

**Ohio**

**Environmental  
Protection Agency**

Ted Strickland, Governor  
Lee Fisher, Lt. Governor  
Chris Korteski, Director



\*1PD0001120100910\*

CHAMPAIGN URBANA WPCF \*

REYNOLDS, JOSEP 2010/09/10

*Orphan*

**Environmental  
Protection Agency**

Teo Strickland, Governor  
Case Fisher, Lt. Governor  
Chris Konecki, Director

September 8, 2010

Mayor and Council, City of Urbana  
205 S. Main Street  
Urbana, Ohio 43078

**RE: City of Urbana WWTP Compliance Evaluation Inspection / Notice of Violation.**

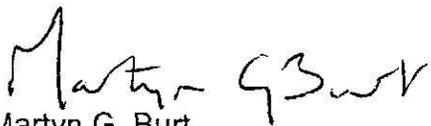
Dear Mayor and Council:

On September 2, 2010, Joe Reynolds conducted a Compliance Evaluation Inspection at the City of Urbana waste water treatment plant. The inspection was conducted as part of a compliance review of the plant with respect to the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) permit issued to the city.

The findings from this inspection are included in the attached report. The report contains five items that require a response. Please provide a written response to these items by no later than October 18, 2010.

If you have any questions regarding the report, you may contact Joe Reynolds at (937) 285-6097.

Sincerely,

  
Martyn G. Burt  
Division of Surface Water

Enclosure

cc: Chad Hull, Plant Superintendent





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
1PD00011*LD	OH0027880	9/2/2010	C	S	1

Section B: Facility Data			
Name and Location of Facility Inspected		Entry Time	Permit Effective Date
City of Urbana Water pollution Control Fac. 1547 Muzzy Road Urbana, Ohio 43078		9:15 AM	1/1/2006
		Exit Time	Permit Expiration Date
		1:20 PM	12/31/2010
Name(s) and Title(s) of On-Site Representatives		Phone Number(s)	
Chad Hull, Plant Superintendent		(937) 652 - 4331	
Name, Address and Title of Responsible Official		Phone Number	
Mayor and Council 205 South Main Street Urbana, Ohio 43078		(937) 652 - 4300	

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

Section D: Summary of Findings (Attach additional sheets if necessary)			
See attached report.			
Inspector		Reviewer	
9/8/10		9/10/10	
Date		Date	
Joe Reynolds Division of Surface Water Southwest District Office		Martyn Burt Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office	

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..... Y

Comments/Status:

The northwest sewer project and elimination of the Gwynne Street lift station have helped to reduce infiltration and inflow into the system by approximately 80,000 to 100,000 gallons.

**Section F: Compliance**

- (a) Any significant violations since the last inspection..... N
- (b) Appropriate Non-compliance notification of violations..... N/A
- (c) Permittee is taking actions to resolve violations..... N/A
- (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:

The city performs quarterly toxicity testing. To date this testing has not identified effluent toxicity issues.

**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.....  
Runs all treatment units except the microwave and septage receiving.
- ii. How often is the generator tested under load.....  
The generator is run every Wednesday.
- (b) Which components have an alarm system available for power or equipment failures.....  
The SCADA control shows power failures to the individual control system.
- (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 log books are used to schedule and record maintenance activities.
- (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:**

The main power transform went down earlier this summer. The city is leasing a transformer. A rebuilt unit has been ordered. There are no bypass capabilities at the plant.

**Section G: Operation & Maintenance con't**

**Record Keeping/Operator of Record:**

- (a) Wastewater Treatment Works classification (OAC 3745-7)..... III
- (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)  
    Stapled with consecutive numbered pages.
- (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)... Y
  - 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:**

Lab results are recorded on bench sheets.

