

**Environmental
Protection Agency**

Ohio Statehouse Governor

Ohio Statehouse Lt. Governor

Ohio Statehouse Director

March 7, 2012

RE: LORAIN COUNTY
CITY OF ELYRIA WWTP
COMPLIANCE EVALUATION INSPECTION
(NPDES NO. 3PD00034)

City of Elyria
Water Pollution Control Plant
Attn: Terry Korzan, Superintendent
1194 Gulf Road
Elyria, OH 44035

Dear Mr. Korzan:

On February 2, 2012, a pre-permit meeting and Compliance Evaluation Inspection (CEI) were conducted at the City of Elyria wastewater treatment plant (WWTP). Present during the meeting and inspection were Messers. Tony Nigro, Steve Baytos, and you, representing the City of Elyria; and Mr. Dean Stoll and this writer, of the Ohio EPA.

The purpose of the pre-permit meeting was to be updated on the current status of sewer system improvements/repairs, to discuss the status of the City's WWTP compliance with the current NPDES permit and schedule, and to discuss the upcoming NPDES permit renewal.

The CEI was conducted to review the current status of the treatment plant processes. The most recent CEI conducted at the Elyria WWTP was on June 3, 2008.

At the time of the February 2 inspection, the following observations were made:

- 1) Both the East Side and West Side influent headworks have been replaced since the last inspection. The East Side approximately three years ago, and the West Side approximately two years ago. Improvements included new bar screens, grit concentrators, and screw conveyors.
- 2) Both detritus tanks were operating and their contents were the typical turbid gray color.
- 3) Three of the six primary settling tanks were online. Primary settling tanks # 1 and #2 are used for waste sludge.
- 4) All four trickling filters have been permanently taken offline.
- 5) Five of nine aeration basins were available for use. Aeration tanks 1 and 2 are used for collection of rain water from storm manholes around the sludge and chemical feed buildings. Aeration tanks 3 and 4 are used as contact stabilization tanks for the belt filter press filtrate.

Aeration tanks 5 through 9 are used in the aeration treatment scheme. Contents of the aeration basins which were online were being well aerated, and were rusty brown in color. Ferric chloride is added to the flow channel leading into the aeration tanks.

- 6) Two of three final settling tanks were in operation. The surface of the final settling tank contents had what appeared to be some very slight floating grease particles. The effluent troughs in the final settling tanks were contained some solids on the sides of the troughs. Polymer is added to the flow channel prior to the wastewater entering the final settling tanks.
- 7) Effluent from the WWTP was not being chlorinated prior to discharge, as the required disinfection season is May 1 through October 3. Post aeration is provided by a cascade waterfall at the end of the chlorine contact tank.
- 8) Two of four sludge presses are usually operated at a time, one shift per day.

A review of the electronic Discharge Monitoring Reports (eDMR's) submitted by the City since the last inspection found the following NPDES Permit numeric effluent limit violations:

City of Elyria WWTP
NPDES NO. 3PD00034
Numeric Effluent Limit Violations
(June 1, 2008 through February 1, 2012)

Reporting Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
July 2008	Chlorine, Total Residual	1D Conc	0.020	.307	7/14/2008
August 2008	Chlorine, Total Residual	1D Conc	0.020	.055	8/14/2008
August 2009	Nitrogen, Ammonia (NH3-N)	30D Conc	1.5	1.59714	8/1/2009
August 2009	Nitrogen, Ammonia (NH3-N)	7D Conc	2.0	4.138	8/8/2009
August 2009	Chlorine, Total Residual	1D Conc	0.020	.057	8/18/2009
October 2009	pH, Minimum	1D Conc	6.5	6.4	10/30/2009
March 2010	Nitrogen, Ammonia (NH3-N)	30D Conc	8.0	9.34	3/1/2010
March 2010	Nitrogen, Ammonia (NH3-N)	7D Conc	12.0	14.9214	3/22/2010
April 2010	Nitrogen, Ammonia (NH3-N)	30D Conc	3.0	3.74273	4/1/2010
April 2010	Nitrogen, Ammonia (NH3-N)	7D Conc	5.0	5.138	4/1/2010
April 2010	Nitrogen, Ammonia (NH3-N)	7D Conc	5.0	5.106	4/8/2010
June 2010	Chlorine, Total Residual	1D Conc	0.020	.22	6/17/2010
June 2010	Fecal Coliform	7D Conc	2000	3436.39	6/22/2010
April 2011	Total Suspended Solids	7D Qty	1478	2247.14	4/1/2011
May 2011	Fecal Coliform	7D Conc	2000	3039.32	5/22/2011
July 2011	Chlorine, Total Residual	1D Conc	0.020	.07	7/2/2011
July 2011	Chlorine, Total Residual	1D Conc	0.020	.055	7/4/2011
July 2011	Chlorine, Total Residual	1D Conc	0.020	.067	7/10/2011

Items discussed during the February 2nd pre-permit meeting include the following:

- 1) An overview of the Elyria sanitary sewer system was provided to Ohio EPA, in an effort to facilitate the discussion on CSO/SSO requirements in the current and renewed NPDES permit.

