



Environmental
Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

June 7, 2012

Ms. Patti Bates, Village Administrator
Village of Williamsburg
107 West Main Street
Williamsburg, Ohio 45176

**RE: Williamsburg WWTP, NPDES Permit No. 1PB00034*GD / OH0021571
Compliance Evaluation Inspection**

Dear Ms. Bates:

On Friday, May 18, 2012, Mr. Ron Ware of this office conducted a Compliance Evaluation Inspection at the above referenced facility. The Village was represented by Kyle Cribbet, the Operator of Record for this facility. The purpose of the inspection was to evaluate plant operation and performance. As indicated in the attached report, three of the areas that were evaluated during the inspection received ratings other than "Satisfactory."

The area designated as "Effluent/Receiving Waters" received an "Unsatisfactory" rating due to violations of the final effluent limitations in this facility's current NPDES permit (1PB00034*GD) that occurred between November 1, 2011 and April 30, 2012.

The area designated as "Self-Monitoring Program" received an "Unsatisfactory" rating due to the Village's failure to provide notification of these effluent violations per the requirements in Item 12 (Non-Compliance Notification) of Part III of the facility's current NPDES permit (1PB00034*GD).

The area designated as "Laboratory" received a "Marginal" rating due to the lack of written Standard Operating Procedures (SOP's) for the analytical work performed on site in the plant laboratory and for cleaning the sampling equipment.

Please provide this office with a written description of any actions, either taken or proposed, to address the noted problems in these areas. This written description should include the dates, either actual or proposed, for completion of these actions. Please provide this office with this written response within thirty days of receipt of this letter.

Ms. Patti Bates, Village Administrator
Village of Williamsburg
June 7, 2012
Page 2

Please also be advised that the Williamsburg WWTP has been placed on a Six-Month Significant Non-Compliance (SNC) watch list. Wastewater treatment facilities that are placed on this Six-Month SNC list have either had effluent limit violations for four out of six months or they have had "significant" effluent limit violations for two straight quarters. (Significant effluent limit violations are violations where the reported effluent data for a pollutant parameter exceeds a technical review criterion.) A review of the monthly reporting data for the Williamsburg WWTP over the past twenty-four months shows that there have been effluent limit violations (including some significant violations) for twenty of those twenty-four months.

In your written response to last year's compliance evaluation report, you mentioned that the Village was planning to construct Phase 3 improvements to its wastewater treatment facility to achieve compliance with the facility's effluent limits for ammonia, nitrogen and total phosphorus. Under this proposed Phase 3 improvement project, the treatment process at the Williamsburg WWTP will be converted to a biological nutrient removal process. Please also provide this office with a written update on the Village's planning process for the proposed Phase 3 improvements to its wastewater treatment facility. This will be considered the initial step toward a plan for returning to compliance.

If you have any questions regarding this report, please contact Mr. Ware at (937) 285 - 6098.

Sincerely,



Martyn Burt
Compliance and Enforcement Supervisor
Division of Surface Water

cc: Kyle Cribbet, Village of Williamsburg
Ken Timko, Burgess & Niple, Ltd.



State of Ohio Environmental Protection Agency
Southwest District Office

NPDES Compliance Inspection Report

Section A: National Data System Coding					
Permit #	NPDES#	Month/Day/Year	Inspection Type	Inspector	Facility Type
1PB00034*GD	OH0021571	05/18/2012	C	S	1

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
Village of Williamsburg WWTP 100 Mill Street Williamsburg, Ohio, Clermont County	10:00 AM	September 1, 2009
	Exit Time	Permit Expiration Date
	11:45 AM	August 31, 2014
Name(s) and Title(s) of On-Site Representatives	Phone Number(s)	
Kyle Cribbet, Operator of Record	513-724-2248	
Name, Address and Title of Responsible Official	Phone Number	
Patti Bates, Administrator Village of Williamsburg 107 West Main Street Williamsburg, Ohio 45176	(513) 724 - 6107	

