



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

January 4, 2013

Re: Belmont County
City of St. Clairsville
Compliance Evaluation Inspection
Ohio EPA Permit 0PC00014*FD
Correspondence (PWW)

Mayor and Council
City of St. Clairsville
100 N. Market Street
St. Clairsville, Ohio 43950

Dear Mayor and Council:

On November 29, 2012, Tim Campbell and Nick Hammer conducted a compliance evaluation inspection at the City of St. Clairsville's Wastewater Treatment Plant (WWTP). Doug Frye, Plant Superintendent, was present during the inspection.

The purpose of the inspection was to determine the facility's compliance status with the terms and conditions of the NPDES permit, federal number OH0027294, state number 0PC00014*FD. Wastewater samples were not taken. A copy of the inspection report is attached. As a result of the inspection, I have the following comments:

1. There have been several reported sanitary sewer overflows (SSOs) at pump stations and manholes, particularly the St. Clair pump station and the manhole at the head of the plant. The city must continue to identify and report all SSOs in accordance with the permit, Part II, Item (Q)(1) and (2).

Per Abbot Stevenson's June 22, 2009 inspection, the city agreed to complete smoke testing of the entire collection system within one (1) year, and to correct problems discovered within three (3) years. Ohio EPA requested the city to submit a report by August 1, 2010, listing problems found, plans for repair, and a schedule to complete the work by August 1, 2012. To date, Ohio EPA has not received these listings. By March 1, 2013, submit your results and actions taken that you identified during the smoke testing to my attention.

2. The WWTP is rated as a class II plant. The Operator of Record must spend five (5) days a week, for a total of twenty (20) hours, in the plant, not including the laboratory work. In addition to this, the NPDES permit Part II, Item B requires the WWTP to be staffed in accordance with the approved Operations and Maintenance Plan, which state the minimum staffing requirements for the plant is

- four (4) full time personnel. Therefore, more staff hours and manpower need to be allocated to this facility. Provide a staffing plan and a date by when the plant will be fully staffed.
3. The operator certification rules, Section 3745-07-09 of the Ohio Administrative Code, contains record keeping requirements for maintenance, staffing hours, and plant operation. All certified operators at this facility should become familiar with the record keeping requirements and responsibilities of a certified operator contained in this rule. During our inspection, it was noted that entries to the log book are not occurring on a consistent basis. All O&M data shall be recorded in the log book daily.
 4. Standby power is supplied by an on-site generator that will operate the influent screws, Rotating Biological Contactors, and skimmers when power is lost at the facility. When the generator is tested under full load, record in log book.
 5. One of the Rotating Biological Contactors (B1) was out of service during the inspection. According to Part III, Item 3, all wastewater treatment works shall be properly operated and maintained at all times. According to Mr. Frye, the unit should be operational within a week. In your response to this letter, please indicate when this unit was placed back in operation.
 6. Two of the three screw pump flights have been replaced and are operational. The remaining screw pump must be repaired as soon as possible and returned to service to minimize the frequency of the SSOs at the manhole at the head of the plant. According to Part III, Item 3, all wastewater treatment works shall be properly operated and maintained at all times. In your response to this letter, please indicate when this unit was placed back in operation, or will be placed back into operation.
 7. As stated in the last inspection report, the two final clarifiers showed a moderate buildup of sludge and algae on the weirs and baffles. Cleaning of the weirs and baffles should be done as needed to prevent buildup of algae on the weirs and trough which may lead to solids violations. The operator must document in log book when cleaning occurs.
 8. On the day of the inspection, the influent sampler refrigerator was not working. According to Part III, Item 5 of the permit requires the samples to be kept at 4 degrees Celsius in accordance with regulation 40 CFR 136. The refrigerator must be immediately repaired to allow for proper collection of samples.
 9. Currently there is no influent flow measuring device. At one point in time, the plant was equipped with an influent flow meter. It is recommended that an influent flow meter be installed to obtain a better understanding of the Infiltration and Inflow (I/I) issues.

