



**Environmental
Protection Agency**

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

August 9, 2012

RE: LORAIN COUNTY
CRESTHAVEN WWTP
CEI / NOV
NPDES NO. 3PG00051

Lorain County Commissioners
Administration Building
216 Middle Avenue
Elyria, OH 44035

CERTIFIED MAIL

Dear Commissioners:

On July 12, 2012, a meeting was held at the Lorain County Engineer's Office, with Messrs. Jack Jannuzzi and Steve Hicks, of the Lorain County Engineer's Office; Mr. Richard Greenwood of KE McCartney & Associates; Mr. John Sabo, of the Lorain County Health Department; and this writer, of the Ohio EPA. The purpose of the meeting was to discuss the continuing non-compliance of the Cresthaven wastewater treatment plant (WWTP) with its National Pollutant Discharge Elimination System (NPDES) permit to discharge, as well as the other three Lorain County owned and operated WWTP's.

Items discussed with Messrs. Jannuzzi, Hicks, and Greenwood include the following:

- 1) A list of all numeric effluent violations for Cresthaven, and the three other Lorain County owned and operated WWTPs, was presented for discussion.
- 2) Discussed was the fact that the Cresthaven WWTP is subject to Inflow and/or Infiltration (I/I) during periods of heavy precipitation. The I/I to the WWTP is considered to be the major cause of the episodes of non-compliance with NPDES permit effluent limit violations.
- 3) Also discussed were the past improvements made at the Cresthaven WWTP, which were constructed to correct prior NPDES permit effluent violations.
- 4) In an attempt to reduce or eliminate the I/I to the Cresthaven WWTP, the County had the entire sanitary sewer collection system tributary to the Cresthaven WWTP relined by the Insituform Company. Manhole covers in the streets were also replaced with solid lids, if not already present.
- 5) Sanitary sewer laterals from the street to each individual home were not part of the sewer lining project. The County is now focusing its I/I reduction efforts on the sanitary laterals, and testing of the laterals to determine which, if any, are sources of I/I.
- 6) Smoke testing of the sanitary laterals has been conducted in the Cresthaven development. In March 2012, any residence in which smoke was observed to be coming from downspouts or yard drains was sent a letter by the County, requiring correction of the connection. The letter indicated the resident had until June 30, 2012, to correct the I/I problem found at their property.

- 7) Mr. Jannuzzi indicated that, for all four County owned WWTPs, a total of approximately 122 residences were sent the formal notices of required correction. Approximately 75% of all properties, which were sent the letters in March 2012, have become compliant with the requested downspout removal or correction.
- 8) The County will continue to pursue correction of the remaining non-compliant properties found to have downspout problems.

Utilizing monthly operating data submitted for the Cresthaven WWTP, the facility has been determined to be in significant non-compliance (SNC) for total suspended solids, ammonia nitrogen, and CBOD. The attached document details the parameters in SNC for the last six-month period (December 2011 through May 2012).

As a reminder, SNC is defined by the USEPA as a 40% exceedance of specific conventional pollutant limits (1.4 x parameter effluent limit), or a 20% exceedance of toxic pollutant limits (1.2 x parameter effluent limit), at a given discharge point for any two or more months, during any two consecutive quarter period reviewed.

Conventional pollutants include: BOD/CBOD; total suspended solids; nutrients such as nitrogen (ammonia) and phosphorus; and oil & grease. Toxic pollutants include: total chlorine residual; heavy metals; and cyanide.

As discussed in the July 12th meeting, the County has been diligently continuing its efforts to address the SNC violations at the Creswthaven WWTP. It was felt that locating, and correcting, sources of I/I tributary to the sanitary collection system would eliminate the cause SNC violations. Final results of the downspout I/I reduction program will be studied, and evaluated as to its effectiveness in the overall SNC reduction effort.

The County was asked during the meeting to submit an SNC Compliance Plan Report to the Ohio EPA, detailing their efforts in the removal of I/I from the collection system. The report should include such information as: the number of connections; length of sewer in the system; length of sewer relined; number of residences smoke tested; number of residences found to be in need of lateral repair or downspout disconnection; number of residential laterals repaired, and number still in need of repair; approximate amount of money spent on the itemized repairs and studies of the collection system.

A table of precipitation events, including dates and precipitation amounts, should be included in the report. It should also be determined if there is a correlation to the amount of rainfall received and for what duration, versus any NPDES permit excursions experienced.