Section C: Areas Evaluated During Inspection					
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)					
S	Permit	S	Flow Measurement		
S	Records/Reports	M	Laboratory		
S	Operations & Maintenance	U	Effluent/Receiving Waters	U	Self-Monitoring Program
S	Facility Site Review	S	Sludge Storage/Disposal		
S	Collection System				

Section D: Summary of Findings (Attach additional sheets if necessary)	
Inspector	Reviewer
Ron Ware 6/6/12	Martyn Burt 6/6/12
Ron Ware Division of Surface Water Southwest District Office	Martyn Burt Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office
Date	Date

Sections E thru K: Complete on all inspections as appropriate
Y – Yes, N – No, N/A – Not Applicable, N/E – Not Evaluated

Section E: Permit Verification

Inspection observations verify the permit

- | | |
|--|-----|
| (a) Correct name and mailing address of permittee | Y |
| (b) Flows and loadings conform with NPDES permit..... | Y |
| (c) Treatment processes are as described in permit application... | Y |
| (d) All discharges are permitted..... | Y |
| (e) Number and location of discharge points are as described
in permit..... | Y |
| (f) Storm water discharges properly permitted..... | N/E |

Comments/Status:

Section F: Compliance

- | | |
|---|-----|
| (a) Any violations since the last inspection..... | Y |
| (b) Appropriate Non-compliance notification of violations..... | N |
| (c) Permittee is taking actions to resolve violations..... | Y |
| (d) Permittee has a compliance schedule..... | N |
| (e) Compliance schedule contained in...N/A | |
| (f) Permittee is in compliance with schedule..... | N/A |
| (g) Has biomonitoring shown toxicity in discharge since last inspection | N/A |

Comments/Status:

(a) A list of violations is provided on page 11 of this report.

(b) Notifications of the effluent violations cited on page 11 of this report were not provided as per the requirements in Item 12 (Non-Compliance Notification) of Part III on page 23 and 24 of the facility's current NPDES permit (1PB00034*GD).

Section G: Operation & Maintenance

Treatment Works:

Treatment facility properly operated and maintained

- (a) Standby power available.....generator or dual feed Y
- i. What does the back-up power source operate.....
- The entire facility.
- ii. How often is the generator tested under load.....
- Once a week.
- (b) Which components have an alarm system available for power or equipment failures.....
- The influent pumps and effluent pumps have back-up power and alarm systems (i.e., auto-dialers).
- (c) All treatment units in service other than backup units..... Y
- (d) What method is used for scheduling routine & preventative maintenance (calendar, software, etc.).....
- Maintenance is scheduled on major equipment after a set number of hours of operation.
- (e) Any major equipment breakdown since last inspection..... Y
- (f) Operation and maintenance manual provided and maintained..... Y
- (g) Any plant bypasses since last inspection..... N
- (h) Any plant upsets since last inspection..... N

Comments/Status:

- (e) The influent valve on SBR unit # 2 has been inoperable for a month. A replacement valve has been ordered, but could take up to eight weeks to arrive. SBR unit # 2 is being operated manually in the interim.
- (h) Construction of Phase 2 improvements to the facility (which included taking individual SBR units off-line for air header replacement) may have been a contributing factor to the effluent violations cited on page 11 of this report.

Section G: Operation & Maintenance con't

Record Keeping/Operator of Record:

- (a) Wastewater Treatment Works classification (OAC 3745-7)..... II
- (b) Operator of Record holds unexpired license of class required by Permit..... Y
- (c) Copy of certificate of Operator of Record displayed on-site..... Y
- (d) Has the Operator of Record submitted an ORC Notification form.. Y
- (e) Minimum operator staffing requirements fulfilled (OAC 3745-7).... Y
- (f) If a Staffing Reduction plan has been approved, are the stipulations of the plan being met.....N/A
- (g) Operator of Record log book provided..... Y
- (h) Format of log book (e.g. computer log, hard bound book)

