



Environmental  
Protection Agency

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

April 30, 2012

Knox County Commissioners  
117 E. High Street  
Mt. Vernon, OH 43050

Re: **Little Jelloway Creek WWTP**  
**NPDES Permit 4PJ00100/ OH0037117**  
**Compliance Evaluation Inspection**  
**Knox County**

Dear Commissioners:

On April 17, 2012, a Compliance Evaluation Inspection was conducted at the Little Jelloway Creek WWTP. Present for the inspection were Ray Withers and Jason Figgins representing the Knox County Water and Wastewater Department, and myself of the Ohio EPA, Central District Office, Division of Surface Water.

The purpose of the inspection was to evaluate compliance with the terms and conditions of the NPDES discharge permit, assess compliance with the schedule for outfall relocation and the ability of the plant to meet final NPDES limits which became effective on February 1, 2012.

The Compliance Inspection raised several concerns which must be addressed in the following areas:

**Compliance with Final Effluent Limits:** The effective NPDES permit contains a schedule of compliance to meet final limits for ammonia, CBOD and copper no later than February 1, 2012. It is my concern that consistent compliance with these new limits will be problematic since construction of the upgraded facility is not expected to be completed until March 2013.

**Septage Receiving:** The County currently pumps septic tanks from residential systems in Bladensburg and discharges the septage into the Apple Valley collection system. I would recommend that the County discontinue this practice until the upgraded facility is placed into operation next year. Continuing this practice jeopardizes the capability of the existing facility to consistently meet the new limits for ammonia and CBOD<sub>5</sub>.

Knox County Commissioners  
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If you have any questions or comments concerning the enclosed inspection report, please contact me at (614) 728-3848 or e-mail at [mike.sapp@epa.ohio.gov](mailto:mike.sapp@epa.ohio.gov).

Sincerely,

A handwritten signature in black ink that reads "Michael Sapp". The signature is written in a cursive style with a large, stylized "M" and "S".

Michael Sapp  
Environmental Specialist  
Compliance and Enforcement Unit  
Division of Surface Water  
Central District Office

Enclosures

cc: Mike Sapp

NPDES Compliance Inspection Report

SECTION A: NATIONAL DATA SYSTEM CODING				
Permit #	NPDES #	Inspection Type	Inspector	Facility Type
4PJ00100	OH0037117	CEI	S	Public
Inspection Date	Entry Time	Exit Time	Notice of Violation	Significant Non-Compliance
4/17/2012	9:30 AM	11:30 AM	No	No

SECTION B: FACILITY DATA	
Name and Location of Facility Inspected	Permit Effective Date
Little Jelloway Creek WWTP 12579 Howard-Danville Road Howard, Ohio 43028	2/1/2009
	Permit Expiration Date
	1/31/2014
Name(s) and Title(s) of On-Site Representatives	Phone Numbers
Jason Figgins, Plant Superintendent	(740) 599-6102
Ray Withers, Superintendent of Water and Wastewater	(614) 312-1748
Name and Title of Responsible Official	Phone Number
Ray Withers, Superintendent	(614) 312-1748

SECTION C: AREAS EVALUATED DURING INSPECTION		
Key: S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated		
U	NPDES Compliance	Non-compliance with schedule of compliance
S	Operations & Maintenance	
S	Facility Site Review	
S	Collection System	
S	Flow Measurement	
M	Receiving Waters	NPDES permit violations
S	Laboratory	

Comments:

Signatures	
 4/25/12	 4/27/12
Michael Sapp, Inspector Compliance & Enforcement Division of Surface Water Central District Office	Erin Sherer, Reviewer Compliance & Enforcement Supervisor Division of Surface Water Central District Office

**SECTION D: PERMIT VERIFICATION**

- (a) Correct name and mailing address of permittee ..... Y
- (b) Correct name and location of receiving waters ..... N\*
- (c) Products and production rates conform with permit application ..... Y
- (d) Flows and loadings conform with NPDES permit ..... Y\*
- (e) Treatment processes are as described in permit application ..... Y
- (f) New treatment process added since last inspection ..... N\*
- (g) Notification given to State of new, different or increased discharges ..... Y
- (h) All discharges are permitted ..... Y
- (i) Number and location of discharge points are as described in permit ..... Y

Comments:

**SECTION E: COMPLIANCE**

- (a) Any significant violations since the last inspection ..... Y\*
- (b) Permittee is taking actions to resolve violations ..... Y
- (c) Permittee has a compliance schedule ..... Y\*
- (d) Permittee is meeting compliance schedule ..... N\*