The SNC Compliance Plan Report should also include further planned alternatives to correcting the non-compliance at the WWTP, and a tentative schedule for implementation of the alternatives.

Following the meeting, a Compliance Evaluation Inspection (CEI) was conducted on the Cresthaven WWTP. Present during the Cresthaven WWTP inspection were Messers. Jannuzzi, Hicks, Greenwood, Sabo, and this writer.

The July 12th inspection was conducted to evaluate the present operation and maintenance conditions at the WWTP. The last compliance evaluation inspection conducted at the Cresthaven WWTP was on August 11, 2011.

At the time of the July 12th inspection, the following observations were made:

- 1) Influent flows by gravity to the WWTP influent pump station, then is pumped up to the head of the plant.
- 2) The eastern extended aeration tank contents were medium brown in color, and were well aerated. The suspended solids (MLSS) concentration appeared to be in a higher than normal operating concentration, and return sludge to the eastern aeration tank was medium brown in color. According to Mr. Hicks, the 30-minute settling test for the eastern aeration tank contents resulted in approximately 650 ml/1000 ml (65%).
- 3) The western extended aeration tank contents were medium brown in color, and were well aerated. There was a light brown foam on the water surface in the western aeration tank. The suspended solids (MLSS) concentration also appeared to be in a higher than normal operating concentration, and return sludge to the eastern aeration tank was medium brown in color. According to Mr. Hicks, the 30-minute settling test for the western aeration tank contents resulted in approximately 625 ml/1000 ml (62.5%).
- 4) Contents of the settling tank were typical, and there was a slight floating scum on the surface of the east settling tank. Settling tank effluent troughs were clean and free of solids or algae, and effluent leaving the settling tanks was clear and free of solids. The settling tank effluent troughs are rusted, and are scheduled for replacement.

The skimmer line from the west settling tank was operating, and returning clear water to the aeration tank. The skimmer line for the east settling tank was shut off, as sludge was being wasted at the time of the inspection.

- 5) Both tertiary drum filters were operational and in the 'AUTO' mode at the time of the inspection.
- 6) Disinfection of the final effluent was being performed with chlorine gas. Dechlorination of the chlorinated effluent is performed with a 38% sodium bisulfite solution. Approximately 5 lbs/day of chlorine gas is used, and 55 gallons / two weeks of sodium bisulfite is used. The chemicals are fed based upon flow rates at the WWTP.
- 7) The Sludge Holding tank contents were brown in color, and were being well aerated. Sludge is hauled a couple times per year either by Johnson Septic (~3000 gallons), or Father & Son Septic haulers (~3600 gallons), to the French Creek WWTP for treatment and disposal.
- 8) WWTP effluent was visually clear, colorless, and free of solids or foam.
- 9) The on-site standby generator is tested every Monday.
- 10) Effluent samples are collected by two operators at the Cresthaven WWTP, and are transported to the French Creek WWTP laboratory for analysis. Chain of Custody forms are utilized as a part of the sample collection/analysis procedure.

The parameters of pH, DO, and temperature are analyzed by Lorain County Engineers personnel at the WWTP; the remainder of required samples is analyzed by the French Creek WWTP lab.

A review of the electronic Discharge Monitoring Report (eDMR) data submitted for the Cresthaven wastewater treatment plant has been conducted. A review of the data for the period of August 1, 2011, through August 1, 2012, found the following numeric effluent violations:

**CRESTHAVEN WWTP
NPDES PERMIT NO. 3PG00051
EFFLUENT LIMIT VIOLATIONS
(8/1/11 – 8/1/12)**

Reporting Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
August 2011	Total Suspended Solids	30D Conc	12	12.86	8/1/2011
August 2011	Nitrogen, Ammonia (NH3-N)	30D Conc	1.5	5.875	8/1/2011
August 2011	Nitrogen, Ammonia (NH3-N)	30D Qty	0.45	1.45978	8/1/2011
August 2011	Nitrogen, Ammonia (NH3-N)	7D Conc	2.3	11.7	8/22/2011
August 2011	Nitrogen, Ammonia (NH3-N)	7D Qty	0.70	2.91392	8/22/2011
November 2011	Total Suspended Solids	30D Conc	12	22.66	11/1/2011
November 2011	Total Suspended Solids	7D Conc	18	25.	11/1/2011
November 2011	Total Suspended Solids	30D Qty	3.6	8.41254	11/1/2011
November 2011	Nitrogen, Ammonia (NH3-N)	30D Conc	3.5	9.7	11/1/2011
November 2011	Nitrogen, Ammonia (NH3-N)	30D Qty	1.1	2.61769	11/1/2011
November 2011	CBOD 5 day	30D Conc	10	10.38	11/1/2011
November 2011	CBOD 5 day	7D Conc	15	17.1	11/1/2011
November 2011	Total Suspended Solids	7D Conc	18	22.	11/8/2011
November 2011	Nitrogen, Ammonia (NH3-N)	7D Conc	5.0	14.5	11/8/2011
November 2011	Nitrogen, Ammonia (NH3-N)	7D Qty	1.5	1.90442	11/8/2011
November 2011	CBOD 5 day	7D Conc	15	17.2	11/8/2011
November 2011	Total Suspended Solids	7D Conc	18	21.	11/15/2011
November 2011	Total Suspended Solids	7D Qty	5.5	10.8765	11/22/2011
November 2011	Nitrogen, Ammonia (NH3-N)	7D Qty	1.5	3.33095	11/22/2011
November 2011	CBOD 5 day	7D Qty	4.5	6.72988	11/22/2011
December 2011	Total Suspended Solids	30D Conc	12	44.025	12/1/2011
December 2011	Total Suspended Solids	7D Conc	18	77.1	12/1/2011
December 2011	Total Suspended Solids	30D Qty	3.6	31.7453	12/1/2011
December 2011	Total Suspended Solids	7D Qty	5.5	58.1020	12/1/2011
December 2011	Nitrogen, Ammonia (NH3-N)	30D Conc	3.5	3.84	12/1/2011
December 2011	Nitrogen, Ammonia (NH3-N)	30D Qty	1.1	3.5209	12/1/2011
December 2011	Nitrogen, Ammonia (NH3-N)	7D Qty	1.5	1.95181	12/1/2011
December 2011	CBOD 5 day	30D Conc	10	26.75	12/1/2011
December 2011	CBOD 5 day	7D Conc	15	30.5	12/1/2011
December 2011	CBOD 5 day	30D Qty	3.0	20.4088	12/1/2011
December 2011	CBOD 5 day	7D Qty	4.5	22.9846	12/1/2011
December 2011	Total Suspended Solids	7D Conc	18	36.	12/15/2011
December 2011	Total Suspended Solids	7D Qty	5.5	35.9998	12/15/2011
December 2011	Nitrogen, Ammonia (NH3-N)	7D Conc	5.0	5.09	12/15/2011
December 2011	Nitrogen, Ammonia (NH3-N)	7D Qty	1.5	5.08998	12/15/2011
December 2011	CBOD 5 day	7D Conc	15	39.	12/15/2011
December 2011	CBOD 5 day	7D Qty	4.5	38.9998	12/15/2011
December 2011	Total Suspended Solids	7D Conc	18	45.	12/22/2011
December 2011	Total Suspended Solids	7D Qty	5.5	28.2739	12/22/2011

Reporting Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
December 2011	CBOD 5 day	7D Conc	15	27.	12/22/2011
December 2011	CBOD 5 day	7D Qty	4.5	16.9643	12/22/2011
January 2012	Total Suspended Solids	30D Conc	12	39.54	1/1/2012
January 2012	Total Suspended Solids	7D Conc	18	40.	1/1/2012
January 2012	Total Suspended Solids	30D Qty	3.6	28.631	1/1/2012
January 2012	Total Suspended Solids	7D Qty	5.5	50.7341	1/1/2012
January 2012	Nitrogen, Ammonia (NH3-N)	7D Conc	5.0	6.34	1/1/2012
January 2012	Nitrogen, Ammonia (NH3-N)	30D Qty	1.1	3.23706	1/1/2012
January 2012	Nitrogen, Ammonia (NH3-N)	7D Qty	1.5	8.04136	1/1/2012
January 2012	CBOD 5 day	30D Conc	10	20.78	1/1/2012
January 2012	CBOD 5 day	7D Conc	15	27.3	1/1/2012
January 2012	CBOD 5 day	30D Qty	3.0	12.6026	1/1/2012
January 2012	CBOD 5 day	7D Qty	4.5	34.6260	1/1/2012
January 2012	Total Suspended Solids	7D Conc	18	66.7	1/8/2012
January 2012	Total Suspended Solids	7D Qty	5.5	9.54297	1/8/2012
January 2012	CBOD 5 day	7D Conc	15	51.	1/8/2012
January 2012	CBOD 5 day	7D Qty	4.5	7.29672	1/8/2012
January 2012	Total Suspended Solids	7D Conc	18	72.	1/15/2012
January 2012	Total Suspended Solids	7D Qty	5.5	76.5236	1/15/2012
January 2012	CBOD 5 day	7D Conc	15	17.2	1/15/2012
January 2012	CBOD 5 day	7D Qty	4.5	18.2806	1/15/2012
March 2012	Total Suspended Solids	7D Qty	5.5	6.09355	3/8/2012