Hard bound book.
- (i) Log book kept onsite (in an area protected from weather)..... Y
- (j) Log book contains the following:
 - I. Identification of treatment works..... Y
 - II. Date/times of arrival/departure for Operator of Record and any other operator required by OAC 3745-7..... Y
 - iii. Daily record of operator and maintenance activities (including preventative maintenance, repairs and request for repairs, process control test results, etc.)..... Y
 - iv. Laboratory results (unless documented on bench sheets)... N
 - v. Identification of person making entries..... Y
- (k) Has the Operator of Record submitted written notifications to the permittee, Ohio EPA and, if applicable, any local environmental agencies when a collection system overflow, treatment plant bypass or effluent limit violation has occurred..... N

Comments/Status:

(k) Notifications of the effluent violations cited on page 11 of this report were not provided as per the requirements in Item 12 (Non-Compliance Notification) of Part III on page 23 and 24 of the facility's current NPDES permit (1PB00034*GD).

Section G: Operation & Maintenance con't

Collection System:

- (a) Are there pump stations in the collection system..... Y
(There are 5 pump stations in the collection system for this facility)
 - i. How many publicly-owned pump stations equipped with permanent standby power or equivalent..... 0
 - ii. How many pump stations have telemetered alarms..... 0
 - iii. How many pump stations have operable alarms..... 3

- (b) Any chronic collection system overflows since last inspection..... N
- (c) Regulatory agency notified of all overflows..... N/A
- (d) Are there CSOs in the collection system..... N
if so, what is the LCTP status.....

N/A

- (e) How are CSOs monitored (chalk, block, level sensor, etc.).....

N/A

- (f) Portable pumps available for collection system maintenance..... Y
- (g) RDII Program established and active..... N
- (h) Any WIB complaint received since last inspection..... N
- (i) Is there a WIB response plan..... N
- (j) Is any portion of the collection system at or near dry weather capacity..... N

Comments/Status:

- (a) The type of alarm system used is an auto –dialer.

 - (f) Portable pumps for collection system maintenance are available through a service contract.

Section H: Sludge Management

- (a) Method of Sludge Disposal... Land Application
 Haul to Another NPDES Permittee
 Haul to a Mixed Solid Waste Landfill

*if one of the selected methods is land application, complete applicable charts.

Class A - Exception Quality Sewage Sludge (monitoring station 584)

Pathogen Reduction Alternative	84370 Vector Attraction Reduction Options							
	Option 1 -38% Volatile Solids Reduction	Option 2 -Anaerobic Bench Scale Analysis	Option 3 - Aerobic Bench Scale Analysis	Option 4 - Specific Oxygen Uptake Rate	Option 5 - Aerobic Time and Temperature	Option 6 - Alkali Addition	Option 7 - >75% Percent Solids without Unstabilized Solids	Option 8 - >75% Percent Solids with Unstabilized Solids
Alternative 1 - Time and Temperature Regime (84369)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 2 - High pH and High Temperature (84369)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 3 - Other Processes (84369)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 4 - Unknown Processes (84369)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Composting (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Heat Drying (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Heat Treatment (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Thermophilic Aerobic Digestion (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Beta Ray Irradiation (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Gamma ray Irradiation (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 5 - Pasteurization (84397)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 6 - Approved Equivalent Process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Class B Sewage Sludge (monitoring station 581)

