Ohio EPA
40 years and moving forward

October 5, 2012

Re: Gallia County
City of Gallipolis
Compliance Evaluation Inspection
NPDES Permit 0PD00001*ND
Correspondence (PWW)

Mr. Randall J. Finney, City Manager
City of Gallipolis
P.O. Box 339
Gallipolis, Ohio 45631

Dear Mr. Finney:

On August 31, 2012, I conducted a Compliance Evaluation Inspection of the City of Gallipolis wastewater treatment facility. Brian Lane represented the City of Gallipolis and accompanied me during the inspection. The purpose of the inspection was to determine Gallipolis' compliance with NPDES Permit Number 0PD00001*ND and the Ohio Water Pollution Control Act, Revised Code Chapter 6111. I also spoke with John Westfall, Plant Superintendent, and Dave Walters, Collections Supervisor, by phone, to discuss plant operations and collections.

As a result of the inspection and review of our files, I have the following comments:

- The city intends to upgrade the influent (headworks), providing improved fine screening. We concur with this decision.
- All plant units were observed. Three of the five primary settling tanks were in use; two being kept off-line due to excess capacity.
- The E.Q. basin was empty and clean.
- Both trickling filters were operating and appeared to have good growth. Both trickling filter systems have a few missing splash plates on the arms. Both trickling filters exhibit some leakage around the center posts of the distribution arms. You must monitor this, and determine whether maintenance repair is necessary.
- Both clarifiers were operating and appeared to be in good condition, with water surfaces clear, and weirs having been recently cleaned.

- Regarding the chlorine feed room, it was noticed that the potable water feed to the chlorinator is located upstream of the potable water back-flow prevention device. This is something that you should discuss with our Division of Drinking Water.

- The final plant effluent at the weir appeared to be clear and of good quality.

A review of the discharge monitoring reports (DMR's) for the period of July 2010 through June 2012, revealed one effluent limitation violation, as follows:

Permit #	Reporting Period	Station	Reporting Code	Parameter	Limit Type	Limit	Reported Value	Violation Date
0PD00001*MD	August 2010	001	31616	Fecal Coliform	7D Conc	400	1128.27	8/22/2010

Attached is a copy of the inspection report and General Lab Criteria Report. The facility was found to be in compliance with the NPDES permit on the date of the inspection.

The Lab Criteria Report indicates a number of Marginal ratings which are due mostly to a lack of lab instrument log books for noting calibration/maintenance. The City of Gallipolis should take the appropriate actions to receive Acceptable ratings in this area.

Also, the City has reportedly not eliminated the discharge of sewage from a few homes from the storm sewer along the river bank near the final plant effluent discharge point. You must eliminate these unpermitted discharges. Please provide an update on this project.

Please respond to this letter by October 1, 2012.

Sincerely,

Dan Messerly
District Staff Engineer
Division of Surface Water

DM/dh

Enclosure

c: John Westfall, City of Gallipolis
c: SEDO, DDAGW

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**
0PD00001*ND	OH0020478	August 31, 2012	C	S	1

Section B: Facility Data		
Name and Location of Facility Inspected	**Entry Time**	**Permit Effective Date**
City of Gallipolis Water Pollution Control Facility 1547 Chatham Avenue Gallipolis, Ohio	12:50 p.m.	August 1, 2012
	Exit Time	**Permit Expiration Date**
	4:00 p.m.	January 31, 2017
Name(s) and Title(s) of On-Site Representative(s)	**Phone Number(s)**	
Brian Lane, Assistant Operator, Lab Analyst John Westfall, Supt., WWTP Dave Walters, Supervisor, Collections	(740) 446-1690	
Name, Address, and Title of Responsible Official	**Phone Number**	
Randall Finney, City Manager P.O. Box 339 Gallipolis, Ohio 45631	(740) 446-1789	

Section C: Areas Evaluated During Inspection (S = Satisfactory; M = Marginal; U = Unsatisfactory; N = Not Evaluated; N/A = Not Applicable)					
S	Permit	S	Flow Measurement	N	Pretreatment
S	Records/Reports	S	Laboratory	S	Compliance Schedules
S	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 cover letter.

