4/28/2022		
4/29/2022		
4/30/2022		
5/1/2022		
5/2/2022	7.8	14.3
5/3/2022	7.8	18.0
5/4/2022	7.7	18.6
5/5/2022	7.9	19.0
5/6/2022	8.0	19.3
5/7/2022		
5/8/2022		
5/9/2022	7.9	15.8
5/10/2022	7.7	17.1
5/11/2022	7.9	17.7
5/12/2022	7.7	19.3
5/13/2022	7.8	20.5
5/14/2022		
5/15/2022		
5/16/2022	7.9	22.5
5/17/2022	7.9	22.7
5/18/2022	8.2	22.6
5/19/2022	7.7	22.8
5/20/2022	8.1	24.3
5/21/2022		
5/22/2022		
5/23/2022	7.8	25.9
5/24/2022	7.8	25.6
5/25/2022	7.8	22.8
5/26/2022	7.9	22.6
5/27/2022	7.9	22.7
10/3/2022		
10/4/2022	7.9	16.1
10/5/2022	7.9	16.7
10/6/2022	7.9	17.3
10/7/2022		
10/8/2022		
10/9/2022		
10/10/2022		
10/11/2022	8.0	16.3
10/12/2022	7.8	16.3
10/13/2022	7.9	16.9
10/14/2022	7.8	16.1
10/15/2022		
10/16/2022		
10/17/2022	7.8	16.3
10/18/2022	7.6	16.8
10/19/2022	7.9	15.3
10/20/2022	7.8	13.8
10/21/2022	7.9	14.5
10/22/2022		
10/23/2022		
10/24/2022	7.9	13.9
10/25/2022	8.0	15.7
10/26/2022	7.9	15.9
10/27/2022	7.9	15.0
10/28/2022	7.9	14.2

Date	pH (SU)	Temp (°C)
1/17/2023	7.8	5.5
1/18/2023	7.9	4.2
1/19/2023	7.7	5.6
1/20/2023	7.9	5.1
1/21/2023		
1/22/2023		
1/23/2023	7.7	5.6
1/24/2023	7.6	4.8
1/25/2023	7.8	5.2
1/26/2023	8.0	4.3
1/27/2023	8.1	4.3
1/28/2023		
1/29/2023		
1/30/2023	8.1	4.9
1/31/2023	8.0	5.8
2/1/2023	8.0	5.0
2/2/2023	7.9	4.8
2/3/2023	8.0	4.8
2/4/2023		
2/5/2023		
2/6/2023	8.0	4.3
2/7/2023	8.1	4.2
2/8/2023	8.0	4.1
2/9/2023	8.0	5.9
2/10/2023	8.0	7.0
2/11/2023		
2/12/2023		
2/13/2023	8.0	6.6
2/14/2023	7.8	6.8
2/15/2023	8.0	7.5
2/16/2023	7.9	9.4
2/17/2023	7.9	9.3
2/18/2023		
2/19/2023		
2/20/2023		
2/21/2023	7.7	8.3
2/22/2023	7.2	9.2
2/23/2023	7.6	9.0
2/24/2023	7.7	10.5
6/5/2023	7.7	22.2
6/6/2023	7.7	23.8
6/7/2023	7.7	23.7
6/8/2023	7.7	23.4
6/9/2023	7.8	22.7
6/10/2023		
6/11/2023		
6/12/2023	7.8	22.6
6/13/2023	8.2	20.6
6/14/2023	8.0	22.8
6/15/2023	7.9	22.5
6/16/2023	7.9	22.9
6/17/2023		
6/18/2023		
6/19/2023		
6/20/2023	7.9	22.1
6/21/2023	8.1	23.0
6/22/2023	8.0	22.2
6/23/2023	7.8	21.7
6/24/2023		
6/25/2023		
6/26/2023	8.2	23.4
6/27/2023	7.8	25.2
6/28/2023	7.9	24.9
6/29/2023	8.3	23.6
6/30/2023	8.2	24.3
7/1/2023		
7/2/2023		
7/3/2023		
7/4/2023		
7/5/2023		
7/6/2023		
7/7/2023		
7/8/2023		
7/9/2023		
7/10/2023	8.0	22.2
7/11/2023	7.9	27.0
7/12/2023	7.8	26.5
7/13/2023	8.0	26.9
7/14/2023		
7/15/2023		
7/16/2023		
7/17/2023		
7/18/2023	7.9	24.0
7/19/2023	7.8	27.1
7/20/2023	7.8	27.1
12/4/2023	7.7	9.4

Date	pH (SU)	Temp (°C)
12/8/2023	7.8	6.1
12/9/2023		
12/10/2023		
12/11/2023	8.0	7.3
12/12/2023	8.0	6.6
12/13/2023	8.0	5.4
12/14/2023	8.0	5.5
12/15/2023	8.1	4.6
12/16/2023		
12/17/2023		
12/18/2023	8.3	5.9
12/19/2023	8.1	6.1
12/20/2023	7.9	5.5
12/21/2023	8.0	5.1

		Percentile		
	90th	75th	50th	10th
pH	8.1	8.1	8	7.7
Temp (Annual)	22.8			
Temp (Dec-May)	19.3			