**Section G: Operation & Maintenance con't**

**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.....2
  - iii. How many pump stations have operable alarms.....2
- (b) Any chronic collection system overflows since last inspection..... N
- (c) Regulatory agency notified of all overflows..... Y
- (d) Are there CSOs in the collection system..... N/A  
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..... Y
- (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:**

Amherst Drive and the east end of Water Street have experienced some issues with flow surges. The city is evaluating a sewer project to split the flows going to these areas.

**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 checked="" 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 checked="" 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..... Y
- (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..... Y  
 If so, what is the name of the contractor.....

**Comments/Status:**

The amount of sludge has increased due to additional solids from the septage receiving station.

**Section I: Self-Monitoring Program**

**Flow Measurement:**

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

Sonic and weir on effluent. Sonic and flume on influent.
--
- (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:**

Both flow meters have totalizers to record flows.

**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:**

Influent samples are composited after the influent screens. Effluent samples are composited after post aeration.

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

**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 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. Y (see score from GLC page)
- (h) Commercial laboratory used..... Y  
Parameters analyzed by commercial lab: Metals both effluent and sludge.

Lab name: Alloway Labs

*Discharge Monitoring Report Quality Assurance (DMRQA)*

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

Chlorine residual and TSS. Titration problem with chlorine. TSS ?

**Comments/Status:**

**Section J: Effluent/Receiving Water Observations**

Outfall # 001

Outfall Description: Rip Rap channel with head wall.

Receiving Stream: Mad River

Receiving Stream Description: Gravel bottom, 2 feet deep, steady current, clear flow.

**Comments/Status:**

**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

National Pollutant Discharge Elimination System (NPDES) permit number 1PD00011\*LD was issued to the City of Urbana on January 1, 2006. This permit expires on December 31, 2010. An NPDES permit renewal application was submitted on June 30, 2010.

The city is currently developing plans to upgrade the treatment system. The upgrade will expand treatment capacity from 3.0 MGD to 4.5 MGD. The proposed upgrades include: new screen building, parshall flume, grit tank, primary clarifier upgrades, trickling filter pump station, trickling filter upgrades, aeration tank upgrades, two new secondary clarifiers, a new oxidation ditch treatment system, UV disinfection, sludge pumping upgrades, primary sludge holding tank upgrades, and new secondary sludge holding tanks. The new oxidation ditch would be sized to treat 3.5 MGD. The old aeration system will be used to treat 1.0 MGD.

The city continues to work on removing sources of Infiltration and Inflow (I/I) into the collection system. An estimated 80,000 to 100,000 gallons of I/I was removed from the system with the completion of the northwest sewer project and Gwynne Street lift station elimination project. Work on the Capacity, Management, Operations, and Maintenance (CMOM) plan has been placed on hold until the 2011 budget year. The plant expansion is the main planning focus for this year.

The city is working with a new paper company that wants to locate at the former Neenah Paper plant. They are currently working through brown field site issues and air issues to get the site ready. They will need to discuss waste water volumes, concentrations, and any necessary pretreatment equipment. The mill hopes to open in August, 2011.

The new septage receiving station has been very successful. Between January 1, 2010 and September 2, 2010 the city has accepted 2.75 million gallons of septage. All of the septage flow is directed to the head of the plant. The amount of septage the plant takes may have to be limited to make capacity for new / large industry if they come on-line prior to the plant expansion.

## Inspection Findings (cont.)

The City currently produces both Class A and B biosolids. Land application is the main disposal option. Some sludge was disposed at a landfill in order to keep up with septage solids during the spring. Zinc contributions from Tru-Tech have impacted the Class of sludge the city produces. A blend of both primary and secondary waste solids is run through the belt press and microwave. In 2009 fifty three tons of cake solids were processed through the microwave, six hundred twenty four dry tons of enviro compost were land applied, and one hundred one dry tons of cake solids were sent to be landfilled.

Between September 1, 2009 and July 30, 2010 the city reported on sludge limit violation. There were some incorrect code and frequency violations that are being corrected.