Plant staff is: John Westfall, Class III WW, Class II Lab; Brian Lane, Class II WW, Class I Lab; Paul Moss, Class I WW; John Wetherell, Class I (OIT)

Collections staff: Dave Walters, Ralph Taylor, Adam Denney

Inspector	Reviewer
Dan Messerly 10/5/12	Jennifer M. Witte 10/5/12
Dan Messerly Date Division of Surface Water Southeast District Office	**Jennifer M. Witte** Date 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/A

Comments/Status:

(d) There is a discharge of sewage from a storm drain at the Ohio River near the final plant outfall. The discharge is from a home or a few homes along Riverview Place. The city must eliminate this discharge of pollutants.

Section F: Compliance

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

Comments/Status:

(e) NPDES, Part 1,C (submittal of O/M Manual by August 1, 2013)
(g) Biomonitoring performed April 12-13, 2010; no toxicity. Gallipolis doing toxicity testing September 13, 2012.

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

WW pump control, comminutor; E.Q. pumps 2, 3; grit blower; primary collector drives; clarifier drives 1, 2; does not run trickling filter pumps.

ii. How often is the generator tested under load

1 x/2 weeks, for 1 hour, under load.

(b) Which components have an alarm system available for power or equipment failures

Status lights for many things; dialer for high influent, chlorine alarm, generator start, heat exchanger malfunction, T.F. bypass

(c) All treatment units in service other than backup units (3 of 5 primary tanks in use) ..... Y

(d) What method is used for scheduling routine and preventative maintenance (calendar, software, etc.)

Anterio Software

(e) Any major equipment breakdown since last inspection ..... N

(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) Last 2 years: Influent pump work (2 check valves); bisulfite feed pump; chlorine regulator; 2 VFD drives for influent pumps; comminutor meter; primary collector shoes, digester gas regulator.
(g) Were able to keep filter growth during a power outage; would be good to have back-up power for filters though. Nitronox is fed at influent for odor control.

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 ..... N

(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 ..... N

(h) Format of log book (e.g. computer log, hard bound book)

daily sheet for all activity

(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 ..... Y

Comments/Status:

(c) in file cabinet
(g) use daily plant log sheet rather than book
(i) log sheets
(j) (IV) bench sheets used
(k) Operator is aware of website reporting form(s).

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	2
	II. How many pump stations have telemetered alarms	3
	III. How many pump stations have operable alarms	All (II)
(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 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
(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:

(b) There has been an issue with a sanitary sewer break at 23 Chillicothe Road since May 2, 2011. A land slip caused the gravity line to break, but sewage continues to flow through it; no significant discharge to ground surface; city is repairing by installing pressure sewer. There was also a line break near the Allen Drive pump station due to land slide on the same date; repaired.
(f) Vac truck (1500 gal.), 2" trash pump; sump pumps.
(g) There have been separation projects in past few years; since east end separation project they can reportedly handle 2"-3" rainfall much better, and utilize EQ basin less.

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)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – High pH and High Temperature (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 3 – Other Processes (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 4 – Unknown Processes (84369)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Composting (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Heat Drying (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Heat Treatment (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Thermophilic Aerobic Digestion (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Beta Ray Irradiation (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Gamma Ray Irradiation (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 5 – Pasteurization (84397)	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 6 – Approved Equivalent Process	☐	☐	☐	☐	☐	☐	☐	☐

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)	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐
Alternative 2 – Aerobic Digestion (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Air Drying (46396)	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐
Alternative 2 – Anaerobic Digestion (46396)	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐
Alternative 2 – Composting (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 2 – Lime Treatment (46396)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Alternative 3 – Approved Equivalent Process	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(b) Has amount of sludge generated changed significantly since the last inspection ..... N
(c) How much sludge storage is provided at the plant

6 months typically kept; could potentially store 1-2 years on site.

(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
(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

City of Gallipolis has land application truck.

Comments/Status:

(b) 2011, 78 dry tons - 2010, 102 d.t. - 2009, 120 d.t. - 2008, 96 d.t.
(f) City is studying headworks improvements
(g) CO staff have inspected in past.

