



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

April 12, 2013

Mayor and Council  
City of Piqua  
201 West Water Street  
Piqua, Ohio 45356

**RE: CITY OF PIQUA WWTP COMPLIANCE EVALUATION INSPECTION**

Dear Mayor and Council:

On April 4, 2013, Joe Reynolds and Glen Vonderembse conducted a Compliance Evaluation Inspection at the city of Piqua Wastewater Treatment Plant. The inspection was conducted as part of a compliance review for 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 the inspection are included in the attached report. The report contains one item that requires a response. Please provide a written response by no later than May 17, 2013.

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

Sincerely,

Martyn Burt  
Compliance Supervisor  
Division of Surface Water

Enclosure

cc: Dave Davis, Plant Superintendent

MB\bp

Permit #: 1PD00008\*SD  
 NPDES #: OH0027049



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
1PD00008*SD	OH0027049	4/4/2013	C	S	1

Section B: Facility Data		
Name and Location of Facility Inspected	Entry Time	Permit Effective Date
City of Piqua WWTP 121 Bridge Street Piqua, Ohio 45356	9:00 AM	4/1/2013
	Exit Time	Permit Expiration Date
	1:17 PM	1/31/2016
Name(s) and Title(s) of On-Site Representatives	Phone Number(s)	
Dave Davis, Superintendent	(937) 778 - 2088	
Name, Address and Title of Responsible Official	Phone Number	
Mayor and Council 201 W. Water Street Piqua, Ohio 45356	(937) 778 - 2051	

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	N	Laboratory	S	Compliance Schedule
S	Operations & Maintenance	S	Effluent/Receiving Waters	S	Self-Monitoring Program
S	Facility Site Review	S	Sludge Storage/Disposal	N	Other
M	Collection System				

Section D: Summary of Findings (Attach additional sheets if necessary)

See attached report.

Inspector	Reviewer
 Date: 4/12/13	 Date: 4/12/13
Joe Reynolds Division of Surface Water Southwest District Office	Martyn Burt Compliance & Enforcement Supervisor Division of Surface Water Southwest District Office

Permit # : 1PD00008\*SD  
NPDES #: OH0027049

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

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**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<br>in permit..... | Y |
| (f) Storm water discharges properly permitted.....                             | Y |

Comments/Status:

During certain wet weather events influent flows are bypassed directly to the river through a bypass chamber across the river from the WWTP (on the old Edison Power Plant site).

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**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.....              | Y |
| (d) Permittee has a compliance schedule.....                            | Y |
| (e) Compliance schedule contained in...NPDES Permit Compliance Schedule |   |
| (f) Permittee is in compliance with schedule.....                       | Y |
| (g) Has biomonitoring shown toxicity in discharge since last inspection | N |

Comments/Status:

**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.....  

Back-up generator operates the entire plant.
  - ii. How often is the generator tested under load.....  

Every two years.
  
- (b) Which components have an alarm system available for power or equipment failures.....  

All essential treatment components are connected to SCADA for alarm and power failure.
  
- (c) All treatment units in service other than backup units..... Y
- (d) What method is used for scheduling routine & preventative maintenance (calendar, software, etc.).....  

Antaro maintenance software (Op. 10 software) is used.
  
- (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..... Y
- (h) Any plant upsets since last inspection..... N

**Comments/Status:**

The influent flow meter (used to report plant flows) was out of service. A temporary clamp on flow meter was installed. The meter was placed back in service on March 22, 2013. The bearings on the influent screw pumps were recently replaced.

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)  

Hard bound book.
- (i) Log book kept onsite (in an area protected from weather)..... Y
- (j) Log book contains the following:
  - I. Identification of treatment works..... Y
  - II. Date/times of arrival/departure for Operator of Record and any other operator required by OAC 3745-7..... Y
  - iii. Daily record of operator and maintenance activities (including preventative maintenance, repairs and request for repairs, process control test results, etc.)..... Y
  - iv. Laboratory results (unless documented on bench sheets)... 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:

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..... 0
  - ii. How many pump stations have telemetered alarms.....0
  - iii. How many pump stations have operable alarms.....0
  
- (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.).....  

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

Comments/Status:

There are a total of 6 pump stations in the system. Four of the six have the stand alone audio and visual alarms. All lift stations are checked on a daily basis (6 days per week, not on Sundays).

**Section H: Sludge Management**

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

\*if one of the selected methods is land application, complete applicable charts.  
**Class A - Exception Quality Sewage Sludge (monitoring station 584)**

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

**Class B Sewage Sludge (monitoring station 581)**

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

- (b) Has amount of sludge generated changed significantly since the last inspection..... N
- (c) How much sludge storage is provided at the plant.....
- (d) Records kept in accordance with State and Federal law (5 years according to OAC 3745-40-06)..... Y
- (e) Any complaints received in last year regarding sludge..... N
- (f) 5/8" screen at headworks for facilities that land apply sludge..... N
- (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:**

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**Section I: Self-Monitoring Program**

**Flow Measurement:**

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

Magmeter on the influent after raw sewage pumping.
- (b) Flow meter calibrated annually ..... Y  
(Date of last calibration: 11/27/2012)
- (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:**

As part of the plant upgrade the city of Piqua is looking at adding a final effluent parshall flume with ultrasonic sensor.

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**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 collected after the raw influent pumps. Effluent samples are collected after the post aeration effluent weir.