## Facility Inspection

There are two main influent sewers (18" and 48") that enter the plant. Both enter into an influent chamber.

From the influent chamber flow is sent to an influent auger monster. The auger was rebuilt in the spring of 2009.

The influent screen was making a lot of noise. The brushes that swipe the sides of the screen cylinder fell off. As a result the screen efficiency has been significantly reduced.

The influent sampler was at 8 degrees.

*Influent flows are measured through a parshall flume with ultrasonic sensor. The meter was recalibrated on August 4, 2010.*

The grit removal system is no longer used. A new system will be installed as part of the plant upgrade.

The plant has two primary clarifiers. The effluent from the tanks was fairly uniform (effluent weir level). The tanks had a dark brown tint. There were grease solids noted in the center ring.

## Facility Inspection (cont.)

Primary effluent flow is pumped to the trickling filters. The pumping chamber has two 4.3 MGD pumps. The inlet to the pumping chamber is used to remove grease and floating solids. In order to eliminate a bottle neck, which has contributed to surcharging of the primary clarifiers, a partial bypass was added around the trickling filters.

The plant has two trickling filters. These filters receive all of the plant flow up to approximately 4.0 MGD. Both filters have good flow distribution and growth. There were a lot of preliminary solids on their surface.

All of the stockpiled Enviro soil has been removed from the plant site. A pile of old yard waste is all that remains north of the preliminary treatment system.

Both primary aerobic digesters were on-line. The city has made adjustments to the supernatant system and is producing feed solids with a concentration of 2.8 to 3.4 mg/l.

The belt press is run Sunday night to Thursday morning, 9:00 PM to 9:00 AM each day. City employees are in charge of the system. The press is producing sludge at 22 to 26 % solids.

The microwave is run on the same schedule as the press. Approximately 25,000 to 30,000 gallons of sludge (based on the solids equivalence) is micro waved per night. The sludge leaving the microwave is at 50% solids.

There are two aerobic digesters that receive secondary solids. The digesters are operated in series. The primary digester was  $\frac{3}{4}$  full. The secondary digester was  $\frac{3}{4}$  empty. Solids from the secondary digester are fed directly to the press.

The aeration system is divided into four zones. The first zone is an anoxic zones. The second through fourth zones are aerobic. Fine bubble diffusers have been installed. The mixed liquor was chocolate brown with minor light brown foam. One of three aeration blowers was down for service. A new motor should be installed on the blower within the next couple weeks.

Flows from the aeration system are divided between two secondary clarifiers. The clarifiers were clear to over three feet. The effluent had some ash solids in it. The weir and trough on the south clarifier was clear of algae. There was a minor amount of algae on the weir and trough of the north clarifier.

## Facility Inspection (cont.)

Flows from the secondary clarifiers go to the chlorine contact tank. The chlorine tank had a grayish tint. Some minor grease and solids were noted. The effluent from the chlorine contact tank was clear.

The post aeration system was providing vigorous mixing. The effluent was clear minor white foam. The final dissolved oxygen was 12 mg/l.

The final effluent to the Mad River was clear. Minor white foam was noted.

The plant transformer went out of service during the summer. A rental transformer is currently being used. A rebuilt transformer should be delivered and installed at the plant within the next couple weeks.

### Items requiring a response

1. All samplers should be set at less than or equal to 6 degrees Celsius.
2. Maintenance logs should be maintained for all lab equipment.
3. The lab sample containers should be labeled with the name of sample, date and time of sample, any preservative, and initials of sample collector.
4. In order to maintain the chain of custody, all samples should be gathered and stored in locations where control of the sample can be maintained and verifiable by authorized personnel.
5. The drying oven thermometer should read to within 0.5 degrees Celsius.