Date	pH (SU)	Temp (°C)
1/2/2024	8.0	8.0
1/3/2024	8.2	6.9
1/4/2024	8.2	6.5
1/5/2024	8.1	6.0
1/6/2024		
1/7/2024		
1/8/2024	8.3	5.2
1/9/2024	8.2	5.2
1/10/2024	8.1	6.3
1/11/2024	8.1	5.8
1/12/2024	8.2	5.6
1/13/2024		
1/14/2024		
1/15/2024		
1/16/2024	7.8	6.0
1/17/2024	7.9	3.8
1/18/2024	7.9	2.6
1/19/2024	8.4	2.6
1/20/2024		
1/21/2024		
1/22/2024		
1/23/2024	8.0	3.2
1/24/2024	7.8	2.4
1/25/2024	7.8	2.5
1/26/2024	7.9	3.8
1/27/2024		
1/28/2024		
1/29/2024	8.0	5.2
1/30/2024	7.9	6.2
1/31/2024	8.0	6.2
2/1/2024	8.2	6.0
2/2/2024	7.9	6.5
2/3/2024		
2/4/2024		
2/5/2024	8.7	6.4
2/6/2024	8.1	6.7
2/7/2024	7.0	6.7
2/8/2024	7.9	7.0
2/9/2024	8.1	7.2
2/10/2024		
2/11/2024		
2/12/2024	8.1	7.8
2/13/2024	8.1	8.6
2/14/2024	8.1	7.0
2/15/2024	7.9	6.9
2/16/2024	8.1	8.6
2/17/2024		
2/18/2024		
2/19/2024		
2/20/2024	8.3	6.7
2/21/2024	8.1	6.8
2/22/2024	8.1	7.4
2/23/2024	8.1	7.3
2/24/2024		
2/25/2024		
2/26/2024	8.0	6.7
2/27/2024	8.0	8.1
2/28/2024	8.1	9.0
2/29/2024	8.0	9.0
3/1/2024	8.0	8.2
3/2/2024		0.0
3/3/2024		
3/4/2024	8.0	8.3
3/5/2024	8.0	10.8
3/6/2024	8.0	11.2
3/7/2024	8.1	11.7
3/8/2024	7.9	11.6
3/9/2024		
3/10/2024		
3/11/2024	7.8	11.8
3/12/2024	8.1	10.4
3/13/2024	8.1	11.3
3/14/2024	8.0	12.0
3/15/2024	7.9	13.5
3/16/2024		
3/17/2024		
3/18/2024	7.9	12.4
3/19/2024	8.0	12.5
3/20/2024	8.0	12.1
3/21/2024	8.0	11.5
3/22/2024	8.1	11.1
3/23/2024		
3/24/2024		
3/25/2024	7.6	9.8
3/26/2024	8.2	11.2
3/27/2024	8.1	12.0
3/28/2024	8.1	12.0
3/29/2024	8.1	11.5
3/30/2024		
3/31/2024		
4/1/2024	8.2	11.2
4/2/2024	8.1	13.4
4/3/2024	7.9	13.5
4/4/2024	8.1	12.9
4/5/2024	8.1	12.7
4/6/2024		
4/7/2024		
4/8/2024	8.0	11.6
4/9/2024	8.1	13.4
4/10/2024	8.1	14.8
4/11/2024	7.9	16.4
4/12/2024	7.9	17.8
4/13/2024		
4/14/2024		
4/15/2024	8.0	15.4
4/16/2024	8.1	18.8
4/17/2024	8.1	19.6
4/18/2024	7.9	19.5
4/19/2024	8.0	19.8
4/20/2024		
4/21/2024		
4/22/2024	8.1	16.5
4/23/2024	8.1	17.3
4/24/2024	8.2	18.4
4/25/2024	8.1	18.5
4/26/2024	8.0	18.1
4/27/2024		
4/28/2024		
4/29/2024	8.1	17.6
4/30/2024	8.1	21.5
12/5/2023	8.0	6.9
12/6/2023	8.0	6.7
12/7/2023	8.0	6.6

Attachment 8

Water Quality / Wasteload Allocation Analysis

FRESHWATER
WATER QUALITY CRITERIA/WASTELOAD ALLOCATION ANALYSIS

Facility Name: Waterford STP Permit No.: VA0060500

Receiving Stream: South Fork Catoctin Creek Version: OWP Guidance Memo 00-2011 (8/24/2000)

Stream Information:		
Mean Hardness (as CaCO3) =	50	mg/L
90% Temperature (Annual) =	20	deg C
90% Temperature (Wet Season) =	10.8	deg C
90% Maximum pH =	7.6	SU
75% Maximum pH =	7.6	SU
50% Maximum pH =	7.5	SU
10% Maximum pH =	7	SU
Tier Designation (1 or 2) =	1	
Public Water Supply (PWS)?	No	
Trout Present?	No	
Mussels Present?	Yes	
Early Life Stages Present?	Yes	
New Ammonia Criteria?	Yes	

Stream Flows:		
1Q10 (Annual) =	0.12	MGD
7Q10 (Annual) =	0.15	MGD
30Q10 (Annual) =	0.35	MGD
30Q5	0.61	MGD
Harmonic Mean =	2.54	MGD
1Q10 (Wet Season) =	1.48	MGD
30Q10 (Wet Season) =	3.03	MGD

Mixing Information:		
Annual - 1Q10 MIX =	44.07	%
- 7Q10 Mix =	100	%
- 30Q10 Mix =	100	%
Wet Season - 1Q10 Mix =	100	%
- 30Q10 Mix =	100	%

Effluent Information:		
Mean Hardness (as CaCO3) =	50	mg/L
90% Temperature (Annual) =	22.8	deg C
90% Temperature (Wet Season) =	19.3	deg C
90% Maximum pH =	8.1	SU
75% Maximum pH =	8.1	SU
50% Maximum pH =	8	SU
10% Maximum pH =	7.7	SU
Discharge Flow =	0.058	MGD