The Lorain County Sanitary Engineers should continue with their efforts in locating and correcting sources of I/I to the Cresthaven WWTP. The County should also operate and maintain the WWTP in such a manner as to consistently meet its NPDES permit limits.

The SNC Compliance Plan Report should be prepared and submitted to the Northeast District Office of the Ohio EPA no later than October 1, 2012.

If there are any comments or questions concerning this document, you may contact me at (330) 963-1110.

Respectfully,



Charles E. Allen
Environmental Engineer
Division of Surface Water

CEA/cs

Attachment

cc: Mr. Ken Carney, P.E., County Engineer, Lorain County Engineer's Office

File: MUNI/Lorain/Brentwood Lake P&C

Cresthaven Homes WWTP
NPDES No. 3PG00051
SNC Violations
(12/11 – 5/12)

Facility	Report Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	7D Conc	18	77.1	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	30D Conc	12	44.025	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	30D Qty	3.6	31.7453	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	7D Qty	5.5	58.1020	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	7D Qty	5.5	35.9998	12/15/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	7D Conc	18	36.	12/15/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	7D Conc	18	45.	12/22/2011
Cresthaven Homes WWTP	Dec 2011	Total Suspended Solids	7D Qty	5.5	28.2739	12/22/2011
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	30D Conc	12	39.54	1/1/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	30D Qty	3.6	28.631	1/1/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	7D Conc	18	40.	1/1/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	7D Qty	5.5	50.7341	1/1/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	7D Conc	18	66.7	1/8/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	7D Qty	5.5	9.54297	1/8/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	7D Conc	18	72.	1/15/2012
Cresthaven Homes WWTP	Jan 2012	Total Suspended Solids	7D Qty	5.5	76.5236	1/15/2012
Cresthaven Homes WWTP	Mar 2012	Total Suspended Solids	7D Qty	5.5	6.09355	3/8/2012
Cresthaven Homes WWTP	Dec 2011	Nitrogen, Ammonia (NH3)	7D Qty	1.5	1.95181	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Nitrogen, Ammonia (NH3)	30D Qty	1.1	3.5209	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Nitrogen, Ammonia (NH3)	30D Conc	3.5	3.84	12/1/2011
Cresthaven Homes WWTP	Dec 2011	Nitrogen, Ammonia (NH3)	7D Conc	5.0	5.09	12/15/2011
Cresthaven Homes WWTP	Dec 2011	Nitrogen, Ammonia (NH3)	7D Qty	1.5	5.08998	12/15/2011
Cresthaven Homes WWTP	Jan 2012	Nitrogen, Ammonia (NH3)	7D Qty	1.5	8.04136	1/1/2012
Cresthaven Homes WWTP	Jan 2012	Nitrogen, Ammonia (NH3)	7D Conc	5.0	6.34	1/1/2012

Cresthaven Homes WWTP	Jan 2012	Nitrogen, Ammonia (NH3	30D Qty	1.1	3.23706	1/1/2012
Cresthaven Homes WWTP	Dec 2011	CBOD 5 day	30D Qty	3.0	20.4088	12/1/2011
Cresthaven Homes WWTP	Dec 2011	CBOD 5 day	7D Conc	15	30.5	12/1/2011
Cresthaven Homes WWTP	Dec 2011	CBOD 5 day	30D Conc	10	26.75	12/1/2011
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Cresthaven Homes WWTP	Jan 2012	CBOD 5 day	7D Qty	4.5	18.2806	1/15/2012