Section I: Self-Monitoring Program

Flow Measurement:

(a) Primary/Secondary flow measuring devices (e.g. weir with ultrasonic level sensor)

Influent magmeter (which controls trickling filter pumps which goes to effluent)/Effluent ultra sonic/weir

(b) Flow meter calibrated annually ..... Y
Date of last calibration

Effluent ultra sonic/weir and influent magmeter calibrated 4/25/12 (C.I. Thornburg)

(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:

Influent magmeter has totalizer and chart recorder, and 0-6 MGD range.
Effluent ultrasonic flow meter has totalizer which gets read/recorded every day.
Effluent ultrasonic flow meter correlates well (agrees with) influent magmeter both on totalizer and gpm.
Effluent ultrasonic flow meter is used to pace chlorinator; dechlorination just set to stroke and speed.

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) ..... Y
(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:

Influent composite sampler: pulls 150 ml/half hour; not flow paced.
Effluent composite sampler: 200 ml/pull; 24 pulls per 800,000 gals.

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 (most) .....

- 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 know 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 (see score from GLC page) ..... M

(h) Commercial laboratory used ..... Y

Parameters analyzed by commercial lab: **cyanide, metals, O&G, sludge parameters (TKN, N02TNO3, Amm., %T.S., %V.S., metals)**

Lab name: **American Analytical, Columbus, Ohio**

Discharge Monitoring Report Quality Assurance (DMRQA)

(a) Participation in latest USEPA quality assurance performance sampling ..... Y

Date: **7/27/12**

(b) Were any parameters "Unsatisfactory" ..... Y

(c) Reasons for "Unsatisfactory" parameters

TKN, Arsenic

Comments/Status:

(a) have procedures outline book
(b) contains all except: scope and application, summary, sample handling and preservation, interferences, corrective action, reference. Calculations on bench sheets for QC, do duplicates 10% of time.

Section J: Effluent/Receiving Water Observations

Outfall #: **0PD00001*001**
Outfall Description: **Final effluent**

Receiving Stream: **Ohio River**
Receiving Stream Description: **did not view**

Comments/Status:

Final effluent at plant weir was clear, with no oil sheen/grease/turbidity/visible foam/visible float solids/color. Flow was .684 mgd at effluent.

Section K: Multimedia Observations

(a)	Are there indications of sloppy housekeeping or poor maintenance in work & 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:

General Lab Criteria

Facility: City of Gallipolis WWTP 8-31-12 CEI

Criteria	Standard Methods Requirement			Rating
Balance		**Acceptable?**		
• Standard Weights	• Either NIST Class s or ASTM/ANSI Class 1 weights[1,2]	☒ Yes	☐ No	M
• Calibration Frequency/ Documentation	• Calibration verification required at least once each day the balance is used[3]	☒ Yes	☐ No	
• Cleanliness, air movement, vibration	• Cleanliness of balance is a must and air movement and vibration needs to be kept to a minimum[1]	☒ Yes	☐ No	
• Other	• Service and recalibrate annually (manufacturer representative or comparable)[1]	☒ Yes	☐ No	
	• Must be able to measure to 0.1 grams[4]	☒ Yes	☐ No	
	• Instrument manual available	☒ Yes	☐ No	
	• Log book maintained[6]	☐ Yes	☒ No	
Comments: calibrated 7-23-12				

Criteria	Standard Methods Requirement			Rating
Drying Oven (Suspended Solids)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature recorded with each use[4]	☒ Yes	☐ No	M
	• Log book maintained[6]	☐ Yes	☒ No	
• Calibration Frequency/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]. Correction factor posted on thermometer/equipment[1]	☐ Yes	☒ No	
• Other	• Thermometer temperature in 0.1°C increments[5]	☒ Yes	☐ No	
	• Acceptable temperature range is 103° – 105°F[4]	☒ Yes	☐ No	
	• Instrument manual available	☒ Yes	☐ No	
Comments: log sheet is used to record temp. with each use for drying oven, water bath, incubator.				