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				**Method**
(Units)	Conc.	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**	**Target Value**
Acenapthene (ug/l)	0.00E+00				9.00E+01				1.04E+03												**1.04E+03**	**1.04E+03**
Acrolein (ug/l)	0.00E+00	3.00E+00	3.00E+00		4.00E+02	5.74E+00	1.08E+01		4.61E+03									**5.74E+00**	**1.08E+01**		**4.61E+03**	**1.72E+00**
Acrylonitrile (ug/l)	0.00E+00				7.00E+01				3.14E+03												**3.14E+03**	**3.14E+03**
Aldrin (ug/l)	0.00E+00	3.00E+00			7.70E-06	5.74E+00			3.45E-04									**5.74E+00**			**3.45E-04**	**3.45E-04**
Ammonia, as N (Yearly) (mg/l)	0.00E+00	5.06E+00	1.31E+00			9.68E+00	9.18E+00											**9.68E+00**	**9.18E+00**			**2.90E+00**
Ammonia, as N (High Flow) (mg/l)	0.00E+00	1.62E+01	2.48E+00			4.30E+02	1.32E+02											**4.30E+02**	**1.32E+02**			**6.61E+01**
Anthracene (ug/l)	0.00E+00				4.00E+02				4.61E+03												**4.61E+03**	**4.61E+03**
Antimony (ug/l)	0.00E+00				5.80E+02				6.68E+03												**6.68E+03**	**6.68E+03**
Arsenic (ug/l)	0.00E+00	3.40E+02	1.50E+02			6.50E+02	5.38E+02											**6.50E+02**	**5.38E+02**			**1.95E+02**
Barium (ug/l)	0.00E+00																					
Benzene (ug/l)	0.00E+00				1.60E+02				7.17E+03												**7.17E+03**	**7.17E+03**
Benzidine (ug/l)	0.00E+00				1.10E-01				4.93E+00												**4.93E+00**	**4.93E+00**
Benzo (a) anthracene (ug/l)	0.00E+00				1.30E-02				5.82E-01												**5.82E-01**	**5.82E-01**
Benzo (b) fluoranthene (ug/l)	0.00E+00				1.30E-02				5.82E-01												**5.82E-01**	**5.82E-01**
Benzo (k) fluoranthene (ug/l)	0.00E+00				1.30E-01				5.82E+00												**5.82E+00**	**5.82E+00**
Benzo (a) pyrene (ug/l)	0.00E+00				1.30E-03				5.82E-02												**5.82E-02**	**5.82E-02**
Bis2-Chloroethyl Ether (ug/l)	0.00E+00				2.20E+01				9.85E+02												**9.85E+02**	**9.85E+02**
2,2'-Oxybis(1-Chloropropane) (ug/l)	0.00E+00				4.00E+03				4.61E+04												**4.61E+04**	**4.61E+04**
Bis 2-Ethylhexyl Phthalate (ug/l)	0.00E+00				3.70E+00				1.66E+02												**1.66E+02**	**1.66E+02**
Bromoform (ug/l)	0.00E+00				1.20E+03				5.38E+04												**5.38E+04**	**5.38E+04**
Butylbenzylphthalate (ug/l)	0.00E+00				1.00E+00				1.15E+01												**1.15E+01**	**1.15E+01**
Cadmium (ug/l)	0.00E+00	9.38E-01	4.26E-01			1.79E+00	1.53E+00											**1.79E+00**	**1.53E+00**			**5.38E-01**
Carbon Tetrachloride (ug/l)	0.00E+00				5.00E+01				2.24E+03												**2.24E+03**	**2.24E+03**
Carbaryl (ug/l)	0.00E+00	2.10E+00	2.10E+00			4.01E+00	7.53E+00											**4.01E+00**	**7.53E+00**			**1.20E+00**
Chlordane (ug/l)	0.00E+00	2.40E+00	4.30E-03		3.20E-03	4.59E+00	1.54E-02		1.43E-01									**4.59E+00**	**1.54E-02**		**1.43E-01**	**7.71E-03**
Chloride (ug/l)	0.00E+00	8.60E+05	2.30E+05			1.64E+06	8.25E+05											**1.64E+06**	**8.25E+05**			**4.12E+05**
TRC (mg/l)	0.00E+00	1.90E-02	1.10E-02			3.63E-02	3.94E-02											**3.63E-02**	**3.94E-02**			**1.09E-02**
Chlorobenzene (ug/l)	0.00E+00				8.00E+02				9.21E+03												**9.21E+03**	**9.21E+03**
Chlorodibromomethane (ug/l)	0.00E+00				2.10E+02				9.41E+03												**9.41E+03**	**9.41E+03**
Chloroform (ug/l)	0.00E+00				2.00E+03				2.30E+04												**2.30E+04**	**2.30E+04**
2-Chloronaphthalene (ug/l)	0.00E+00				1.00E+03				1.15E+04												**1.15E+04**	**1.15E+04**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				**Method**
(Units)	Conc.	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**	**Target Value**
2-Chlorophenol (ug/l)	0.00E+00				8.00E+02				9.21E+03												**9.21E+03**	**9.21E+03**
Chlorpyrifos (ug/l)	0.00E+00	8.30E-02	4.10E-02			1.59E-01	1.47E-01											**1.59E-01**	**1.47E-01**			**4.76E-02**
Chromium III (ug/l)	0.00E+00	3.23E+02	4.20E+01			6.17E+02	1.51E+02											**6.17E+02**	**1.51E+02**			**7.53E+01**
Chromium VI (ug/l)	0.00E+00	1.60E+01	1.10E+01			3.06E+01	3.94E+01											**3.06E+01**	**3.94E+01**			**9.18E+00**
Chromium, Total (ug/l)	0.00E+00																					
Chrysene (ug/l)	0.00E+00				1.30E+00				5.82E+01												**5.82E+01**	**5.82E+01**
Copper (ug/l)	0.00E+00	6.99E+00	4.95E+00			1.34E+01	1.78E+01											**1.34E+01**	**1.78E+01**			**4.01E+00**
Cyanide, Free (ug/l)	0.00E+00	2.20E+01	5.20E+00		4.00E+02	4.21E+01	1.86E+01		4.61E+03									**4.21E+01**	**1.86E+01**		**4.61E+03**	**9.32E+00**
DDD (ug/l)	0.00E+00				1.20E-03				5.38E-02												**5.38E-02**	**5.38E-02**
DDE (ug/l)	0.00E+00				1.80E-04				8.06E-03												**8.06E-03**	**8.06E-03**
DDT (ug/l)	0.00E+00	1.10E+00	1.00E-03		3.00E-04	2.10E+00	3.59E-03		1.34E-02									**2.10E+00**	**3.59E-03**		**1.34E-02**	**1.79E-03**
Demeton (ug/l)	0.00E+00		1.00E-01				3.59E-01												**3.59E-01**			**3.59E-01**
Diazinon (ug/l)	0.00E+00	1.70E-01	1.70E-01			3.25E-01	6.10E-01											**3.25E-01**	**6.10E-01**			**9.75E-02**
Dibenz(a,h)anthracene (ug/l)	0.00E+00				1.30E-03				5.82E-02												**5.82E-02**	**5.82E-02**