10. The effluent composite sampler is currently set up as time-based instead of flow proportional, as required by Part II, Item F of the permit. The city must take immediate action to ensure that flow proportionate samples are collected on the plant effluent.
11. According to Part II, Item U of the NPDES permit, the city shall post a permanent marker on the stream bank at each outfall. During this inspection, no signage was observed along the stream bank of Town Run. In your response to this letter, please indicate when the permanent marker will be installed on the stream bank.
12. A review and discussion on the lab procedures occurred at the facility. I have attached a copy of the lab inspection checklist to use as a guide. All analysis appeared to be done properly, but some additional work is needed to ensure that accurate and defensible results are obtained. All thermometers are required to be calibrated annually with a NIST traceable thermometer. Record the calibration of all thermometers in the temperature log book.

The following thermometers need to be replaced: refrigerator, hot water bath, and final effluent thermometer. These thermometers do not currently read in the correct increments. Reference the lab inspection checklist for the appropriate increments for each thermometer.

In addition, I have also included a copy of the performance audit inspection conducted by Steven Roberts from Ohio EPA, Division of Environmental Services from May 24, 2010 for your reference. Verify that all comments and suggestions have been implemented.

13. During the city's smoke testing of the collection system, several cross connections with the storm sewer were identified. Currently, there is no procedure in place to monitor when these overflows are occurring. Within thirty (30) days from the date of this letter, the city shall begin monitoring and reporting to Ohio EPA when a SSO occurs at any of these identified locations.
14. In addition to the I/I issues described in comment 1 above, the city shall complete a manhole survey of the collection system within six (6) months from the date of this letter. I have included a copy of the manhole evaluation form for your use. Based on Mr. Frye's comments and the actions currently taken to reduce I/I, Ohio EPA will continue to monitor SSO occurrences and will determine the effectiveness of the systems actions to decrease I/I in eight (8) months. If sufficient progress is not made to eliminate the SSOs, formal enforcement action may be initiated.

Due to the deficiencies mentioned in the comments above, I have rated several areas on the attached report as marginal or unsatisfactory. The city must take all necessary actions to correct these deficiencies.

Please respond to all comments above in writing, by March 1, 2013. If you have any questions, please call me at your convenience at (740) 380-5416 or e-mail nick.hammer@epa.ohio.gov.

Sincerely,



Nicholas G. Hammer
Environmental Specialist II
Division of Surface Water

NH/dh

Enclosures

c: Doug Frye, Plant Superintendent, City of St. Clairsville



State of Ohio Environmental Protection Agency
Southeast District Office

Municipal NPDES Compliance Inspection Report

Section A: National Data System Coding					
Permit #	NPDES #	Month/Day/Year	Inspection Type	Inspector	Facility Type
0PC00014*FD	OH0027294	November 29, 2012	CEI	S	1

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
City of St. Clairsville Wastewater Treatment Plant 100 Legion Road St. Clairsville, Ohio 43950	9:30 a.m.	August 1, 2009
	Exit Time	Permit Expiration Date
	4:00 p.m.	July 31, 2014
Name(s) and Title(s) of On-Site Representative(s)	Phone Number(s)	
Doug Frye, Superintendent of Operations, Class 3 Operator	(740) 695-0191	
Name, Address, and Title of Responsible Official	Phone Number	
Mayor and Council City of St. Clairsville 100 N. Market Street, P.O. Box 537 St. Clairsville, Ohio 43950		

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

Section D: Summary of Findings (attach additional sheets if necessary)			
See attached letter			
Inspector		Reviewer	
1/4/13		1/31/13	
Date		Date	
Nicholas G. Hammer Division of Surface Water Southeast District Office		Jennifer M. Witte Compliance & Enforcement Supervisor Division of Surface Water Southeast District Office	

Sections E through 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..... N
- (e) Number and location of discharge points are as described in permit..... Y
- (f) Storm water discharges properly permitted..... N/E

Comments/Status:

d.) SSOs in collection system.

Section F: Compliance

- (a) Any significant violations since the last inspection..... Y
- (b) Appropriate Non-compliance notification of violations..... Y
- (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

Comments/Status:

a.) SSOs in the collection system.