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..... N/E
- (b) Do SOP's include the following if applicable..... N/E
  - 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).. N/E
- (d) If alternate analytical procedures are used, proper approval has been obtained..... N/E
- (e) Analyses being performed more frequently than required by permit. N/E
- (f) If (e) is yes, are results in permittee's self-monitoring report..... N/E
- (g) Satisfactory calibration and maintenance of instruments/equipment. N/E (see score from GLC page)
- (h) Commercial laboratory used..... N/E  
Parameters analyzed by commercial lab:

Lab name:

Discharge Monitoring Report Quality Assurance (DMRQA)

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

**Comments/Status:**

Due to time constraints the lab was not reviewed. The current lab operator has accepted a new position. He will be leaving in two weeks. The City has posted the position.

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

Outfall # 001

Outfall Description:

Receiving Stream: Great Miami River.

Receiving Stream Description:

**Comments/Status:**

The City currently discharges downstream of the old power plant dam. Due to bank topography the final outfall was not inspected.

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**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 1PD00008\*SD was issued to the city of Piqua on April 1, 2013. This permit modifies the City's compliance schedule. The permit will expire on January 31, 2016.

The City's NPDES permit has a compliance schedule for elimination of a Sanitary Sewer Overflow (SSO) ahead of the plant head works. The schedule extends past the permit cycle and will need to be updated as part of the renewal permit.

The treatment plant is designed to treat 4.5 MGD (2012 avg. flow 3.15 MGD) with a peak of 8.0 MGD.

The city of Piqua has implemented an adaptive management approach to select and choose projects designed to eliminate a plant influent SSO. As part of this work the City installed a one million gallon equalization tank on the West Interceptor sewer in 2011. The City is currently pilot testing a Bio ACTIFLO high rate treatment system. A preliminary engineering report is due at the end of the year.

Dave Davis is the plant Superintendent (Class III certified operator). There are seven Class III operators, one Class II, and one Class I operator at the plant. Tim Parker, the lab supervisor, has accepted a job at another facility. He will be leaving in about a week. Mike Casto is helping in the lab until a new lab supervisor is hired (the job has been posted).

All of the plant operations are connected to a Supervisor Control and Data Acquisition (SCADA) system. This system provides mainly system status over sight, with limited automated control.

There are three main interceptors coming into the plant, the Hemm Road Interceptor, the West Interceptor (36 inch sewer), and the 42 inch from the east side of town.

## Inspection Findings (cont.)

The new equalization tank will begin to fill by gravity automatically when sewer flows exceed the level of the bypass weir. The equalization tank will fill to a level of 9 feet before a sonic level sensor will trigger the West Interceptor influent gate at the plant to begin closing. This will begin to back up flows into the interceptor. Storage levels in the equalization tank can reach 16 feet prior to the collection system SSO activating. Last year the equalization tank was used 3 times.

The city of Piqua recently slip lined the West Interceptor sewer. Although the exact amount of infiltration and inflow reduction has not been quantified, plant flows recover quicker after rain events.

The City currently produces Class B sludge. Approximately 230 tons of solids are generated per year. Solids are treated in an anaerobic digestion process followed by belt press. Burch Hydro is the contract operator of the press and hauler of solids. Between the sludge digesters and the sludge holding tank there are 90 days of storage at the plant. If necessary, solids can be hauled to a landfill.

There are three influent screw pumps (4.2 million gallons each). Normally only two screw pumps are run at a time. The lower bearings on the pumps have experienced stress issues (hair line fractures). The City will be looking at replacing the pumps as part of a new head works structure upgrade.

Influent flows are pumped to a screen (3/4 inch with automatic rake), and a grit classifier / grease removal system. This system is being evaluated as part of the plant head works upgrade.

There are three primary clarifiers. Normally only two are run. The effluent was greenish grey. Waste Activated Solids are pumped to the anaerobic digesters.

There are four aeration tanks. Each tank has six aeration zones. The first and last are run as anoxic zones. Thick foam was noted on the surface of the tanks. At the time of the inspection the return pump to aeration tank number 3 was out of service.

From aeration the flow is split between four final clarifiers. There were pin floc solids leaving the clarifiers. Algae growth was noted on their weirs and in the effluent trough.

## Inspection Findings (cont.)

Waste Activated Solids are run through the hydraulic wasting tank. This tank is used to concentrate solids before they are sent to the sludge storage tank. The supernatant from this tank is discharged to the chlorine contact tank. Solids from the sludge holding tank can be introduced into the anaerobic digesters or to the belt filter press. Solids carry-over and denitrification bubbles were noted in the tank

The belt filter press is contract operated by Burch Hydro. The press is run 3 days per week. The press currently is producing 15 to 17 percent solids.

At the time of the inspection the chlorine contact tank was acting as a pass through tank (chlorine season starts in May). There were clumps of old solids in the tank. As part of the change to e-coli bacteria standards the city of Piqua had to double the chlorine feed equipment. Hypochlorite and sulfur dioxide are used for chlorination and dechlorination of the wastewater.

The post aeration tank was being mixed vigorously. White foam was noted on the surface and in the effluent. Effluent pumps are available to pump against high river stage (rarely used). The diffusers in the post aeration tank were recently switched from ceramic to tube diffusers.

Between February 2009 and January 2013, the City reported the following final effluent numeric violations: (2) chlorine residual and (1) dissolved oxygen. During this same time period (40) code violations were recorded. All code violations were associated with either a flooded sample site or an automatic analyzer out of service.

### Item requiring a response

1. As part of the treatment plant upgrade the city of Piqua will need to evaluate plumbing of the hydraulic wasting tank supernatant from the chlorine contact tank back to either the head of the plant or to the sludge storage / treatment system. A preliminary schedule for completion of this evaluation will need to be submitted to Southwest District Office by no later than May 17, 2013.