Criteria	Standard Methods Requirement			Rating
pH Meter		**Acceptable?**		
• 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]	☒ Yes	☐ No	M
	• Log book maintained[9]	☐ Yes	☒ No	
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket anticipated result[7]	☒ Yes	☐ No	
• Slope Documentation/ Acceptability	• Slope acceptable range indicated on benchsheet[2]	☐ Yes	☒ No	
• Buffer Expiration Date	• Buffers must not be expired	☒ Yes	☐ No	
• Other	• Instrument manual available	☒ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[8]	☒ Yes	☐ No	
Comments: Orion Thermo Dual Star				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Dissolved Oxygen Meter		**Acceptable?**		
• Calibration Method	• Air or known DO calibration method[10]	☒ Yes	☐ No	**M**
	• Calibration per manufacturer specification[10]	☒ Yes	☐ No	
• Calibration Frequency/ Documentation	• Logbook maintained[9]	☐ Yes	☒ No	
	• Calibration verification required at least once each day the meter is used.[3]	☒ Yes	☐ No	
• Other	• Small to no bubble present under membrane (must be smaller than the lead in number 2 pencil)[11]	☒ Yes	☐ No	
	• Instrument manual available	☒ Yes	☐ No	
Comments: air method; YSI 5100				

Criteria	Standard Methods Requirement			Rating
Incubator (CBOD/E-Coli)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature checked/recorded twice daily for each shelf in use[1]	☐ Yes	☒ No	**M**
	• Temperature checked/recorded daily[2] (CBOD)	☐ Yes	☐ No	
	• Acceptable temperature range (CBOD) is 20°C ±1.0°[12]	☒ Yes	☐ No	
	• Acceptable temperature range (E-Coli) is 35°C ±0.5°[22]	☐ Yes	☐ No	
	• Logbook maintained[9]	☐ Yes	☒ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	
	• Temperature correction information posted on incubator[1]	☒ Yes	☐ 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]	☐ Yes	☐ No	
• Other	• Instrument manual available	☒ Yes	☐ No	
	• Temperature Log (thermometer reads to 0.1 Celsius)[5]	☒ Yes	☐ No	
Comments: checked once daily; log sheet maintained				

Criteria	Standard Methods Requirement			Rating
Refrigerator		**Acceptable?**		
• Temperature Recordkeeping	• Temperature Log (thermometer reads to 0.1 Celsius)[5]	☐ Yes	☒ No	**M**
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	
• Other	• Thermometer held in water bath[1]	☒ Yes	☐ No	
	• Refrigerator temperature ≤6° Celsius[13]	☒ Yes	☐ No	
	• Do not store volatile solvents, food, or beverages[14]	☒ Yes	☐ No	
Comments: No thermometer; door mounted thermometer quit working; believed to maintain proper temp.				

Criteria	Standard Methods Requirement			Rating
Chlorine Meter		**Acceptable?**		
• Calibration Frequency/ Documentation	• pH/millivolt meter read to 0.1 mV[15]	☒ Yes	☐ No	**M**
	• 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]	☒ Yes	☐ No	
• Calibration Method	• Calibration using three iodate solutions 0.2, 1.0, 5.0 milliliters	☒ Yes	☐ No	

General Lab Criteria

	or calibration per manufacturer specification[16]		
	• Standards used for calibration not expired	☐ Yes	☒ No
• Slope Documentation/ Acceptability	• Calibration curve (acceptable slope)	☒ Yes	☐ No
• Other	• Electrode free of deposits and foreign material	☒ Yes	☐ No
	• Log book being maintained[9]	☐ Yes	☒ No
	• Instrument manual available	☒ Yes	☐ No
Comments: calibrate daily; clean meter daily; no log book, log sheets maintained; standard expired 7/29/12, opened 12/14/11.			

Criteria	Standard Methods Requirement			Rating
Ammonia Meter		**Acceptable?**		
• 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]	☒ Yes	☐ No	**M**
	• Log book being maintained[9]	☐ Yes	☒ No	
• Slope Acceptability	• Verify calibration slope is acceptable (per mfg. spec.)	☒ Yes	☐ 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]	☒ Yes	☐ No	
	• Standards used for calibration not expired	☒ Yes	☐ No	
• Other	• Electrode free of deposits and foreign material	☒ Yes	☐ No	
	• Teflon covered magnetic stirrer or equivalent for mixing[18]	☒ Yes	☐ No	
	• Instrument manual available	☒ Yes	☐ No	
Comments: log sheet maintained; do 10mg/l & 1 mg/l calibr; clean electrode daily w/di water, fully clean 1x/mo., logged on daily sheet; slope recorded on bench sheet daily.				