Section G: Operation and Maintenance

Treatment Works:

Treatment facility properly operated and maintained

- (a) Standby power available generator or dual feed

i. What does the back-up power source operate

Screws, RBC, and skimmers

ii. How often is the generator tested under load

Operator was unsure, no records are kept on testing.

- (b) Which components have an alarm system available for power or equipment failures
- (c) All treatment units in service other than backup units N
- (d) What method is used for scheduling routine and preventative maintenance (calendar, software, etc.)
- (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 Y
- (h) Any plant upsets since last inspection N

Comments/Status:

Currently B-1 RBC unit is not operating, repairs are being made and will be operable within a week, per operator. In addition, one influent screw pump is out of service. Several SSO at the plant have occurred since last inspection.

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
- (g) Operator of Record log book provided Y
- (h) Format of log book (e.g. computer log, 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 N
 - III. Daily record of operator and maintenance activities (including preventative maintenance, repairs and request for repairs, process control test results, etc.) N
 - 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 Y

Comments/Status:

Log book is not being completed daily. Entries and information are not occurring on a consistent basis.

Collection System:

- (a) Are there pump stations in the collection system Y
 - I. How many publicly-owned pump stations equipped with permanent standby power or equivalent all 9
 - II. How many pump stations have telemetered alarms..... all 9
 - III. How many pump stations have operable alarms..... all 9
- (b) Any chronic collection system overflows since last inspection Y
- (c) Regulatory agency notified of all overflows Y
- (d) Are there CSOs in the collection system N
 If so, what is the LTCP status
- (e) How are CSOs monitored (chalk, block, level sensor, etc.)
- (f) Portable pumps available for collection system maintenance Y
- (g) RDII Program established and active N/E
- (h) Any WIB complaint received since last inspection..... Y
- (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:

Operator stated that a WIB complaint occurs every 2-3 months and is caused by tree roots in the main. Staff contact professional to clean and disinfect residence affected by WIB. Portable pumps are available from private industry, when needed.

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% Solids without Unstabilized Solids	Option 8 - >75% 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% Solids without Unstabilized Solids	Option 8 - >75% Solids with Unstabilized Solids	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 checked="" 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 Y
- (g) Are sludge application sites inspected to verify compliance with NPDES permit Y
- (h) Is a contractor used for sludge disposal N
 If so, what is the name of the contractor

Comments/Status:

No liquid land application is occurring
 Facility has switched to sludge bags ~ a year ago.

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
 Date of last calibration
- (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:

Currently there is no flow measuring device on influent.

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 (see GLC page) N
- (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) N/E

Comments/Status:

Sampling time based and is not flow porportional. Refrigerator on influent sampler was not working.

Laboratory:

General

- (a) Does the Quality Assurance Manual contain written Standard Operating Procedures (SOP's) for all analysis performed onsite Y
- (b) Do SOP's include the following if applicable Y
- Title
 - Scope and Application
 - Summary
 - Sample Handling & 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 Y
- (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 (see score from GLC page) Y
- (h) Commercial laboratory used..... Y
- Parameters analyzed by commercial lab: **Oil & Grease, Nitrate, Low Level Mercury, and all metals.**
- Lab name: **Ream & Haager**

Discharge Monitoring Report Quality Assurance (DMRQA)

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

Comments/Status:

Section J: Effluent/Receiving Water Observations

Outfall #: 001

Outfall Description: East of plant, clear with little turbidity.

Receiving Stream: Town Run

Receiving Stream Description: Currently low flow

Comments/Status:

Proper signage not present at discharge.

Section K: Multimedia Observations

- | | |
|--|---|
| (a) Are there indications of sloppy housekeeping or poor maintenance in work & storage areas or laboratories | Y |
| (b) Do you notice staining or discoloration of soils, pavement or floors..... | Y |
| (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:

Mechanical room for effluent screws had indications of poor housekeeping, grease and debris was located on cement floor and general appearance of room was disorderly.