Pathogen Reduction Alternative	84370 Vector Attraction Reduction Options									
	Option 1 -38% Volatile Solids Reduction	Option 2 -Anaerobic Bench Scale Analysis	Option 3 – Aerobic Bench Scale Analysis	Option 4 – Specific Oxygen Uptake Rate	Option 5 – Aerobic Time and Temperature	Option 6 – Alkali Addition	Option 7 – >75% Percent Solids without Unstabilized	Option 8 - >75% Percent Solids with Unstabilized	Option 9 – Land Injection	Option 10 – Immediate Incorporation
Alternative 1 - Geometric Mean of Seven Fecal Samples (84369)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 2 - Aerobic Digestion (46396)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 2 - Air Drying (46396)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 2 - Anaerobic Digestion (46396)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 2 – Composting (46396)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 2 - Lime Treatment (46396)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative 3 – Approved Equivalent Process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (b) Has amount of sludge generated changed significantly since the last inspection..... N
- (c) How much sludge storage is provided at the plant.....
- (d) Records kept in accordance with State and Federal law (5 years according to OAC 3745-40-06)..... Y
- (e) Any complaints received in last year regarding sludge..... N
- (f) 5/8" screen at headworks for facilities that land apply sludge..... N/A
- (g) Are sludge application sites inspected to verify compliance with NPDES permit..... N/A
- (h) Is a contractor used for sludge disposal..... Y
 If so, what is the name of the contractor.....

Comments/Status:

Section I: Self-Monitoring Program

Flow Measurement:

- (a) Primary/Secondary flow measuring devices (e.g. weir with ultrasonic level sensor):
- (b) Flow meter calibrated annually Y
- (c) 24-hour recording instruments operated and maintained..... Y
- (d) Flow measurement equipment adequate to handle full range of flows..... Y
- (e) All discharged flow is measured..... Y

Comments/Status:

Section I: Self-Monitoring Program (con't)

Sampling:

- (a) Sampling location(s) are as specified by permit..... Y
- (b) Parameters and sampling frequency agree with permit..... Y
- (c) Permittee uses required sampling method..... Y
(see GLC page)
- (d) Monitoring records (i.e., flow, pH, DO) maintained for a minimum of three years including all original strip chart recordings (i.e, continuous monitoring instrumentation, calibration and maintenance records)..... Y

Comments/Status:

Section I: Self-Monitoring Program (con't)

Laboratory:

General

- (a) Does the facility have written Standard Operating Procedures (SOP'S) for all analysis performed onsite..... N
- (b) Do SOP's include the following if applicable..... N/A
 - Title
 - Scope and Application
 - Summary
 - Sample Handling and Preservation
 - Interferences
 - Apparatus and Materials
 - Reagents
 - Procedure
 - Calculations
 - Quality Control
 - Maintenance
 - Corrective Action
 - Reference (Parent Method)

Note: Standard Methods 1020A establishes that "Quality assurance (QA) is the definitive program for laboratory operation that specifies the measure required to produce defensible data of known precision and accuracy. "Standard operating procedures are to be used in the laboratory in sufficient detail that a competent analyst unfamiliar with the method can conduct a reliable review and/or obtain acceptable results." SOPs should be developed for each analytical procedure.

- (c) EPA approved analytical testing procedures used (40 CFR 136.3).. Y
- (d) If alternate analytical procedures are used, proper approval has been obtained..... N/A
- (e) Analyses being performed more frequently than required by permit. N
- (f) If (e) is yes, are results in permittee's self-monitoring report..... N/A
- (g) Satisfactory calibration and maintenance of instruments/equipment. N
- (h) Commercial laboratory used..... Y
Parameters analyzed by commercial lab: Ammonia nitrogen, nitrates & nitrites, oil & grease, total phosphorus, sludge parameters, cyanide & metals

Lab name: Test America

Discharge Monitoring Report Quality Assurance (DMRQA)

- (a) Participation in latest USEPA quality assurance performance sampling..... N/A
Date:
- (b) Were any parameters "Unsatisfactory"..... N/A
- (c) Reasons for "Unsatisfactory" parameters.....

N/A

Comments/Status:

Section J: Effluent/Receiving Water Observations

Outfall # 1PB00034001

Outfall Description: Effluent ditch to East Fork of the Little Miami River

Receiving Stream: East Fork of the Little Miami River

Receiving Stream Description: Warm Water Habitat, Primary Contact Recreation

Comments/Status:

The plant effluent pumps were not operating at the time of the inspection.