1,2-Dichlorobenzene (ug/l)	0.00E+00				3.00E+03				3.46E+04												**3.46E+04**	**3.46E+04**
1,3-Dichlorobenzene (ug/l)	0.00E+00				1.00E+01				1.15E+02												**1.15E+02**	**1.15E+02**
1,4-Dichlorobenzene (ug/l)	0.00E+00				9.00E+02				1.04E+04												**1.04E+04**	**1.04E+04**
3,3-Dichlorobenzidine (ug/l)	0.00E+00				1.50E+00				6.72E+01												**6.72E+01**	**6.72E+01**
Dichlorobromomethane (ug/l)	0.00E+00				2.70E+02				1.21E+04												**1.21E+04**	**1.21E+04**
1,2-Dichloroethane (ug/l)	0.00E+00				6.50E+03				2.91E+05												**2.91E+05**	**2.91E+05**
1,1-Dichloroethylene (ug/l)	0.00E+00				2.00E+04				2.30E+05												**2.30E+05**	**2.30E+05**
1,2-trans-dichloroethylene (ug/l)	0.00E+00				4.00E+03				4.61E+04												**4.61E+04**	**4.61E+04**
2,4-Dichlorophenol (ug/l)	0.00E+00				6.00E+01				6.91E+02												**6.91E+02**	**6.91E+02**
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/l)	0.00E+00				1.20E+04				1.38E+05												**1.38E+05**	**1.38E+05**
1,2-Dichloropropane (ug/l)	0.00E+00				3.10E+02				1.39E+04												**1.39E+04**	**1.39E+04**
1,3-Dichloropropene (ug/l)	0.00E+00				1.20E+02				5.38E+03												**5.38E+03**	**5.38E+03**
Dieldrin (ug/l)	0.00E+00	2.40E-01	5.60E-02		1.20E-05	4.59E-01	2.01E-01		5.38E-04									**4.59E-01**	**2.01E-01**		**5.38E-04**	**5.38E-04**
Diethyl Phthalate (ug/l)	0.00E+00				6.00E+02				6.91E+03												**6.91E+03**	**6.91E+03**
2,4-Dimethylphenol (ug/l)	0.00E+00				3.00E+03				3.46E+04												**3.46E+04**	**3.46E+04**
Dimethyl Phthalate (ug/l)	0.00E+00				2.00E+03				2.30E+04												**2.30E+04**	**2.30E+04**
Di-n-Butyl Phthalate (ug/l)	0.00E+00				3.00E+01				3.46E+02												**3.46E+02**	**3.46E+02**
2,4 Dinitrophenol (ug/l)	0.00E+00				3.00E+02				3.46E+03												**3.46E+03**	**3.46E+03**
Dinitrophenols (ug/l)	0.00E+00				1.00E+03				1.15E+04												**1.15E+04**	**1.15E+04**
2-Methyl-4,6-Dinitrophenol (ug/l)	0.00E+00				3.00E+01				3.46E+02												**3.46E+02**	**3.46E+02**
2,4-Dinitrotoluene (ug/l)	0.00E+00				1.70E+01				7.61E+02												**7.61E+02**	**7.61E+02**
Dioxin 2,3,7,8-tetrachlorodibenzo-p-dioxin (ug/l)	0.00E+00				4.70E-08				5.41E-07												**5.41E-07**	**5.41E-07**
1,2-Diphenylhydrazine (ug/l)	0.00E+00				2.00E+00				8.96E+01												**8.96E+01**	**8.96E+01**
Alpha-Endosulfan (ug/l)	0.00E+00	2.20E-01	5.60E-02		3.00E+01	4.21E-01	2.01E-01		3.46E+02									**4.21E-01**	**2.01E-01**		**3.46E+02**	**1.00E-01**
Beta-Endosulfan (ug/l)	0.00E+00	2.20E-01	5.60E-02		4.00E+01	4.21E-01	2.01E-01		4.61E+02									**4.21E-01**	**2.01E-01**		**4.61E+02**	**1.00E-01**
Alpha + Beta Endosulfan (ug/l)	0.00E+00	2.20E-01	5.60E-02			4.21E-01	2.01E-01											**4.21E-01**	**2.01E-01**			**1.00E-01**
Endosulfan Sulfate (ug/l)	0.00E+00				4.00E+01				4.61E+02												**4.61E+02**	**4.61E+02**
Endrin (ug/l)	0.00E+00	8.60E-02	3.60E-02		3.00E-02	1.64E-01	1.29E-01		3.46E-01									**1.64E-01**	**1.29E-01**		**3.46E-01**	**4.93E-02**
Endrin Aldehyde (ug/l)	0.00E+00				1.00E+00				1.15E+01												**1.15E+01**	**1.15E+01**
Ethylbenzene (ug/l)	0.00E+00				1.30E+02				1.50E+03												**1.50E+03**	**1.50E+03**
Fluoranthene (ug/l)	0.00E+00				2.00E+01				2.30E+02												**2.30E+02**	**2.30E+02**
Fluorene (ug/l)	0.00E+00				7.00E+01				8.06E+02												**8.06E+02**	**8.06E+02**
Foaming Agents (ug/l)	0.00E+00																					
Guthion (ug/l)	0.00E+00		1.00E-02				3.59E-02												**3.59E-02**			**3.59E-02**
Heptachlor (ug/l)	0.00E+00	5.20E-01	3.80E-03		5.90E-05	9.94E-01	1.36E-02		2.64E-03									**9.94E-01**	**1.36E-02**		**2.64E-03**	**2.64E-03**
Heptachlor Epoxide (ug/l)	0.00E+00	5.20E-01	3.80E-03		3.20E-04	9.94E-01	1.36E-02		1.43E-02									**9.94E-01**	**1.36E-02**		**1.43E-02**	**6.81E-03**
Hexachlorobenzene (ug/l)	0.00E+00				7.90E-04				3.54E-02												**3.54E-02**	**3.54E-02**
Hexachlorobutadiene (ug/l)	0.00E+00				1.00E-01				4.48E+00												**4.48E+00**	**4.48E+00**
Hexachlorocyclohexane Alpha-BHC (ug/l)	0.00E+00				3.90E-03				1.75E-01												**1.75E-01**	**1.75E-01**
Hexachlorocyclohexane Beta-BHC (ug/l)	0.00E+00				1.40E-01				6.27E+00												**6.27E+00**	**6.27E+00**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations				Method
(Units)	Conc.	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	Target Value
Hexachlorocyclohexane Gamma-BHC (Lindane) (ug/l)	0.00E+00	9.50E-01			4.40E+00	1.82E+00			5.07E+01									**1.82E+00**			**5.07E+01**	**5.45E-01**
Hexachlorocyclohexane (HCH) - Technical (ug/l)	0.00E+00				1.00E-01				4.48E+00												**4.48E+00**	**4.48E+00**
Hexachlorocyclopentadiene (ug/l)	0.00E+00				4.00E+00				4.61E+01												**4.61E+01**	**4.61E+01**
Hexachloroethane (ug/l)	0.00E+00				1.00E+00				4.48E+01												**4.48E+01**	**4.48E+01**
