



Environmental
Protection Agency

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

August 2, 2012

Danny Wood, Village Administrator
Cardington WWTP
215 Park Avenue, PO Box 10
Cardington, OH 43315

Re: **Cardington WWTP**
NPDES Permit 4PA00100/ OH0023361
Compliance Evaluation Inspection
Morrow County

Dear Mr. Wood:

On July 3, 2012, a Compliance Evaluation Inspection was conducted at the Cardington WWTP. Present for the inspection were yourself and Joel Jacobs representing the Village of Cardington 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 your NPDES permit and to evaluate the operation and maintenance of the plant. The inspection raised several concerns in the following areas:

Effluent Flow Meter – The effluent flow meter has not been calibrated by an outside vendor since 2009. Please have this unit calibrated as soon as possible and provide documentation to this office once it is completed.

Effluent Sampling – The effective permit requires that composite samples be “comprised of a series of grab samples collected over a 24-hour period and proportionate in volume to the sewage flow rate at the time of sampling”. Please modify the collection methodology for the effluent composite sample from a time proportioned composite to a flow proportioned composite sample.

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.

Sincerely

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

ec: Mike Sapp

MS/nsm Cardington 12

NPDES Compliance Inspection Report

SECTION A: NATIONAL DATA SYSTEM CODING				
Permit #	NPDES #	Inspection Type	Inspector	Facility Type
4PA00100	OH0023361	CEI	S	Public
Inspection Date	Entry Time	Exit Time	Notice of Violation	Significant Non-Compliance
7/3/2012	9:00 AM	11:30 AM	No	No

SECTION B: FACILITY DATA	
Name and Location of Facility Inspected	Permit Effective Date
Cardington WWTP 209 Richelderfer Street Cardington, Ohio 43315	8/1/2008
	Permit Expiration Date
	7/31/2013
Name(s) and Title(s) of On-Site Representatives	Phone Numbers
Joel Jacobs, Plant Superintendent	(419) 864-0524
Name and Title of Responsible Official	Phone Number
Danny Wood, Village Administrator	(419) 864-7607

SECTION C: AREAS EVALUATED DURING INSPECTION		
Key: S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated		
S	NPDES Compliance	
S	Operations & Maintenance	
S	Facility Site Review	
S	Collection System	
M	Flow Measurement	Effluent flow meter requires calibration.
S	Receiving Waters	
S	Laboratory	

Comments:

Signatures	
 7/25/12	 7/25/12
Michael Sapp, Inspector Compliance & Enforcement Division of Surface Water Central District Office	Anthony Hanes, Reviewer Permits 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..... Y
- (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 NA
- (h) All discharges are permitted N*
- (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 Y*

Comments:

SECTION F: OPERATION AND MAINTENANCE

- (a) Standby power available Y*
If yes, what type? Diesel generator
- (b) Adequate alarm system available for power or equipment failures N*
- (c) All treatment units in service other than backup units N*
- (d) Wastewater Treatment Works classification..... II
- (e) Operator of Record holds unexpired license of class required by Permit ..
Class held: II*
- (f) Copy of certificate of Operator of Record displayed on-site N
- (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 Y*
- (l) Regulatory agency notified of bypasses Y
By MOR X and/or Spill Hotline (1-800-282-9378) X
- (m) Any hydraulic or organic overloads since last inspection..... Y*

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..... Y
- g) Lift station alarms provided and maintained Y*
- h) Lift stations equipped with permanent standby power or equivalent N*
- i) Is there an inflow/infiltration problem (separate sewer system), or were there any major repairs to collection system since last inspection..... Y*
- 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: unknown
- b) Sludge adequately disposed Y*
Method: Landfill
- c) If sludge is incinerated, where is ash disposed of NA
- d) Is sludge disposal contracted Y*
Name: Allied (hauling)
- 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 N
- 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: ultrasonic Device location: effluent flume
- b) Calibration frequency adequate N*
Date of last calibration: April 2009
- 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 daily
- 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? NA
- c) Analysis performed more frequency N
 If yes, are results recorded in permittee's report? NA
- d) Commercial laboratory used:
 Name: MASI
 Parameters analyzed: all parameters except DO, pH and chlorine
- 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
Cardington Wastewater Treatment Plant
4PA00100 - OH0020630

General

The Cardington WWTP has a design average treatment capacity of 0.5 MGD. Wet stream process provided at the facility include an influent lift station, communitation, screening, aerated grit removal, extended aeration, clarification, chlorine disinfection, post aeration and dechlorination. Solids handling consists of aerobic digestion, dewatering with sludge drying beds, sludge storage followed by disposal at a landfill.