Section K: Multimedia Observations

- (a) Are there indications of sloppy housekeeping or poor maintenance in work and storage areas or laboratories..... N
- (b) Do you notice staining or discoloration of soils, pavement or floors.. N
- (c) Do you notice distressed (unhealthy, discolored, dead) vegetation.. N
- (d) Do you see unidentified dark smoke or dust clouds coming from sources other than smokestacks..... N
- (e) Do you notice any unusual odors or strong chemical smells..... N
- (f) Do you see any open or unmarked drums, unsecured liquids, or damaged containment facilities..... N

If any of the above are observed, ask the following questions:

- (1) What is the cause of the condition?
- (2) Is the observed condition or source a waste product?
- (3) Where is the suspected contaminant normally disposed?
- (4) Is this disposal permitted?
- (5) How long has the condition existed and when did it begin?

Comments/Status:

Inspection Findings

The Village of Williamsburg's wastewater treatment Plant (WWTP) is designed to treat an average daily flow of 0.5 million gallons per day (MGD). From March 1, 2011 through April 30, 2012, the Village reported an average daily flow of 0.535 MGD. The WWTP consists of the following major components:

- Preliminary Screens (mechanical ¾" opening)
- Grit Removal
- (4) Sequencing Batch Reactor Tanks
- Ultraviolet disinfection
- (3) Aerobic Sludge Storage Tanks

Effluent Limit Violations

(Period of Review: November 2011 - March 2012)

7D = Weekly 30D = Monthly 1D = Daily
 Conc. = Concentration (mg/l) Qty.= Quantity (Kg/Day)

Reporting Period	Parameter	Limit Type	Limit	Reported Value
November 2011	Phosphorus, Total (P)	30D Conc	2.0	2.17
December 2011	Total Suspended Solids	7D Conc	30	38
December 2011	Total Suspended Solids	7D Qty	56.8	134.8
January 2012	Phosphorus, Total (P)	30D Conc	2.0	2.17
April 2012	Phosphorus, Total (P)	30D Conc	2.0	3.1
April 2012	Phosphorus, Total (P)	7D Conc	3.0	3.1

A review of the files showed that Ohio EPA was not given notification of the NPDES violations listed above. Construction of Phase 2 improvements to the facility (which included taking individual SBR units off-line for air header replacement) may have been a contributing factor to the effluent violations. Due to the NPDES violations listed above, the "Effluent/Receiving Waters" section of this report was given an "Unsatisfactory" rating. Due to the facility's failure to provide notification of said violations, the "Self Monitoring" section of this report was given an "Unsatisfactory" rating.

Items Noted During the Inspection

1. The laboratory was in relatively good condition. The Village conducts analyses for CBOD₅, D.O., TSS, fecal coliform, pH, and temperature. Its contract laboratory (Test America) conducts analyses for NH₃, nitrates & nitrites, oil & grease, total phosphorus, sludge parameters, cyanide and metals. However, the lab still does not have a set of log books for recording all calibration checks or a set of written Standard Operating

Procedures (SOP's) for the parameters analyzed at the plant lab. Due to these deficiencies, the area designated as "Laboratory" received a "Marginal" rating.

2. Construction of Phase 2 plant improvements to the Williamsburg WWTP (as called for thru Permit to Install # 780822) has been completed. The Phase 2 improvements are: 1) new influent pumps; 2) a new mechanical bar screen unit and a new grit removal unit; 3) new aeration equipment for the four existing sequencing batch reactors; 4) new effluent pumps; and 5) new UV light disinfection equipment. The mechanical bar screen unit, the new grit removal unit, and the new effluent equipment (pumps and disinfection units) each have their own enclosure.