Hydrogen Sulfide (ug/l)	0.00E+00		2.00E+00				7.17E+00												**7.17E+00**			**7.17E+00**
Indeno (1,2,3-cd) pyrene (ug/l)	0.00E+00				1.30E-02				5.82E-01												**5.82E-01**	**5.82E-01**
Iron (ug/l)	0.00E+00																					
Isophorone (ug/l)	0.00E+00				1.80E+04				8.06E+05												**8.06E+05**	**8.06E+05**
Kepone (ug/l)	0.00E+00		0.00E+00				0.00E+00												**0.00E+00**			**0.00E+00**
Lead (ug/l)	0.00E+00	4.39E+01	4.99E+00			8.39E+01	1.79E+01											**8.39E+01**	**1.79E+01**			**8.94E+00**
Malathion (ug/l)	0.00E+00		1.00E-01				3.59E-01												**3.59E-01**			**3.59E-01**
Mercury (ug/l)	0.00E+00	1.40E+00	7.70E-01			2.68E+00	2.76E+00											**2.68E+00**	**2.76E+00**			**8.03E-01**
Methyl Bromide (ug/l)	0.00E+00				1.00E+04				1.15E+05												**1.15E+05**	**1.15E+05**
3-Methyl-4-Chlorophenol (ug/l)	0.00E+00				2.00E+03				2.30E+04												**2.30E+04**	**2.30E+04**
Methylene Chloride (ug/l)	0.00E+00				1.00E+03				4.48E+04												**4.48E+04**	**4.48E+04**
Methoxychlor (ug/l)	0.00E+00		3.00E-02		2.00E-02		1.08E-01		2.30E-01										**1.08E-01**		**2.30E-01**	**5.38E-02**
Mirex (ug/l)	0.00E+00		0.00E+00				0.00E+00												**0.00E+00**			**0.00E+00**
Nickel (ug/l)	0.00E+00	1.01E+02	1.13E+01		1.50E+03	1.94E+02	4.04E+01		1.73E+04									**1.94E+02**	**4.04E+01**		**1.73E+04**	**2.02E+01**
Nitrate (as N) (ug/l)	0.00E+00																					
Nitrobenzene (ug/l)	0.00E+00				6.00E+02				6.91E+03												**6.91E+03**	**6.91E+03**
N-Nitrosodimethylamine (ug/l)	0.00E+00				2.70E+01				1.21E+03												**1.21E+03**	**1.21E+03**
N-Nitrosodiphenylamine (ug/l)	0.00E+00				5.50E+01				2.46E+03												**2.46E+03**	**2.46E+03**
N-Nitrosodi-n-propylamine (ug/l)	0.00E+00				4.60E+00				2.06E+02												**2.06E+02**	**2.06E+02**
Nonylphenol (ug/l)	0.00E+00	2.80E+01	6.60E+00			5.35E+01	2.37E+01											**5.35E+01**	**2.37E+01**			**1.18E+01**
Parathion (ug/l)	0.00E+00	6.50E-02	1.30E-02			1.24E-01	4.66E-02											**1.24E-01**	**4.66E-02**			**2.33E-02**
PCB Total (ug/l)	0.00E+00		1.40E-02		5.80E-04		5.02E-02		2.60E-02										**5.02E-02**		**2.60E-02**	**2.51E-02**
Pentachlorobenzene (ug/l)	0.00E+00				1.00E-01				1.15E+00												**1.15E+00**	**1.15E+00**
Pentachlorophenol (ug/l)	0.00E+00	1.11E+01	7.47E+00		4.00E-01	2.11E+01	2.68E+01		1.79E+01									**2.11E+01**	**2.68E+01**		**1.79E+01**	**6.34E+00**
Phenol (ug/l)	0.00E+00				3.00E+05				3.46E+06												**3.46E+06**	**3.46E+06**
Pyrene (ug/l)	0.00E+00				3.00E+01				3.46E+02												**3.46E+02**	**3.46E+02**
Radionuclides (ug/l)	0.00E+00																					
Gross Alpha Activity (pCi/L)	0.00E+00																					
Beta and Photon Activity (mrem/yr)	0.00E+00																					
Radium 226 + 228 (pCi/L)	0.00E+00																					
Uranium (ug/l)	0.00E+00																					
Selenium, Total Recoverable (ug/l)	0.00E+00	2.00E+01	5.00E+00		3.80E+03	3.82E+01	1.79E+01		4.38E+04									**3.82E+01**	**1.79E+01**		**4.38E+04**	**8.97E+00**
Silver (ug/l)	0.00E+00	1.05E+00				2.00E+00												**2.00E+00**				**6.01E-01**
Sulfate (ug/l)	0.00E+00																					
1,2,4,5-Tetrachlorobenzene (ug/l)	0.00E+00				3.00E-02				3.46E-01												**3.46E-01**	**3.46E-01**
1,1,2,2-Tetrachloroethane (ug/l)	0.00E+00				3.00E+01				1.34E+03												**1.34E+03**	**1.34E+03**
Tetrachloroethylene (ug/l)	0.00E+00				2.90E+02				1.30E+04												**1.30E+04**	**1.30E+04**
Thallium (ug/l)	0.00E+00				4.30E-01				4.95E+00												**4.95E+00**	**4.95E+00**
Toluene (ug/l)	0.00E+00				5.20E+02				5.99E+03												**5.99E+03**	**5.99E+03**
Total dissolved solids (ug/l)	0.00E+00																					
Toxaphene (ug/l)	0.00E+00	7.30E-01	2.00E-04		7.10E-03	1.40E+00	7.17E-04		3.18E-01									**1.40E+00**	**7.17E-04**		**3.18E-01**	**3.59E-04**
Tributyltin (ug/l)	0.00E+00	4.60E-01	7.20E-02			8.79E-01	2.58E-01											**8.79E-01**	**2.58E-01**			**1.29E-01**
1,2,4-Trichlorobenzene (ug/l)	0.00E+00				7.60E-01				3.40E+01												**3.40E+01**	**3.40E+01**
1,1,1-Trichloroethane (ug/l)	0.00E+00				2.00E+05				2.30E+06												**2.30E+06**	**2.30E+06**
1,1,2-Trichloroethane (ug/l)	0.00E+00				8.90E+01				3.99E+03												**3.99E+03**	**3.99E+03**
Trichloroethylene (ug/l)	0.00E+00				7.00E+01				3.14E+03												**3.14E+03**	**3.14E+03**
2,4,5-Trichlorophenol (ug/l)	0.00E+00				6.00E+02				6.91E+03												**6.91E+03**	**6.91E+03**
2,4,6-Trichlorophenol (ug/l)	0.00E+00				2.80E+01				1.25E+03												**1.25E+03**	**1.25E+03**
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex) (ug/l)	0.00E+00				4.00E+02				4.61E+03												**4.61E+03**	**4.61E+03**
Vinyl Chloride (ug/l)	0.00E+00				1.60E+01				7.17E+02												**7.17E+02**	**7.17E+02**
Zinc (ug/l)	0.00E+00	6.51E+01	6.57E+01		2.30E+04	1.25E+02	2.35E+02		2.65E+05									**1.25E+02**	**2.35E+02**		**2.65E+05**	**3.74E+01**