General Lab Criteria

Facility: St. Clairsville WWTP

Criteria	Standard Methods Requirement		Acceptable?		Rating
Balance					
• Standard Weights	• Either NIST Class s or ASTM/ANSI Class 1 weights ^{1,2}	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	A	
• Calibration Frequency/ Documentation	• Calibration verification required at least once each day the balance is used ³	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
• Cleanliness, air movement, vibration	• Cleanliness of balance is a must and air movement and vibration needs to be kept to a minimum ¹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
• Other	• Service and recalibrate annually (manufacturer representative or comparable) ¹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
	• Must be able to measure to 0.1 grams ⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
	• Log book maintained ⁶	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Comments: Calibrated on 7-9-12					

Criteria	Standard Methods Requirement		Acceptable?		Rating
Drying Oven (Suspended Solids)					
• Temperature Recordkeeping	• Temperature recorded with each use ⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	A	
	• Log book maintained ⁶	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
• Calibration Frequency/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2} . Correction factor posted on thermometer/equipment ¹	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
• Other	• Thermometer temperature in 0.1°C increments ⁵	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
	• Acceptable temperature range is 103° – 105°F ⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Comments: Thermometer must be calibrated annually. Several temperature recordings are missing in log book.					

Criteria	Standard Methods Requirement		Acceptable?		Rating
pH 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 checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	A	
	• Log book maintained ⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket anticipated result ⁷	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		
• Slope Documentation/ Acceptability	• Slope acceptable range indicated on benchsheet ²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
• Buffer Expiration Date	• Buffers must not be expired	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
• Other	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
	• Teflon covered magnetic stirrer or equivalent for mixing ⁸	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Comments: pH buffers of 7/10 were being used. On occasion, the pH results were less than 7.					

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Dissolved Oxygen Meter				A
• Calibration Method	• Air or known DO calibration method ¹⁰	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration per manufacturer specification ¹⁰	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Calibration Frequency/ Documentation	• Logbook maintained ⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration verification required at least once each day the meter is used. ³	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil) ¹¹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments: Obtain Barometer on-site for calibration.				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Incubator (CBOD/E-Coli)				U
• Temperature Recordkeeping	• Temperature checked/recorded twice daily for each shelf in use ¹	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Temperature checked/recorded daily ² (CBOD)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Acceptable temperature range (CBOD) is 20°C ±1.0° ¹²	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Acceptable temperature range (E-Coli) is 35°C ±0.5° ²²	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Logbook maintained ⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Temperature correction information posted on incubator ¹	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• E-Coli can use multiple tubes (five 20 ml or ten 10 mg), or mfg's multi-well tray	• E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb) ²³	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Temperature Log (thermometer reads to 0.1 Celsius) ⁵	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments: Thermometer must be calibrated annually.				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Refrigerator				U
• Temperature Recordkeeping	• Temperature Log (thermometer reads to 0.1 Celsius) ⁵	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer ^{1,2}	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
• Other	• Thermometer held in water bath ¹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Refrigerator temperature ≤6° Celsius ¹³	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Do not store volatile solvents, food, or beverages ¹⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments: Thermometer must be calibrated annually. Thermometer must be replaced with a thermometer that reads 0.1 degrees Celsius.				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Chlorine Meter				A
• 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	

General Lab Criteria

• 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 ⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	• Instrument manual available	<input checked="" 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	A
	• Log book being maintained ⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Slope Acceptability	• Verify calibration slope is acceptable (per mfg. spec.)	<input checked="" 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 checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Standards used for calibration not expired	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Electrode free of deposits and foreign material	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Teflon covered magnetic stirrer or equivalent for mixing ¹⁸	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Instrument manual available	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments:				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Sample Collection/Handling				
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed) ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	U
• Chain of Custody	• Chain of custody (description, date, time, signature) ¹⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Composite samples refrigerated during sample collection ¹⁴	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	• Equipment blanks utilized ¹⁴	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• SOP for cleaning of sampling equipment	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Log book being maintained ⁹	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments: Influent refrigerator is no operating during collection of composite samples.				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Desiccator				
• General Criteria	• Properly working seals	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	A
	• Desiccant fresh (blue color)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
• Documentation	• Log book being maintained ⁹	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Comments: Change in Desiccant needs to be recorded in log book.				