# General Lab Criteria

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
NH <sub>3</sub> -N	P, G	500	G, C	Analyze as soon as possible or add H <sub>2</sub> SO <sub>4</sub> 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 <sub>3</sub> 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 <sub>2</sub> SO <sub>4</sub> 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 <sub>3</sub> 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

# General Lab Criteria

Criteria	Standard Methods Requirement	Rating						
<b>Final Effluent Temperature Monitoring</b>		Acceptable?						
<ul style="list-style-type: none"> <li>• General Criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	<ul style="list-style-type: none"> <li>• Thermometer reads in increments of at least 0.1° C <sup>5</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No						
	<ul style="list-style-type: none"> <li>• Log book being maintained <sup>2</sup></li> </ul>	<input type="checkbox"/> Yes <input type="checkbox"/> No						
Comments:								
<b>Number of Criteria Rated:</b>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Acceptable</td> <td style="width: 50%;"></td> </tr> <tr> <td style="text-align: center;">Marginal</td> <td></td> </tr> <tr> <td style="text-align: center;">Unacceptable</td> <td></td> </tr> </table>	Acceptable		Marginal		Unacceptable	
Acceptable								
Marginal								
Unacceptable								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">Total Number of Areas Rated</td> <td style="width: 50%;"></td> </tr> </table>	Total Number of Areas Rated					
Total Number of Areas Rated								
<p><b>Acceptable Ratings</b> – 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><b>Marginal Ratings</b> – 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><b>Unsatisfactory Rating</b> - 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>								
Consider recommending PAI Audit from DES when:	<ul style="list-style-type: none"> <li>&gt;60% of ratings are Marginal</li> <li>&gt;45% of ratings are a combination of Marginal or Unacceptable</li> <li>&gt;30% of ratings are Unacceptable</li> </ul>							

## Notation of Referenced Method

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

# General Lab Criteria

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

Comments:

Criteria	Standard Methods Requirement		Rating
<b>Autoclaves/Steam Sterilizers</b>			Acceptable?
• All apparatus utilized is adequately sterilized before use	• Sterilizing temperature 121° C <sup>25</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• 10 to 30 minutes time based on material being sterilized <sup>26</sup>	<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. <sup>1</sup>	<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 <sup>1</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Log book being maintained <sup>2</sup>	<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 <sup>1</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments:

# General Lab Criteria

Criteria	Standard Methods Requirement		Rating
Sample Collection/Handling	Acceptable?		<b>M</b>
• Sample Labeling	• Samples container labeled (description, date, time, preservative added, initialed). <sup>19</sup>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Chain of Custody	• Chain of custody (description, date, time, signature). <sup>19</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Other	• Composite samples refrigerated during sample collection <sup>14</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Equipment blanks utilized <sup>14</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• SOP for cleaning of sampling equipment	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Logbook being maintained <sup>2</sup>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Comments: The sample container should be labeled with date, time, and preservative. The sample refrigerator is kept in a hallway, not secure.			

Criteria	Standard Methods Requirement		Rating
Desiccator	Acceptable?		<b>A</b>
• General criteria	• Properly working seals.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Desiccant fresh (blue color)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Documentation	• Log book being maintained <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments:			

Criteria	Standard Methods Requirement		Rating
Bench sheets	Acceptable?		<b>A</b>
• General criteria	• Date(s) <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Analyst initials <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Blue or black ink pen <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Calibration information <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Equations, calculations, units for all measurements, notations, and results present <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Corrections, single line through, initialed and dated <sup>2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Comments:			

# General Lab Criteria

Criteria	Standard Methods Requirement		Rating
<b>Chlorine Meter</b>			Acceptable?
• Calibration Frequency / Documentation	• pH / millivolt meter read to 0.1 mV <sup>15</sup>	<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) <sup>3</sup>	<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 <sup>16</sup>	<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. <sup>2</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Comments: :			