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
pH Meter				
<ul style="list-style-type: none"> • Calibration Frequency / Documentation 	<ul style="list-style-type: none"> • Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples)³ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	A
	<ul style="list-style-type: none"> • Logbook maintained² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Minimum of 2 point calibration 	<ul style="list-style-type: none"> • Calibration per manufacturer specification and calibration buffers must bracket anticipated result⁷ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Slope Documentation / Acceptability 	<ul style="list-style-type: none"> • Slope acceptable range indicated on benchsheet² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Buffer Expiration Date 	<ul style="list-style-type: none"> • Buffers must not be expired 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Instrument manual available 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Teflon covered magnetic stirrer or equivalent for mixing⁸ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<p>Comments:</p>				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Dissolved Oxygen Meter				
<ul style="list-style-type: none"> • Calibration Method 	<ul style="list-style-type: none"> • Air or known DO calibration method¹⁰ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	A
	<ul style="list-style-type: none"> • Calibration per manufacturer specification¹⁰ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Calibration Frequency / Documentation 	<ul style="list-style-type: none"> • Logbook maintained² 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Calibration verification required at least once each day the meter is used.³ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)¹¹ 	<input type="checkbox"/> Yes	<input type="checkbox"/> No	N/A
	<ul style="list-style-type: none"> • Instrument manual available 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments: The type of meter used at the Williamsburg WWTP for D.O. measurement uses a probe that has no membranes to clean or replace, nor any electrolyte solution to replenish.

General Lab Criteria

Criteria	Standard Methods Requirement		Rating
Incubator (CBOD/ E-Coli)			A
<ul style="list-style-type: none"> • Temperature Recordkeeping 	<ul style="list-style-type: none"> • Temperature checked / recorded twice daily for each shelf in use¹(E-Coli) 	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Temperature checked / recorded daily² (CBOD) 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Acceptable temperature range (CBOD) is 20° C ±1.0 °¹² 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Acceptable temperature range (E-Coli) is 35° C ±0.5 °²² 	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Logbook maintained ² 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> • Temperature Calibration / Documentation 	<ul style="list-style-type: none"> • Thermometer calibrated annually with NIST traceable thermometer^{1,2} 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Temperature correction information posted on incubator¹ 	<input type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> • E-Coli can use multiple tubes (five 20 ml or ten 10 ml), or mfg's multi-well tray 	<ul style="list-style-type: none"> • E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb)²³ 	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Instrument manual available 	
<ul style="list-style-type: none"> • Temperature Log (thermometer accurate to 0.5 Celsius).¹ 		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments: :			
Criteria	Standard Methods Requirement		Rating
Refrigerator			A
<ul style="list-style-type: none"> • Temperature Recordkeeping 	<ul style="list-style-type: none"> • Temperature Log (thermometer accurate to 0.5 Celsius).⁵ 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> • Temperature Calibration / Documentation 	<ul style="list-style-type: none"> • Thermometer calibrated annually with NIST traceable thermometer^{1,2} 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
<ul style="list-style-type: none"> • Other 	<ul style="list-style-type: none"> • Thermometer held in water bath. ¹ 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Refrigerator temperature ≤6° Celsius.¹³ 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Do not store volatile solvents, food, or beverages.¹⁴ 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments:			

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Chlorine Meter				
• Calibration Frequency / Documentation	• pH / millivolt meter read to 0.1 mV ¹⁵	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples) ³	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Calibration Method	• Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters or calibration per manufacturer specification ¹⁶	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Standards used for calibration not expired	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Slope Documentation / Acceptability	• Calibration curve (acceptable slope)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Electrode free of deposits and foreign material	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained. ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments: :

Criteria	Standard Methods Requirement	Acceptable?		Rating
Ammonia Meter				
• Calibration Frequency / Documentation	• Calibration verification required for testing over long period of time (e.g. 12 hrs.), or after a large number of samples (every 10 samples) ³	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Slope acceptability	• Verify calibration slope is acceptable (per mfg. spec.).	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Calibration Method	• Standards used for calibration (3 ammonia solutions of 10 mg/l, 1 mg/l, and 0.1 mg/l) or per mfg. spec. ¹⁷	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Standards used for calibration not expired	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Electrode free of deposits and foreign material	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Teflon covered magnetic stirrer or equivalent for mixing ¹⁸	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments: :