Parameter	Background	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				**Most Limiting Allocations**				**Method**
(Units)	Conc.	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**	**Target Value**

NOTES:

1. This spreadsheet was developed using the DEQ MSTRANTI R program V5.6.0.
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals.
3. Metals measured as Dissolved, unless specified otherwise.
4. 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.
5. 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.

6. The method target value is calculated as the minimum of the following: the human health criteria, 0.3 times the limiting acute WLA, or 0.5 times the limiting chronic WLA.
7. 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.
8. 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
9. New ammonia criteria were used to determine ammonia dry season WLAs using the 50% maximum pH and the 75% pH to determine antidegradation WLAs per current DEQ guidance for chronic exposure (DS mix ratio = 7.03, DS complete mix ratio = 7.03).
10. New ammonia criteria were used to determine ammonia wet season WLAs using the 50% maximum pH and the 75% pH to determine antidegradation WLAs per current DEQ guidance for chronic exposure (WS mix ratio = 53.24, WS complete mix ratio = 53.24).
11. Mussel presence likelihood estimator tool was not used.

Attachment 9

Mix Analysis

Waterford STP DEQ Mix v2.1.5

18 November, 2024

Input Parameters:

Effluent Flow:	0.058 MGD
Stream 1Q10:	0.12 MGD
Stream 7Q10:	0.15 MGD
Stream 30Q10:	0.35 MGD
Stream Width:	15 ft
Stream Slope:	0.002 ft/ft
Bottom Scale:	3
Channel Scale:	1

Mixing Zone Predictions @ 1Q10

Depth:	0.1235 ft
Velocity:	0.1486 ft/sec
Length:	1214.02 ft
Residence Time:	0.0945 days

Recommendation: A complete mix assumption is appropriate for this situation providing no more than **44.07%** of the 1Q10 may be used.

Mixing Zone Predictions @ 7Q10

Depth:	0.1357 ft
Velocity:	0.1581 ft/sec
Length:	1121.27 ft
Residence Time:	0.0821 days

Recommendation: A complete mix assumption is appropriate for this situation and the **entire** 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth:	0.2041 ft
Velocity:	0.2062 ft/sec
Length:	793.49 ft
Residence Time:	0.0445 days

Recommendation: A complete mix assumption is appropriate for this situation and the **entire** 30Q10 may be used.

Waterford STP - High Flow DEQ Mix v2.1.5

18 November, 2024

Input Parameters:

Effluent Flow:	0.058 MGD
Stream 1Q10:	1.48 MGD
Stream 7Q10:	1.91 MGD
Stream 30Q10:	3.03 MGD
Stream Width:	15 ft
Stream Slope:	0.002 ft/ft
Bottom Scale:	3
Channel Scale:	1

Mixing Zone Predictions @ 1Q10

Depth:	0.4583 ft
Velocity:	0.3461 ft/sec
Length:	395.63 ft
Residence Time:	0.0132 days

Recommendation: A complete mix assumption is appropriate for this situation and the **entire** 1Q10 may be used.

Mixing Zone Predictions @ 7Q10

Depth:	0.5334 ft
Velocity:	0.3806 ft/sec
Length:	346.48 ft
Residence Time:	0.0105 days

Recommendation: A complete mix assumption is appropriate for this situation and the **entire** 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth:	0.7049 ft
Velocity:	0.4519 ft/sec
Length:	270.82 ft
Residence Time:	0.0069 days

Recommendation: A complete mix assumption is appropriate for this situation and the **entire** 30Q10 may be used.

Attachment 10

Limit Analysis for Ammonia

a. 2025 Reissuance

Waterford STP DEQ STATs v3.1.6

09 December, 2024

Input Parameters:

Parameter Analyzed:	Ammonia (yearly)
Chronic Averaging Period:	30 day
WLA_a:	9.68 mg/L
WLA_c:	9.18 mg/L
Q.L.:	0.2 mg/L
# Samples/Mo.:	4
# 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:	9.6800 mg/L
Weekly Average Limit:	9.6800 mg/L
Monthly Average Limit:	6.6188 mg/L

Input Data 9 mg/L

Waterford STP DEQ STATs v3.1.6

10 December, 2024

Input Parameters:

Parameter Analyzed:	Ammonia (Dec-May)
Chronic Averaging Period:	30 day
WLA_a:	430 mg/L
WLA_c:	132 mg/L
Q.L.:	0.2 mg/L
# Samples/Mo.:	4
# 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?:	No
Basis for Limit?:	
Maximum Daily Limit:	No Limit
Weekly Average Limit:	No Limit
Monthly Average Limit:	No Limit

Input Data 9 mg/L

BPJ Assumptions, Type 2 data. No limits are required for this effluent.

Attachment 10

Limit Analysis for Ammonia

b. 2019 Reissuance

8/22/2019 1:42:51 PM

Facility = Waterford STP
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 31.4
WLAc = 14.7
Q.L. = .2
# samples/mo. = 4
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

9

Attachment 11

Limit Analysis for Total Residual Chlorine

Waterford STP DEQ STATs v3.1.6

09 December, 2024

Input Parameters:

Parameter Analyzed:	Total Residual Chlorine
Chronic Averaging Period:	4 day
WLA_a:	0.0363 mg/L
WLA_c:	0.0394 mg/L
Q.L.:	0.1 mg/L
# Samples/Mo.:	90
# Samples/Wk.:	21

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:	0.0363 mg/L
Weekly Average Limit:	0.0186 mg/L
Monthly Average Limit:	0.0167 mg/L

Input Data 9 mg/L

Attachment 12

Dissolved Oxygen Modeling, October 1973

Sht file

Commonwealth of Virginia

STATE WATER CONTROL BOARD

P. O. Box 11143, 2111 N. Hamilton St., Richmond, Va. 23230 (804) 770-2241

Please Reply To: *Northern Virginia Regional Office*
P. O. Box 307
Springfield, Virginia 22150

Potomac Basin

5515 Cherokee Avenue, Suite 404
Alexandria, Virginia 22312
(703) 750-9111

October 23, 1973 Loudoun Co.

Lac 6/2/93

90% BOD removal

Charlie,

According to my calculations, 24 mg/l in the final effluent will not be sufficient. 91% is marginal. 92% works out. Give me a call this afternoon if you wish to discuss this. *

19.2 mg/L 6/2/93 Lac

Gary

Gary

South Fork Catoctin Creek at the Route 662 Bridge

Depth 6"-24"
Width 25 ft.
Flow 1 ft. per 5 sec.
Air Temp. 23°c
Water Temp. 50°f
DO. 7.7 mg/l

GNM/rd

* Although the model indicates an effluent limitation of 19.2 mg/l BOD_5, the permit was issued with a BOD_5 effluent limitation of 24 mg/l.