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
Bench Sheets		Acceptable?		M
<ul style="list-style-type: none"> • General Criteria 	<ul style="list-style-type: none"> • Date(s)² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Analyst initials² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Blue or black ink pen² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Calibration information² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • Equations, calculations, units for all measurements, notations, and results present² 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
<ul style="list-style-type: none"> • Corrections, single line through, initialed and dated² 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Comments: Record all math/equations for BOD calculations.				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Hot Water Bath (Fecal Coliform/E. Coli)		Acceptable?		U
<ul style="list-style-type: none"> • Temperature Recordkeeping 	<ul style="list-style-type: none"> • Temperature Log (thermometer reads 0.2° C)²¹ 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Incubator temperature 44.5° C ±0.2°^{21/24} 	<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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Log book being maintained⁹ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Water Level 	<ul style="list-style-type: none"> • Thermometer total immersion or partial (line on thermometer to ID immersion depth)^{1,5} 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Comments: Thermometer must be calibrated annually. Thermometer needs replaced with a thermometer reads 0.2 degrees Celsius.				

Criteria	Standard Methods Requirement	Acceptable?		Rating
Autoclaves/Steam Sterilizers		Acceptable?		U
<ul style="list-style-type: none"> • All apparatus utilized is adequately sterilized before use 	<ul style="list-style-type: none"> • Sterilizing temperature 121° C²⁵ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
	<ul style="list-style-type: none"> • 10 to 30 minutes time based on material being sterilized²⁶ 	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
<ul style="list-style-type: none"> • Documentation 	<ul style="list-style-type: none"> • Verify the autoclave temperature weekly by using a maximum registering thermometer (MRT) to confirm that 121°C has been reached as measured in the exhaust¹ 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Date, contents, sterilization time and temperature, total time in autoclave, and analyst's initials should be recorded each time the autoclave is used¹ 	<input type="checkbox"/> Yes	<input checked="" 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 type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Log book being maintained⁹ 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
<ul style="list-style-type: none"> • Performance Checks 	<ul style="list-style-type: none"> • Test monthly for efficacy using a biological such as commercially available <i>Geobacillus stearothermophilus</i> in spore strips, suspensions, or capsules¹ 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	
Comments: Verify temperature weekly using MRT, maintain log book, calibrate thermometer annually with NIST traceable thermometer, test monthly for efficacy using biological spores, strips, suspensions, or capsules.				

General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?	Rating
Final Effluent Temperature Monitoring			
<ul style="list-style-type: none"> • General Criteria 	<ul style="list-style-type: none"> • Thermometer calibrated annually with NIST traceable thermometer^{1,2} 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	U
	<ul style="list-style-type: none"> • Thermometer reads in increments of at least 0.1°C⁵ 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	<ul style="list-style-type: none"> • Log book being maintained² 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments: Thermometer must be calibrated annually. Thermometer needs replaced with a thermometer reads 0.1 degrees Celsius.			

Number of Criteria Rated:	Acceptable	7
	Marginal	1
	Unacceptable	6
	Total Number of Areas Rated	14

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).

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).

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).

Consider recommending PAI Audit from DES when:

- >60% of ratings are Marginal
- >45% of ratings are a combination of Marginal or Unacceptable
- >30% of ratings are Unacceptable

General Lab Criteria

Notation of Referenced Method

1	Method 9020-B, Item 4	14	Method 1060A, Item 1
2	Method 1020-A, Item 1	15	Method 4500-CI I, Item 2
3	Method 1020-B, Item 10	16	Method 4500-CI I, Item 4
4	Method 2540-B, Item 2	17	Method 4500-NH3 D, Item 4
5	Method 2550-B, Item 1	18	Method 4500-NH3 D, Item 2
6	Method 1020-B, Item 1	19	Method 1060-B, Item 2
7	Method 4500-H B, Item 4	20	Method 1060-B, Item 1
8	Method 4500-H B, Item 2	21	Method 9222D, Item 1
9	Method 1020-B, Item 2	22	Method 9223 B, Item 2
10	Method 4500-O B, Item 3	23	Method 9223 B, Item 3
11	Method 4500-O G, Item 3	24	Method 1603, Item 2
12	Method 5210-B, Item 5	25	Method 9030-B, Item 3
13	CFR 136.3, Table II	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.