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Sample Collection/Handling				
<ul style="list-style-type: none"> • Sample Labeling • Chain of Custody • Other 	• Samples container labeled (description, date, time, preservative added, initialed). ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	M
	• Chain of custody (description, date, time, signature). ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Composite samples refrigerated during sample collection ¹⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Equipment blanks utilized ¹⁴	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• SOP for cleaning of sampling equipment	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Logbook being maintained ²	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
Comments:				
Criteria	Standard Methods Requirement	Acceptable?		Rating
Desiccator				
<ul style="list-style-type: none"> • General criteria • Documentation 	• Properly working seals.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Desiccant fresh (blue color) N/A	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments:				
Criteria	Standard Methods Requirement	Acceptable?		Rating
Bench sheets				
<ul style="list-style-type: none"> • General criteria 	• Date(s) ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Analyst initials ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Blue or black ink pen ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration information ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Equations, calculations, units for all measurements, notations, and results present ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Corrections, single line through, initialed and dated ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments:				

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Hot Water Bath (Fecal Coliform/E. Coli)				
• Temperature Recordkeeping	• Temperature Log (thermometer accurate to 0.2° C) ²¹	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Incubator temperature 44.5° C ± 0.2° ^{21/24}			
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1, 2}	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth) ^{1, 5}	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

Criteria	Standard Methods Requirement	Acceptable?		Rating
Autoclaves/Steam Sterilizers				
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C ²⁵	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• 10 to 30 minutes time based on material being sterilized ²⁶	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Documentation	• Verify the autoclave temperature weekly by using a maximum registering thermometer (MRT) to confirm that 121°C has been reached as measured in the exhaust. ¹	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Date, contents, sterilization time and temperature, total time in autoclave, and analyst's initials should be recorded each time the autoclave is used ¹	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1, 2}	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained ²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Performance Checks	• Test monthly for efficacy using a biological such as commercially available <i>Geobacillus stearothermophilus</i> in spore strips, suspensions, or capsules ¹	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments:

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?	Rating						
Final Effluent Temperature Monitoring									
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes <input type="checkbox"/> No							
	• Thermometer accurate to 0.1° Celsius ⁵	<input type="checkbox"/> Yes <input type="checkbox"/> No							
	• Log book being maintained ²	<input type="checkbox"/> Yes <input type="checkbox"/> No							
Comments:									
Number of Criteria Rated:			<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 2px;">Acceptable</td><td style="text-align: center; padding: 2px;">4</td></tr> <tr><td style="padding: 2px;">Marginal</td><td style="text-align: center; padding: 2px;">1</td></tr> <tr><td style="padding: 2px;">Unacceptable</td><td style="text-align: center; padding: 2px;"></td></tr> </table>	Acceptable	4	Marginal	1	Unacceptable	
Acceptable	4								
Marginal	1								
Unacceptable									
			<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td style="padding: 2px;">Total Number of Areas Rated</td><td style="text-align: center; padding: 2px;">5</td></tr> </table>	Total Number of Areas Rated	5				
Total Number of Areas Rated	5								
<p>Acceptable Ratings – No action required (recommend SOP's written or updated, perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, written response not required).</p>									
<p>Marginal Ratings – Improvements required, written response required (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response).</p>									
<p>Unsatisfactory Rating - Improvements required, written response required, NOV issued (recommend SOP's be written or updated, recommend they perform DMRQA's for all onsite analysis, recommend voluntary lab analyst certification, require deficiencies to be addressed in written response to NOV).</p>									
<p>Consider recommending PAI Audit from DES when:</p>		<p>>60% of ratings are Marginal >45% of ratings are a combination of Marginal or Unacceptable >30% of ratings are Unacceptable</p>							