The effluent limitation of 24 mg/l has not degraded water quality in the receiving stream and will remain in the permit. 6/2/93 Lac

Attachment 10

IEMORANDUM

State Water Control Board
2111 North Hamilton Street P. O. Box 11143 Richmond, VA. 2323

SUBJECT: Waterford STP SAA

TO:

FROM: John McClain and Gary Moore

DATE: October 23, 1973

COPIES:

D.A. above POD on South Fork = 27.56 $mi.^2$
D.A. of North Fork above the confluence of North Fork and South Fork = 18.15 $mi.^2$
D.A. between POD and confluence of North and South Forks of Catoctin Creek=.91 $mi.^2$

Critical discharge = .007 cfs/sq.mi. (Goose Creek near Leesburg)

*Q of South Fork Catoctin Creek at POD = .1244 MGD
Q of North Fork at confluence with South Fork =.0819 MGD
Q of South Fork between POD and confluence of North and South Forks =.0041 MGD

Distance from POD to confluence of North and South Forks = 1.2 mi.
Slope between POD to confluence of North and South Forks = 10/6336 = .0015 ft/ft

Velocity of Catoctin Creek = .2 ft. $sec.^{-1}$

Ka_{30} South Fork = Ka_{20} * 1.22 = 1.5 * 1.22 = 1.83 day^{-1}

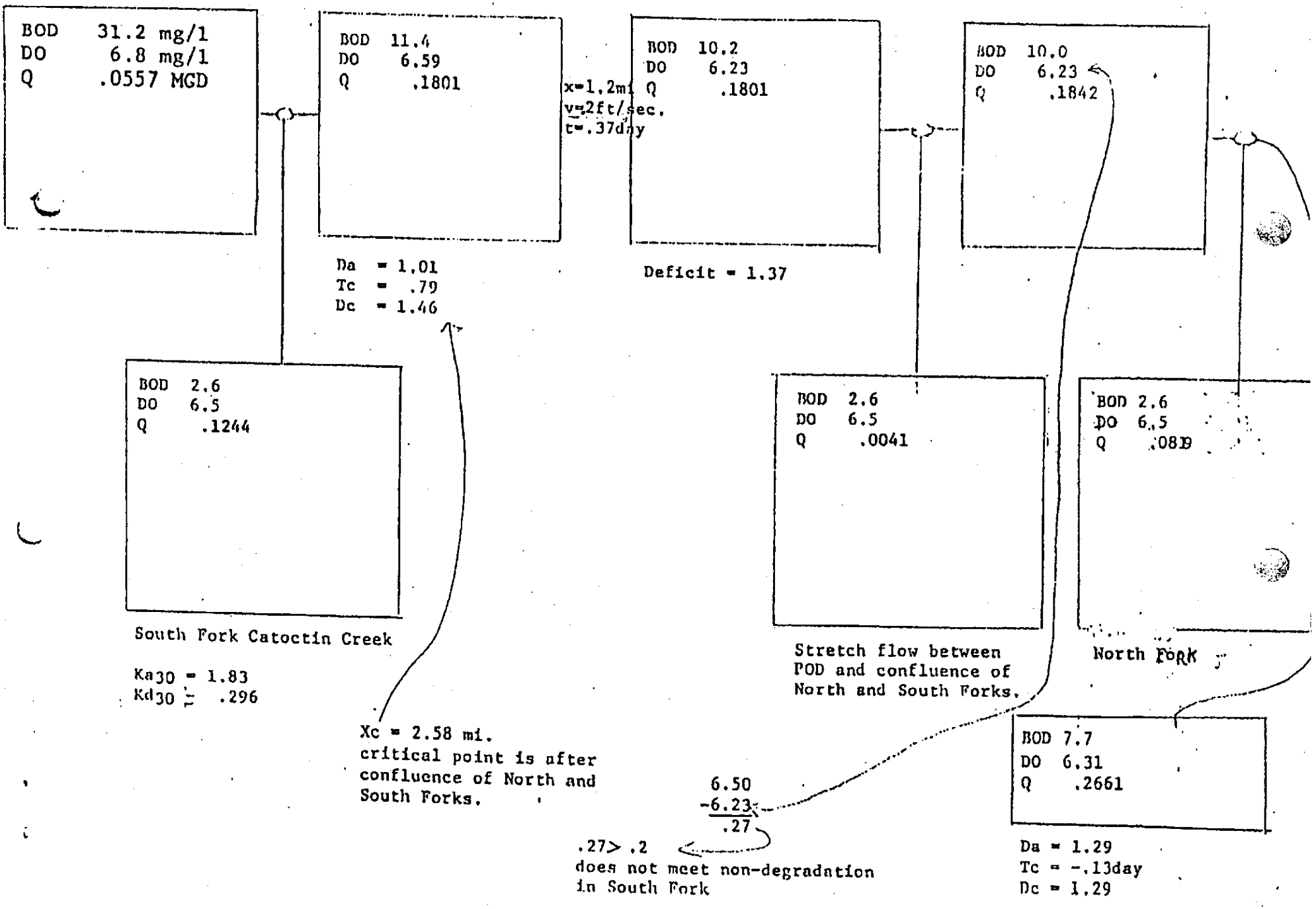
$Kd_{30} = Kd_{20}$ * 1.48 = 2 * 1.48 = .296 day^{-1}

* 7Q10 = 0.1244 MGD. The new 7Q10 (1993) is 0.37 MGD.