Comments:

**SECTION F: OPERATION AND MAINTENANCE**

- (a) Standby power available ..... N\*  
If yes, what type?
- (b) Adequate alarm system available for power or equipment failures ..... Y
- (c) All treatment units in service other than backup units ..... N\*
- (d) Wastewater Treatment Works classification II ..... I
- (e) Operator of Record holds unexpired license of class required by Permit ..... Y  
Class held: III
- (f) Copy of certificate of Operator of Record displayed on-site ..... Y\*
- (g) Minimum operator staffing requirements fulfilled ..... Y
- (h) Routine and preventative maintenance scheduled and performed ..... Y
- (i) Any major equipment breakdown since last inspection ..... N\*
- (j) Operation and maintenance manual provided and maintained ..... Y
- (k) Any plant bypasses since last inspection ..... N
- (l) Regulatory agency notified of bypasses ..... NA\*  
By MOR  and/or Spill Hotline (1-800-282-9378)
- (m) Any hydraulic or organic overloads since last inspection ..... N

Comments:

**SECTION G: RECORD KEEPING**

- a) Log book provided ..... Y
- b) Format of log book (i.e. computer log, hard bound book)  
bound book
- c) Log book(s) kept onsite in an area protected from weather ..... Y
- d) 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 operation and maintenance activities (including preventative maintenance, repairs and request for repairs) ..... Y
  - iv) Laboratory results (unless documented on bench sheets) ..... Y
  - v) Identification of person making log entries ..... Y
- e) Has the Operator of Record submitted written notification to the permittee, Ohio EPA and any applicable local environmental agencies when a collection system overflow, treatment plant bypass or effluent limit violation has occurred? ... Y

Comments:

**SECTION H: COLLECTION SYSTEM**

- a) Percent combined system: ..... 0%
- b) Any collection system overflows since last inspection ..... Y\*  
CSO  SSO X
- c) Regulatory agency notified of overflows ..... Y
- d) CSO O&M plan provided and implemented. .... NA
- e) CSOs monitored and reported in accordance with permit ..... NA
- f) Portable pumps are used to relieve system ..... N
- g) Lift station alarms provided and maintained ..... Y\*
- h) Lift stations equipped with permanent standby power or equivalent ..... Y\*
- i) Is there an inflow/infiltration problem (separate sewer system), or were there any major repairs to collection system since last inspection. .... N
- j) Any complaints received since last inspection of basement flooding ..... N
- k) Are any portions of the sewer system at or near capacity ..... N
- l) Are operations changed during high-flow events? ..... Y

Comments:

**SECTION I: SLUDGE MANAGEMENT**

- a) Sludge management plan (SMP) last audited by Ohio EPA:  
Audit Date:
- b) Sludge adequately disposed ..... Y\*  
Method: land application
- c) If sludge is incinerated, where is ash disposed of ..... N
- d) Is sludge disposal contracted ..... Y  
Name: Burch Hydro
- e) Has amount of sludge generated changed significantly ..... N
- f) Adequate sludge storage provided at plant ..... Y
- g) Records kept in accordance with State and Federal law ..... Y
- h) Any complaints received last year regarding sludge ..... Y
- i) Is sludge adequately processed (digestion, pathogen control) ..... Y

Comments:

**SECTION J: SELF-MONITORING PROGRAM**

- a) Primary flow measuring device operated and maintained ..... Y\*  
Type of device: Device location:
- b) Calibration frequency adequate ..... Y  
Date of last calibration: 5/29/11
- c) Secondary instruments operated and maintained ..... Y
- d) Flow measurements equipment adequate to handle full range of flows ..... Y
- e) Actual flow discharged is measured ..... Y
- f) Flow measuring equipment inspection frequency weekly
- g) Sampling location(s) are as specified by permit ..... Y
- h) Parameters and sampling frequency agree with permit ..... Y
- i) 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:

**SECTION K: Laboratory**

- a) EPA applicable analytical testing procedures used (40 CFR 136.3) ..... Y
  - b) If alternate procedures are used, are they properly approved? ..... Y
  - c) Analysis performed more frequently ..... N/A  
If yes, are results recorded in permittee's report? ..... N/A
  - d) Commercial laboratory used:  
Name: MASI  
Parameters analyzed: metals, Oil & Grease, phosphorus, NO<sub>2</sub> + NO<sub>3</sub>
  - e) Quality assurance manual provided and maintained ..... Y
  - f) Calibration and maintenance of instruments is satisfactory? ..... Y
  - g) Results of last U.S. EPA quality assurance ..... NA
- Date:

Comments:

**SECTION L: EFFLUENT/RECEIVING WATER OBSERVATIONS**

Outfall Number	Outfall sign in place	Oil Sheen	Grease	Turbidity	Foam	Solids	Color	Other
001	Yes	No	No	No	No	No	Clear	

Comments:

**SECTION M: 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:

**ADDITIONAL INFORMATION**  
**Little Jelloway Creek WWTP**  
**4PJ00100 – OH0037117**

The Little Jelloway Creek WWTP has a design treatment capacity of 0.9 mgd with a discharge to Little Jelloway Creek. Wet stream processes/equipment provided at the facility include communitation, biological treatment using two partial mix lagoons, clarification, microscreening, chlorination and dechlorination. Solids handling facilities consist of sludge drying beds.

The facility is currently undergoing construction of a plant upgrade. The upgraded facility will include mechanically cleaned fine screens, influent pump station, Aqua-Aerobics sequencing batch reactors, ultraviolet disinfection and post-aeration. The upgraded facility is expected to be placed into service in March 2013.

**Section D. - Permit Verification**

- (b.) The plant now discharges to Jelloway Creek, instead of Little Jelloway Creek, following completion of the outfall relocation project in January 2012.
- (d.) The average daily flow at outfall 001, for the time period from May 2010 – March 2012 was 0.49 mgd. The maximum daily flow experienced during this time period was 1.42 mgd.
- (f.) The plant recently modified their chemical feed system from polyaluminum chloride (PAC) to hyper-ion 40/90 (a PAC solution). The chemical feed system facilitates settling and solids removal in the final clarifiers.

**Section E. - Compliance**

- (a.) The plant has experienced a number of violations since the previous inspection was performed in May 2010. A reduction in the frequency and magnitude of the violations has resulted in the removal of this facility from the Significant Non-compliance List. The attached table contains a list of NPDES permit violations at outfall 001 since May 2010. Improved maintenance and operation of the microscreens and the chemical feed system has improved compliance with suspended solids limits.
- (c.) The effective NPDES permit contains a schedule with various milestones to relocate the plant outfall to Jelloway Creek on or before December 1, 2011. The schedule also contains a milestone which requires compliance with final limits for ammonia, CBOD<sub>5</sub> and copper no later than February 1, 2012.
- (d.) The outfall relocation project was completed in January 2012, two months behind schedule. The plant upgrade will not be completed until March 2013 which may present compliance issues with final ammonia and CBOD<sub>5</sub> limits.

## **Section F. - Operation and Maintenance**

### **Treatment Works**

- (a.) The plant is not equipped with a back-up generator although it has dual electrical feeds.
- (c.) At the time of the inspection all treatment units were in operation with the exception of the south lagoon. The south lagoon was taken out of service to allow room for construction of the sequencing batch reactors.
- (g.) The plant is currently staffed on one shift 5 days a week with coverage/walk through on weekends.
- (i.) Operation of the microscreens continues to be problematic due to problems with the cloth filters and the lack of adequate replacement parts.
- (k.) Bypasses of the microscreens have occurred when the screens were in disrepair.
- (l.) The plant does not typically experience hydraulic or organic surcharges.

## **Section H. Collection System**

- (b.) Two collections system overflows (December 2011) were reported since the last inspection was performed in May 2010.
- (g.) The collection system currently has 22 pump stations, 16 of which have some sort of alarm/telemetry installed. Six of the stations that are not telemetered are of the duplex variety and generally serve less than 10 homes. The three largest pump stations are Orchard Hills, Apple Valley I and Baldwin Heights. All lift stations undergo weekly inspections (Thursdays) which include testing of alarms.
- (h.) All 22 pump stations are equipped with some sort of audible or visual alarm; the telemetered stations call for service when one pump fails or a high level condition occurs. Portable generators can be hooked-up to the pump stations in the event of a power failure.

## **Section I. - Sludge Management**

- (b.) Sludge was removed from the south lagoon last year to abandonment of the south lagoon. The sludge was land applied by Burch-Hydro. The effective sludge management plan is current with Ohio EPA sludge management guidelines.