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
NH3-N	P, G	500	G, C	Analyze as soon as possible or add H_2SO_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	G, C	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_2SO_4 to pH <2, Refrigerate $\leq 6^{\circ}\text{C}$	28 d	28 d

General Lab Criteria

Approved Standard Methods	
CBOD / BOD 5 Day	Std Methods 5210-B
Ammonia, Selective Electrode Method	Std Methods 4500-NH3 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 Methods 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

June 21, 2011

Doug Frye
Superintendent
St. Clairsville WWTP
PO Box 537
St. Clairsville, OH 43950

Dear Mr. Frye,

Enclosed is a report of my findings from the May 24, 2011 performance audit inspection of your laboratory facility. The recommendations made here are intended to assist your laboratory in improving its performance in generating accurate and reliable data.

This report serves as a summary of suggestions for changes to be made. Please submit a written response to this communication addressing a plan of action to me within 60 days of receipt. A copy of your response should be sent to Tim Campbell of the Southeast District Office with the Ohio EPA.

Please feel free to contact me at (614) 644-4225 or steve.roberts@epa.state.oh.us if there is further assistance I may be able to offer.

Respectfully,

Steven Roberts
Quality Assurance Supervisor
Ohio EPA - Division of Environmental Services
8955 East Main Street
Reynoldsburg, OH 43068

**PERFORMANCE AUDIT INSPECTION
of
St. Clairsville WWTP**

DATE OF INSPECTION: May 24, 2010

CONDUCTED BY: Steven Roberts
Quality Assurance Supervisor
Ohio EPA, Division of Environmental Services

STAFF PRESENT: Doug Frye, Superintendent

COMMENTS: The lab was small and somewhat cluttered. There was adequate space to perform the tests that were being analyzed.

OBSERVATIONS:

1. It was stated that samples from the West End were brought back to the lab for analysis. This is not feasible for pH and residual chlorine samples. These samples must be analyzed within 15 minutes of collection.
2. It was noted that the chain of custody (COC) used with the contract lab was incomplete. In order for the data to be defensible, the COC must demonstrate that the samples are secured with no chance of tampering.
3. Some lab specific standard operating procedures (SOPs) were written, but generally were just simple instructions. The SOPs must conform to 40 CFR part 160.81. I would suggest using the SOPs that were left behind as templates. The SOPs need to be reviewed annually and updated anytime the analysis is changed. The SOPs must also follow an approved method listed in the 40 CFR part 136.3 or have an approved alternate testing procedure letter from the US EPA stating that their specific method is acceptable.
4. Some chemical containers are not adequately labeled. This includes secondary containers such as bottles and volumetric flasks containing solutions and reagents that are prepared in the laboratory. All containers for purchased chemicals must be labeled with initials, dates of receipt, expiration, and opening. Secondary containers must be labeled with contents and pertinent information (chemical name, concentration, initials, date prepared, and an expiration date). These chemicals and containers must all be traceable to a logbook.
5. It is required that there be a matrix spike and duplicate where applicable, at a minimum of ten percent of samples (it is not realistic to spike BOD, suspended solids, pH or fecal coliform). There were several tests in which duplicates were not performed. Also QC samples must be analyzed on a quarterly basis.
6. The thermometers located throughout the laboratory were not checked against an NIST-traceable thermometer for accuracy in the range of use. Annually, thermometers must be verified against a NIST-traceable thermometer and have a correction factor applied. All thermometers must be uniquely tagged and traceable to a logbook documenting calibration dates and values. All temperature controlled equipment (coolers, ovens, etc...) must have the temperature recorded,

along with the initials of the person recording it, when it is in use and someone is in the lab to record it. It is also suggested that each temperature log include the acceptable range.