Criteria	Standard Methods Requirement		Rating
<b>Ammonia Meter</b>			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) <sup>3</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Log book being maintained <sup>2</sup>	<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. <sup>17</sup>	<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 <sup>18</sup>	<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		Rating
<b>Incubator (CBOD/ E-Coli)</b>	Acceptable?		
• Temperature Recordkeeping	• Temperature checked / recorded twice daily for each shelf in use <sup>1</sup> (E-Coli)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature checked / recorded daily <sup>2</sup> (CBOD)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Acceptable temperature range (CBOD) is 20° C ±1.0° <sup>12</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Acceptable temperature range (E-Coli) is 35° C ±0.5° <sup>22</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Logbook maintained <sup>2</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature correction information posted on incubator <sup>1</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• E-Coli can use multiple tubes (five 20 ml or ten 10 ml), or mfg's multi-well tray	• E-coli Ultraviolet lamp (365 nm wave length, 6 W bulb) <sup>23</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
• Other	• Instrument manual available	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	• Temperature Log (thermometer reads to 0.5 Celsius). <sup>1</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Comments :

Criteria	Standard Methods Requirement		Rating
<b>Refrigerator</b>	Acceptable?		
• Temperature Recordkeeping	• Temperature Log (thermometer reads to 0.5 Celsius). <sup>5</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>A</b>
• Temperature Calibration / Documentation	• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Other	• Thermometer held in water bath. <sup>1</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Refrigerator temperature ≤6° Celsius. <sup>13</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Do not store volatile solvents, food, or beverages. <sup>14</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Comments: The refrigerator was showing some signs of wear.

# General Lab Criteria

Criteria	Standard Methods Requirement	Acceptable?		Rating
<b>pH Meter</b>				
• 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) <sup>3</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Logbook maintained <sup>2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Minimum of 2 point calibration	• Calibration per manufacturer specification and calibration buffers must bracket anticipated result <sup>7</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Slope Documentation / Acceptability	• Slope acceptable range indicated on benchsheet <sup>2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Buffer Expiration Date	• Buffers must not be expired	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Other	• Instrument manual available	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Teflon covered magnetic stirrer or equivalent for mixing <sup>8</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

Comments: :

Criteria	Standard Methods Requirement	Acceptable?		Rating
<b>Dissolved Oxygen Meter</b>				
• Calibration Method	• Air or known DO calibration method <sup>10</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration per manufacturer specification <sup>10</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
• Calibration Frequency / Documentation	• Logbook maintained <sup>2</sup>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	• Calibration verification required at least once each day the meter is used. <sup>3</sup>	<input 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) <sup>11</sup>	<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		Rating
<b>Balance</b>	Acceptable?		
• Standard Weights	• Either NIST Class S or ASTM/ANSI Class 1 weights <sup>1,2</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>M</b>
• Calibration Frequency / Documentation	• Calibration verification required at least once each day the balance is used. <sup>3</sup>	<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 <sup>1</sup>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Other	• Service and recalibrate annually (manufacturer representative or comparable) <sup>1</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Must be able to measure to 0.1 grams <sup>4</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Instrument manual available	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Log book maintained <sup>2</sup>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Comments: : The daily calibration weights needs to be recalibrated against NIST weights every 5 years. Weights used for daily calibrations should bracket the anticipated results.

Criteria	Standard Methods Requirement		Rating
<b>Drying Oven (Suspended Solids)</b>	Acceptable?		
• Temperature Recordkeeping	• Temperature recorded with each use <sup>4</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<b>M</b>
	• Log book maintained <sup>2</sup>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
• Calibration Frequency / Documentation	• Thermometer calibrated annually with NIST traceable thermometer <sup>1,2</sup> . Correction factor posted on thermometer / equipment <sup>1</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
• Other	• Thermometer temperature in 0.5° C increments <sup>5</sup>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	• Acceptable temperature range is 103° – 105° F <sup>4</sup>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	• Instrument manual available	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Comments: : The drying oven thermometer should read to 0.5 degrees celsius. A log book will need to be developed.