### **Section J. - Self Monitoring Program**

- (a.) Effluent flows are measured using a parshall flume and an ultrasonic unit. Influent flows are also measured using an ultrasonic and parshall flume. The operator performs weekly internal calibrations of the effluent flow meter although he is dubious of readings greater than 1.04 mgd. The influent flow meter was not functional due to construction related problems.

### **Section K. - Laboratory**

- (c.) Jason Figgins performs all of the in-house laboratory work and QA/QC. Calibration appeared to be satisfactory on all instrumentation. Split samples for CBOD, suspended solids and ammonia are sent to MASI on a quarterly basis. Effluent samples are manually composited.

## SUMMARY OF FINDINGS AND COMMENTS

1. At the time of the inspection, the following general observations were made with the operational practices at the plant:
  - The plant has fabricated steel gates which can be placed at the lagoon outlet to control water depth. Increasing the water depth improves mixing in the lagoon.
  - The plant is placed into storm mode during high flow events. Storm mode consists of removing the new gates on the lagoon outlet and increasing return rates to help retain solids. The mixers will kick-off automatically during high flow events. The dosage on the chemical feed system can be manually increased to improve settling.
  - The two lagoon mixers are operated for 16-18 hours/day (6:00 AM-10:00 PM). The rented Solar Bee mixer is no longer used and will be removed by the supplier in the near future.
  - The target mixed liquor suspend solids (MLSS) concentrations in the lagoon is 500 mg/l.
  - Dechlorination is performed in the box upstream of the outfall to allow sufficient contact time for the chlorine in the effluent line. A plate will be installed on the new outfall line to increase the contact time for disinfection. This plate will be removed once ultraviolet disinfection is installed in the upgraded facility.
  - The facility eliminated the use of chlorine gas last year when they switched to hypochlorite and thiosulfate for disinfection.
2. A new pump station was installed across Little Jelloway Creek (across from the old outfall) which receives flow from Millwood (recently sewerred) and Howard.
3. The schedule of compliance contained in the effective permit requires the permittee to achieve compliance with final limits for ammonia, suspended solids and copper on or before February 1, 2012. Consistent compliance with these new limits will be problematic since construction of the upgraded facility is not expected to be completed until March 2013.
4. The County is currently installing a decentralized treatment system in the Village of Bladensburg. The project involves the pumping and replacement of residential septic tanks. The county pumps the tanks and discharges the septage into the

Apple Valley collection system. I would recommend that the County discontinue this practice until the upgraded facility is placed into operation next year. Continuing this practice jeopardizes the capability of the existing facility to consistently meet the new limits for ammonia and CBOD<sub>5</sub>.

## Compliance Data for Little Jelloway Creek WWTP between 5/1/2010 to 3/30/2012

### Summary

Permit Effluent Limit Violations: 34  
 Permit Effluent Code Violations: 12  
 Permit Effluent Frequency Violations: 5  
 Compliance Schedule Violations: 2  
 Reported SSO Events: 2

Limit Violations						
Reporting Period	Station	Parameter	Limit Type	Limit	Reported Value	Violation Date
April 2010	001	CBOD 5 day	30D Conc	12	14.2	4/1/2010
April 2010	001	Total Suspended Solids	30D Conc	12	14.9	4/1/2010
April 2010	001	CBOD 5 day	7D Conc	18	19.5	4/8/2010
April 2010	001	CBOD 5 day	7D Conc	18	18.5	4/15/2010
May 2010	001	Chlorine, Total Residu	1D Conc	0.024	.21	5/28/2010
June 2010	001	Chlorine, Total Residu	1D Conc	0.024	.4	6/1/2010
November 2010	001	Total Suspended Solids	30D Conc	12	15.5	11/1/2010
December 2010	001	Total Suspended Solids	30D Conc	12	19.75	12/1/2010
December 2010	001	Total Suspended Solids	7D Conc	18	20.	12/15/2010
December 2010	001	Total Suspended Solids	7D Conc	18	25.	12/22/2010
January 2011	001	Total Suspended Solids	30D Conc	12	25.875	1/1/2011
January 2011	001	Total Suspended Solids	7D Conc	18	35.5	1/1/2011
January 2011	001	CBOD 5 day	7D Conc	18	22.5	1/1/2011
January 2011	001	Total Suspended Solids	7D Conc	18	35.	1/15/2011
January 2011	001	CBOD 5 day	7D Conc	18	21.5	1/15/2011
January 2011	001	Total Suspended Solids	7D Conc	18	20.	1/22/2011
February 2011	001	Total Suspended Solids	7D Conc	18	23.5	2/1/2011
February 2011	001	Total Suspended Solids	30D Conc	12	17.125	2/1/2011
February 2011	001	Total Suspended Solids	7D Conc	18	21.	2/15/2011
May 2011	001	CBOD 5 day	7D Conc	18	20.	5/22/2011