Notation of Referenced Method

- | | |
|--|--|
| <ul style="list-style-type: none"> 1 Method 9020-B, Item 3 2 Method 1020-A, Item 1 3 Method 1020-B, Item 10 4 Method 2540-B, Item 2 5 Method 2550-B, Item 1 6 Method 1020-A, Item 1 7 Method 4500-H B, Item 4 8 Method 4500-H B, Item 2 9 Method 1020-B, Item 2 10 Method 4500-O B, Item 3 11 Method 4500-O G, Item 3 12 Method 5210-B, Item 5 13 CFR 136.3, Table II | <ul style="list-style-type: none"> 14 Method 1060A, Item 1 15 Method 4500-CI I, Item 2 16 Method 4500-CI I, Item 4 17 Method 4500-NH3 D, Item 4 18 Method 4500-NH3 D, Item 2 19 Method 1060-B, Item 2 20 Method 1060-B, Item 1 21 Method 9222D, Item 1 22 Method 9223 B, Item 2 23 Method 9223 B, Item 3 24 Method 1603, Item 2 25 Method 9030-B, Item 3 26 Method 9020 B, Table IV |
|--|--|

Equipment Logbook Content - all maintenance performed on a piece of equipment should be documented in the logbook. This should include parts replacement and routine maintenance activities. Entries should include date, maintenance performed and initials of person making entry.

General Lab Criteria

Preservation and Holding Times

Parameter	Container	Min. Sample Size (ml)	Sample Type	Preservation	Maximum Storage Time	
					Recommended	Regulatory
BOD / CBOD	P, G	1000	G, C	Refrigerate $\leq 6^{\circ}\text{C}$	6h	48h
TSS	P, G	200	G, C	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 d
pH	P, G	50	G	Analyze immediately	0.25h	0.25 h
NH ₃ -N	P, G	500	G, C	Analyze as soon as possible or add H ₂ SO ₄ to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$	7 d	28 d
TRC	P, G	500	G	Analyze immediately	0.25h	0.25 h
DO (electrode)	G, BOD Bottle	300	G	Analyze immediately	0.25h	0.25 h
Temperature	P, G	--	G	Analyze immediately	0.25h	0.25 h
Metals, general	P, G	1000	G, C	For dissolved filter immediately and add HNO ₃ to pH <2	6 months	6 months
Purgeables by purge and trap	G (PTFE lined lid)	40 (X2)	G	HCl to pH<2, Refrigerate $\leq 6^{\circ}\text{C}$	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	C, G	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate $\leq 6^{\circ}\text{C}$	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate $\leq 10^{\circ}\text{C}$ If chlorine present, add sodium thiosulfate tablet	6 hrs transport Start analysis within 2 hrs of receipt in lab.	
Oil and Grease	G	1000	G	HCl or H ₂ SO ₄ to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$	28 d	28 d

Approved Standard Methods

CBOD / BOD 5 Day	Std Methods 5210-B
Ammonia, Selective Electrode Method	Std Methods 4500-NH ₃ D
Total Residual Chlorine, DPD Colorimetric Method	Std Methods 4500-Cl G
Total Suspended Solids, Dried at 103-105 °C	Std Methods 2540-D
Dissolved Oxygen, Membrane Electrode Method	Std Method 4500-O G
pH, Electrometric Method	Std Methods 4500-H+ B
Fecal Coliform, Membrane Filter Procedure	Std Methods 9222D
Escherichia Coli, Enzyme Substrate Test	Std Method 9223B
Escherichia Coli Membrane Filtration Procedure	EPA Method 1603
Oil and Grease	USEPA 1664A or Std Methods 5520B
Metals, general	USEPA 200, Std Methods 3111B or C, or 3120B
Volatiles (Purgeables by purge and trap)	USEPA 6210, Std Methods 624
Semi-Volatiles (Base/Neutrals and acids)	USEPA 6410, Std Methods 625
Pesticides	USEPA 6410 and 6630, Std Methods 608