Criteria	Standard Methods Requirement			Rating
Sample Collection/Handling		**Acceptable?**		
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed)[19]	☒ Yes	☐ No	**M**
• Chain of Custody	• Chain of custody (description, date, time, signature)[19]	☒ Yes	☐ No	
• Other	• Composite samples refrigerated during sample collection[14]	☒ Yes	☐ No	
	• Equipment blanks utilized[14]	☒ Yes	☐ No	
	• SOP for cleaning of sampling equipment	☐ Yes	☒ No	
	• Log book being maintained[9]	☐ Yes	☒ No	
Comments: American Analytical (Dublin, Oh) does: O & G, Hg (LL), Cu, nitrite + nitrate, sludge analyses				

Criteria	Standard Methods Requirement			Rating
Desiccator		**Acceptable?**		
• General Criteria	• Properly working seals	☒ Yes	☐ No	**M**
	• Desiccant fresh (blue color)	☒ Yes	☐ No	
• Documentation	• Log book being maintained[9]	☐ Yes	☒ No	
Comments:				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Bench Sheets		**Acceptable?**		
• General Criteria	• Date(s)[2]	☒ Yes	☐ No	**A**
	• Analyst initials[2]	☒ Yes	☐ No	
	• Blue or black ink pen[2]	☒ Yes	☐ No	
	• Calibration information[2]	☒ Yes	☐ No	
	• Equations, calculations, units for all measurements, notations, and results present[2]	☒ Yes	☐ No	
	• Corrections, single line through, initialed and dated[2]	☒ Yes	☐ No	
Comments: No calibr. info. recorded on bench sheets; calibr. notes for some items kept elsewhere.				

Criteria	Standard Methods Requirement			Rating
Hot Water Bath (Fecal Coliform/E. Coli)		**Acceptable?**		
• Temperature Recordkeeping	• Temperature Log (thermometer reads 0.2° C)[21]	☒ Yes	☐ No	**M**
	• Incubator temperature 44.5° C ±0.2° [21/24]	☒ Yes	☐ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	
	• Log book being maintained[9]	☒ Yes	☐ No	
• Water Level	• Thermometer total immersion or partial (line on thermometer to ID immersion depth)[1,5]	☒ Yes	☐ No	
Comments: log sheet maintained				

Criteria	Standard Methods Requirement			Rating
Autoclaves/Steam Sterilizers		**Acceptable?**		
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C[25]	☒ Yes	☐ No	**M**
	• 10 to 30 minutes time based on material being sterilized[26]	☒ Yes	☐ 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]	☐ Yes	☒ 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]	☐ Yes	☒ No	
• Temperature Calibration/ Documentation	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	
	• Log book being maintained[9]	☐ Yes	☒ No	
• Performance Checks	• Test monthly for efficacy using a biological such as commercially available *Geobacillus stearothermophilus* in spore strips, suspensions, or capsules[1]	☐ Yes	☒ No	
Comments:				

General Lab Criteria

Criteria	Standard Methods Requirement			Rating
Final Effluent Temperature Monitoring		**Acceptable?**		
• General Criteria	• Thermometer calibrated annually with NIST traceable thermometer[1,2]	☐ Yes	☒ No	**M**
	• Thermometer reads in increments of at least 0.1°C[5]	☒ Yes	☐ No	
	• Log book being maintained[2]	☐ Yes	☒ No	
Comments:				

Number of Criteria Rated:	**Acceptable**	1
	Marginal	13
	Unacceptable	0
	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-Cl I, Item 2
3	Method 1020-B, Item 10	16	Method 4500-Cl 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 ≤6°C	6h	48h
TSS	P, G	200	G, C	Refrigerate ≤6°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 ≤6°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 ≤6°C	7 d	14 d
Base/Neutrals and acids	G (solvent rinsed or baked)	1000	G, C	Refrigerate ≤6°C	7 d	7 days until extraction 40 days after extraction
Pesticides	G (PTFE lined lid)	1000	C	Refrigerate ≤6°C	7 d	7 days until extraction 40 days after extraction
Fecal Coliform / E-Coli	G, P (Sterilized)	100	G	Refrigerate ≤10°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 ≤6°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