7. Method detection limits (MDLs) have not been determined. These must be determined initially and any time there is a significant change in analysis to document analytical capability for the laboratory's analyses. Directions on how to calculate MDL values and acceptability were left at the facility. It is not feasible to determine MDLs for BOD, pH, or microbiological tests.
8. The only cooler in the facility was used for chemical and sample storage, but also had batteries and cleaning solutions in it. This is not acceptable. Samples and chemicals must be stored in separate coolers to prevent contamination. A small dorm fridge should work well for this. The cooler also did not have a thermometer in it for temperature tracking.
9. The balance was clean and in working order with the annual calibration sticker attached. Each day the balance is used it should be checked for level and have the calibration checked with weights at a low and high mass to ensure proper operation. The values obtained should be recorded in the balance logbook. If the weights do not agree within ± 1 mg, the balance will require attention. The lab did not have an acceptable set of weights on hand for this check (ASTM class 1).
10. All calibration solutions were made using graduated cylinders. All calibration solutions must be made using class A volumetric glassware. Graduated cylinders and serological pipettes are not good enough to provide the accuracy required.
11. There was no logbook system in place to record the activities in the lab. Anytime a reagent is made, a new bottle is opened, maintenance is performed, etc... it must be documented in a log book. A logbook guide was left at the lab that details all the information that must be recorded in the logbook to create a paper trail for all reagents and maintenance performed in the lab.

ANALYTICAL METHODS:

Ammonia: The ammonia standards were kept out on the shelf. Standards need to be stored in conditions similar to the samples. For ammonia this would be in the reagent cooler.

The calibration slope was not recorded with each calibration. This must be recorded in order to demonstrate an acceptable calibration.

CBOD: I took note of some samples having bubbles present in the incubator, this is not acceptable. This indicates something is wrong with the setup of the sample initially. If it is from the sample being supersaturated (initial DO greater than 9.0 ppm) the oxygen bubbling out of solution will artificially increase the demand.

There were a few instances in which the dilution water exceeded the 0.2 ppm DO depletion. This indicates contamination of the dilution water. All data produced with this dilution water must either be discarded or clearly identified in data records.

The GGA (glucose/ glutamic acid) standard was not analyzed. Due to the highly variable nature of CBOD this should be analyzed with every analytical run in order to find problems with dilution water, seed quality and analytical technique.

Currently only two dilutions are analyzed per sample. The method recommends that five dilutions be prepared in order to get two dilutions within the window of 2.0 ppm depletion with at least 1.0

ppm DO left. The number of dilutions can be adjusted with familiarity with the effluent

TSS: The date the desiccant was regenerated was not recorded. This information must be written in a log book.

No blanks were analyzed with this parameter. Blanks must be analyzed to show that the pre-wash and the sample rinse do not introduce any contamination.

pH: The meter was not calibrated daily. Without being calibrated the day it is used, the meter cannot produce data of an acceptable quality.

The calibration buffers need to be poured fresh daily as to reduce the effects of absorption of carbon dioxide which forms carbonic acid in solution.

Residual chlorine: There was no record of the instrument ever being calibrated. The instrument cannot produce acceptable results without it having been calibrated. Once a calibration is established a calibration check must be analyzed with every run to establish that the calibration is still valid.

Microbiological: Only two dilutions of each sample were analyzed. The method recommends three dilutions to ensure the results fall within the ideal counting range.

Calculations involving the ideal counting range weren't being performed correctly. A copy of the OEPA fecal coliform method was left at the lab which details all the calculations. This must be followed.

Other tests: There were no other issues noted with the other tests performed by the lab that were not covered in the observations section.

SUMMARY:

In general there were some significant issues noted during the inspection that could jeopardize the defensibility of much of the data. They are noted above and are quick and easy to correct.

For technical assistance with calculations or other questions and comments I can be reached at (614)-644-4225 or via email at: steve.roberts@epa.state.oh.us.