GM:by

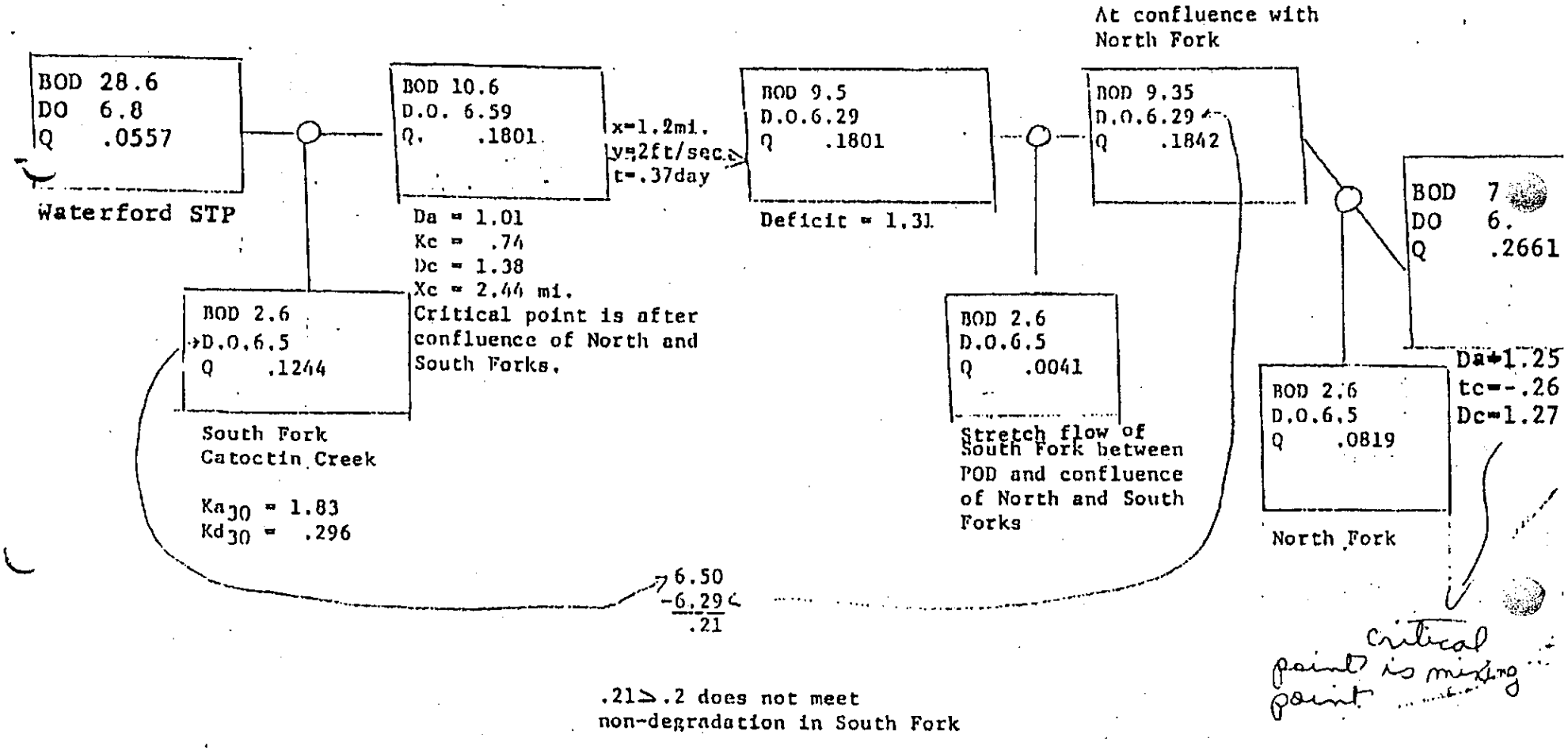
90% BOD Removal= 24mg/l
90% D.O. Saturation in effluent

FLOW DIAGRAM FOR WATERFORD STP PROPOSAL



91% Removal=22mg/l BOD
90% D.O. Saturation=6.8mg/l

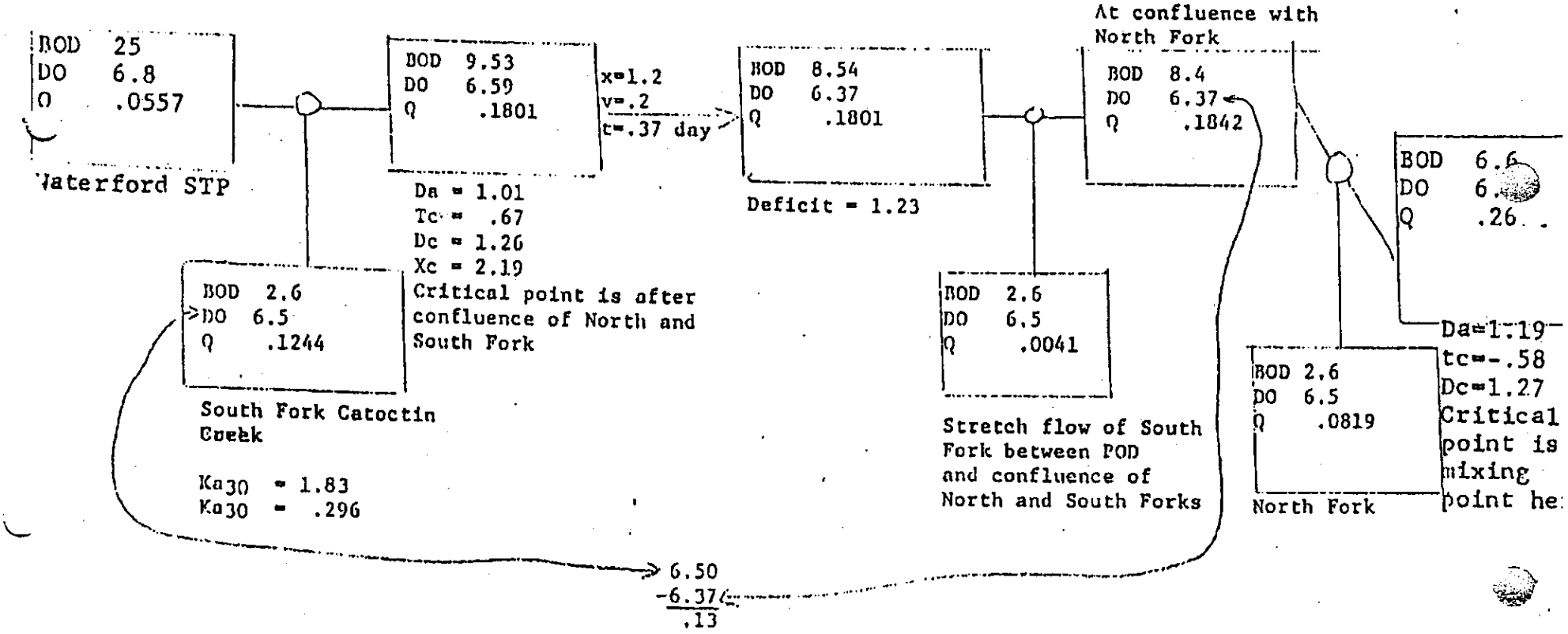
WATERFORD STP



.21≥.2 does not meet non-degradation in South Fork

92% Removal=19.2 mg/l BOD in effluent

90% DO Saturation in effluent 6.8mg/l



meets non-degradation in South Fork.