Section D. - Permit Verification

- (d.) The average daily flow at outfall 001, for the time period between August 2009 – May 2012, was 0.37 MGD. The plant experienced a peak daily flow during this time period of 1.96 MGD. Both the average and peak flows have increased slightly since the previous inspection.
- (h.) The plant experiences hydraulic surcharges and sanitary sewer overflows at two locations in the collection system. The first location is at the manhole located immediately upstream from the plant (southeast side of plant outside fence). The second location is at a manhole on the south bank of Whetstone Creek, approximately 100 yards downstream outfall 001. This manhole is at the upstream end of the 15-inch diameter sewer line under Whetstone Creek.

Section E. - Compliance

- (a.) The attached table contains a list of NPDES permit violations at the facility for the time period between January 2007 – July 2012. The solids violations in January and March 2011 were attributed to high flows and solids with poor settling characteristics.
- (b.) The operators worked with Ohio EPA Compliance Assistance Unit staff to identify a low F:M filament as the cause of the poor settleability. The operators removed one of the three aeration tanks from service and wasted additional solids to lower the F:M ratio and select against the filament.
- (d.) The effective NPDES permit contains a schedule of compliance which required the Village to meet final limits for phosphorus by August 1, 2011. The schedule also contained interim milestones for evaluating the ability of the plant to treat for phosphorus and to submit a general plan for compliance, if necessary. The Village met the interim milestones contained in the schedule and have demonstrated that the final phosphorus limits can be consistently met with the poly aluminum chloride feed system.

Section F. - Operation and Maintenance

- (a.) The plant is equipped with a diesel generator which is capable of providing stand by power to the entire plant. The blowers must be manually reset after a power failure.
- (b.) The plant is equipped with an audible alarm system in the event of power or equipment failures. The autodialer was inactivated due to the high frequency of false calls.
- (c.) At the time of the inspection the grit removal system was not functional due to a broken air lift pump. This unit has been out of service for 3-4 years. One of the three aeration tanks was off-line due to low flows.
- (e.) Joel Jacobs became the Operator of Record in December 2011.
- (g.) Coverage is provided on weekends (1.5 hour walk through) as well as for manual control of the influent pump station during storm events. Joel Jacob visits the plant during heavy rain events.
- (h.) A card file is used to schedule and perform routine and preventative maintenance.
- (i.) The muffin monster was previously down for a short period due to a bad motor. The plant also experienced problems with a bad RAS pump and one of the electrical lines to a clarifier.
- (k.) Raw wastewater is bypassed from the plant at two locations in the collection system during heavy rain events. These bypasses are monitored and reported in accordance with the terms and conditions of the effective NPDES permit using station 300.
- (m.) The plant experiences hydraulic overloads during wet weather events. Plant flows were reported as high as 1.96 mgd on March 2011.

Section H. - Collection System

- (b.) The Village has reported 21 SSO events since November 2010.
- (g.) There are 3 lift stations (Gilead St. Third St. and Kenny Lane) in the collection system served by the Cardington WWTP. The Kenny Lane station is new and serves 6 new homes built by Habitat for Humanity. All three stations are equipped with visual alarms. Pump stations that convey wastewater from Fulton and the Lutheran Memorial Camp are not operated by the Village of Cardington.
- (h.) Back-up power is not supplied at any of the three stations. The Village borrows or rents a trash pump in the event of a prolonged power failure.

- (i.) The Village is conducting a comprehensive I/I study this spring and summer in conjunction with a proposed plant upgrade. Flow totes were utilized to collect data in the study. A significant water line leak, which was leaking directly into the sanitary sewer, was located and repaired.
- (l.) The plant operator monitors sludge blanket depths in clarifiers during sustained high flow events. Based on blanket levels he might increase return rates and/or place any empty aeration tank in service, if necessary.

Section I. - Sludge Management

- (b) The sludge management plan (SMP) was last updated in September 1996. The Village abandoned the land application program in 2007 due to concerns about sludge quality. Sludge is currently being landfilled at Cherokee Run Landfill in Carey, Ohio.
- (d.) Dewatered sludge is hauled to the landfill by Allied 2-3 times a year.
- (i.) The operator sends all of the waste activated sludge to the north digester where it is decanted and thickened. The sludge is then pumped to the south digester where it is thickened further before being pumped to the sludge drying beds. Plant personnel indicated that the annual sludge volume has not increased significantly since the last inspection (approximately 100 tons/year). The plant has approximately 1.5 years of sludge storage on-site.

Section J. - Self-Monitoring Program

- (a.) Effluent flows reported at outfall 001 are measured using an ultrasonic flow meter over a Parshall flume.
- (b.) The effluent flow meter has not been calibrated since April 2009. This unit should be calibrated by an outside vendor on an annual basis.

Section K. - Laboratory

- (d.) The Cardington lab performs analyses for pH, dissolved oxygen and chlorine. The remaining parameters are analyzed by MASI, a contract commercial laboratory.
- (f.) The DO and pH meters are calibrated weekly.