June 2011	001	Nitrogen, Ammonia (NH3)	30D Qty	29.33	32.5327	6/1/2011
June 2011	001	Nitrogen, Ammonia (NH3)	30D Conc	8.6	14.7222	6/1/2011
June 2011	001	Nitrogen, Ammonia (NH3)	7D Conc	13	16.75	6/15/2011
June 2011	001	Nitrogen, Ammonia (NH3)	7D Conc	13	17.95	6/22/2011
June 2011	001	CBOD 5 day	7D Conc	18	19.5	6/22/2011
July 2011	001	CBOD 5 day	7D Conc	18	21.	7/1/2011
July 2011	001	Nitrogen, Ammonia (NH3)	7D Qty	44.34	46.8753	7/1/2011
July 2011	001	Nitrogen, Ammonia (NH3)	30D Conc	8.6	12.975	7/1/2011
July 2011	001	Nitrogen, Ammonia (NH3)	30D Qty	29.33	29.4906	7/1/2011
July 2011	001	Nitrogen, Ammonia (NH3)	7D Conc	13	20.	7/1/2011
July 2011	001	CBOD 5 day	30D Conc	12	15.125	7/1/2011
July 2011	001	Nitrogen, Ammonia (NH3)	7D Conc	13	17.3	7/8/2011
August 2011	001	Chlorine, Total Residu	1D Conc	0.024	.05	8/30/2011
October 2011	001	Chlorine, Total Residu	1D Conc	0.024	.05	10/28/2011
January 2012	001	Total Suspended Solids	30D Conc	12	15.25	1/1/2012
January 2012	001	Total Suspended Solids	7D Conc	18	20.	1/22/2012

Code Violations				
Reporting Period	Station	Parameter	Reported Value	Violation Date
June 2010	001	Flow Rate	AD	6/21/2010
June 2010	001	Flow Rate	AD	6/22/2010
June 2010	001	Flow Rate	AD	6/23/2010
June 2010	001	Flow Rate	AD	6/24/2010
July 2010	001	Fecal Coliform	AK	7/21/2010
August 2010	901	Fecal Coliform	AK	8/12/2010
February 2011	001	Water Temperature	AF	2/28/2011
February 2011	001	pH	AF	2/28/2011
February 2011	001	Dissolved Oxygen	AF	2/28/2011

June 2011	001	Residue, Total Dissolv	AB	6/1/2011
June 2011	001	Fecal Coliform	AK	6/10/2011
December 2011	001	Flow Rate	AD	12/7/2011

Frequency Violations						
Reporting Period	Station	Parameter	Sample Frequency	Expected	Reported	Violation Date
February 2012	001	Nitrogen, Ammonia (NH3)	2/Week	2	1	02/08/2012
February 2012	601	Total Suspended Solids	2/Week	2	1	02/08/2012
February 2012	601	CBOD 5 day	2/Week	2	1	02/08/2012
February 2012	001	Total Suspended Solids	2/Week	2	1	02/08/2012
February 2012	001	CBOD 5 day	2/Week	2	1	02/08/2012

Missing Compliance Schedule Milestones				
Schedule Due Date	Completion Date	Event Code	Schedule Type	Schedule Milestone
June 2011		3599	Construction	1st Rpt Construction Progress
February 2012		5699	Construction	Final Compliance Eff Limits

Little Jelloway Creek WWTP SSO Events	Units	Date	Reported Value
Overflow Occurrence	No./Month	12/6/2011	1
Overflow Occurrence	No./Month	12/21/2011	1

Flow Data for Little Jelloway Creek WWTP between 5/1/2010 and 3/30/2012

	Date	Flows (MGD)
Ten Highest Flows	12/22/2011	1.420
	12/21/2011	1.365
	12/23/2011	1.345
	5/27/2010	1.274
	5/28/2010	1.274
	5/29/2010	1.274
	5/30/2010	1.274
	5/31/2010	1.274
	6/1/2010	1.202
	5/19/2010	1.135
<b>Average Flow Rate</b>		0.490