SUMMARY OF FINDINGS AND COMMENTS Cardington Wastewater Treatment Plant

1. At the time of the inspection, the following general observations were made with respect to the operational practices at the plant;
 - The plant is equipped with three influent pumps but they'll surcharge the grit tank if they all run at the same time.
 - Thirty minute settleability tests are set-up once a week. Thirty minute settleabilities generally range from 140-180. These values were routinely around 600-800 before the filaments were identified and eliminated.
 - MLSS concentrations are maintained in the range of 3000 mg/l.
 - The aeration tanks are operated in a plug flow mode of operation.
 - Liquid chlorine is added at the overflow weirs on the clarifiers to increase the contact time for disinfection. The chlorine system is not flow paced. An ORP probe was installed and used for the chlorine feed system but it's no longer functional.
 - The plant is equipped with an effluent pump station which can be used in the event that the outfall is surcharged. I would recommend that this station be exercised periodically to ensure functionality.
 - The wedge wire sludge drying beds are power washed twice a year to improve drainage.
 - Influent phosphorus concentrations average 4.0 mg/l. The operator performs daily phosphorus tests with a Hach test kit and adjusts the polyaluminum chloride feed accordingly.

2. The effluent flow meter has not been calibrated by an outside vendor since 2009. Please have this unit calibrated as soon as possible and provide documentation to this office once it is completed.

3. Time weighted influent and effluent composite samples are currently collected where an aliquot of sample is collected once every hour for a 24 hour period. Part II.G. (page 17) of the effective permit requires that composite samples be "comprised of a series of grab samples collected over a 24-hour period and proportionate in volume to the sewage flow rate at the time of sampling". Please modify the collection methodology for the effluent composite sample to collect a flow proportioned sample.

4. The Village is currently revising their Facilities Plan (September 2011) to reflected changes recommended by their new consultant, Poggemeyer Design Group. Poggemeyer performed additional flow studies this spring and summer and will revise the recommendations in the previous plan based on the studies. The flow studies will hopefully provide direction or whether or not to proceed with a flow equalization basin or an additional clarifier. Additional upgrades proposed in the original plan include improved preliminary treatment (e.g. fine screens), improved flow splitting between clarifiers and ultraviolet disinfection.

Compliance Data for Cardington WWTP between 8/1/2009 to 6/1/2012

Summary

Permit Effluent Limit Violations: 6
 Permit Effluent Code Violations: 1
 Permit Effluent Frequency Violations: 0
 Compliance Schedule Violations: 0
 Reported SSO Events: 20

Limit Violations						
Reporting Period	Station	Parameter	Limit Type	Limit	Reported Value	Violation Date
January 2011	001	Total Suspended Solids	30D Conc	18	18.5533	1/1/2011
January 2011	001	Total Suspended Solids	7D Conc	27	37.5	1/22/2011
March 2011	001	Total Suspended Solids	7D Conc	27	29.	3/1/2011
March 2011	001	Total Suspended Solids	30D Qty	34	38.5842	3/1/2011
March 2011	001	Total Suspended Solids	7D Qty	51	141.982	3/1/2011
March 2011	001	CBOD 5 day	7D Qty	45	53.6410	3/1/2011

Code Violations				
Reporting Period	Station	Parameter	Reported Value	Violation Date
August 2011	901	Fecal Coliform	AK	8/3/2011

Cardington WWTP SSO Events	Units	Date	Reported Value
Overflow Occurrence	No./Month	11/25/2010	1
Overflow Occurrence	No./Month	2/28/2011	1
Overflow Occurrence	No./Month	3/4/2011	1
Overflow Occurrence	No./Month	3/5/2011	1
Overflow Occurrence	No./Month	3/9/2011	1
Overflow Occurrence	No./Month	3/10/2011	1
Overflow Occurrence	No./Month	4/4/2011	1
Overflow Occurrence	No./Month	4/20/2011	1
Overflow Occurrence	No./Month	4/25/2011	1
Overflow Occurrence	No./Month	5/3/2011	1
Overflow Occurrence	No./Month	10/25/2011	1
Overflow Occurrence	No./Month	11/29/2011	1
Overflow Occurrence	No./Month	12/5/2011	1
Overflow Occurrence	No./Month	12/6/2011	1
Overflow Occurrence	No./Month	12/15/2011	1
Overflow Occurrence	No./Month	12/21/2011	1
Overflow Occurrence	No./Month	1/23/2012	1
Overflow Occurrence	No./Month	1/26/2012	1
Overflow Occurrence	No./Month	2/29/2012	1
Overflow Occurrence	No./Month	5/2/2012	1
Overflow Occurrence	No./Month	5/8/2012	1

Flow Data for Cardington WWTP between 8/1/2009 and 6/1/2012

	Date	Flows (MGD)
Ten Highest Flows	3/1/2011	1.964
	3/6/2011	1.575
	5/12/2010	1.572
	4/26/2011	1.487
	11/30/2011	1.454
	5/4/2011	1.453
	3/11/2011	1.450
	3/10/2011	1.414
	12/6/2011	1.408
	3/7/2011	1.388
Average Flow Rate		0.370