- 2) A brief summary of recent sewer system work performed by the City of Elyria was given. Future sewer work planned for the collection system was also discussed (e.g. Turner Street Siphon elimination; new South East Trunk sewer through University Heights area). The City will be attempting to shift as much wastewater flow from the east side sewer system to the West Side Interceptor (WSI), which has a larger available capacity. Shifting as much flow as possible to the WSI system will reduce or eliminate the frequency of overflows seen in the east side system.
- 3) There are 27 sewer system overflows permitted in the NPDES permit issued to the City. The same 27 sewer system overflows are to be included in the forthcoming NPDES permit renewal.
- 4) As per NPDES permit requirements, five of the sewer system overflows are inspected on a rotating basis during wet weather events, when WWTP flows reach a total flow rate of 30 MGD during the rain event. Samples of any overflows observed are collected, and the analytical results are reported to the Ohio EPA in the monthly reports.
- 5) It was noted that all of the 27 overflows are inspected monthly during dry weather. In 2011, there were 324 inspections conducted, and no dry weather overflows were observed. There were 39 rain events during 2011 which required inspection of the overflows. A total of 195 overflow locations were inspected, with wet weather overflow events observed in 23 overflows (12%).
- 6) The City of Elyria Nine Minimum Controls and Combined Sewer System Operational Plan was submitted to Ohio EPA in November 1996, and was approved in May 1997. The Long Term Control Plan (LTCP) was submitted in November 2008. The City of Elyria is still awaiting Ohio EPA approval of the LTCP.
- 7) The Elyria WWTP has a design capacity of 13 MGD, with average daily dry flows of approximately 6 to 8 MGD. During periods of wet weather, flows can increase up to greater than 30 MGD. Wastewater flows greater than 30 MGD are diverted to the wet weather storage tank, which has an approximate capacity of 1.6 million gallons. The City is studying the addition of two 2.5 million gallon wet weather storage tanks.
- 8) The current NPDES permit (3PD00034*LD) was originally effective on August 1, 2007 (3PD00034*JD), with an expiration date of June 30, 2012. In addition to many other conventional pollutant parameters, the permit also contained monitoring requirements for Total Dissolved Solids (TDS), and Selenium (Se).

Sampling of TDS and Se in the WWTP effluent (Outfall 001) was to be for monitoring purposes only, until December 1, 2011, when the 001 final effluent table went into effect and limits were set for the two parameters (TDS = 1551 mg/l ; Se = 5.1 ug/l).

- a. The 3PD00034*JD permit was modified in response to a request made by the City. On November 1, 2008, the 3PD00034*KD modified permit went effective, with the original expiration date of June 30, 2012.

- b. The modification extended a compliance date for submittal of a Comprehensive Sewer Overflow Plan from August 1, 2008 to December 1, 2008.
- 9) A second modification of the 3PD00034*JD permit was requested by the City, and on August 1, 2011, the 3PD00034*LD modified permit went effective, with the still original expiration date of June 30, 2012. The reasons for the second modification were:
- a. Changed mercury average monthly concentration and loading limits (from 1.3 ng/l to 8.5 ng/l).
 - b. Revised the TDS average monthly concentration and loading limits (from 1551 mg/l to 2860 mg/l), and increased the TDS monitoring frequency.
 - c. Deleted the maximum limit for chronic toxicity, and added monitoring for acute toxicity. Added acute and chronic whole effluent toxicity monitoring with Ceriodaphnia.
 - d. A new Pretreatment Program local limit schedule for TDS and Se was added.
 - e. Mercury and TDS variance request information requirements were revised.

- 10) The TDS and Se limits contained in the current permit were discussed at length. It was indicated that sampling for TDS in the sewer system began in late 2005, and results found there were four potential Industrial User (IU) sources of TDS to the sewer system. One of the four sources has gone out of business, leaving 3M, BASF, and United Initiators as sources of excessive TDS.

The Elyria local limit for TDS being discharged by an IU is currently 9473 mg/l. The variance based TDS effluent limit for the Elyria WWTP is 2860 mg/l.

The City is working with the three IUs with regard to best management practices (BMP), and any modifications to their existing processes that are sources of TDS. The City is also assisting the IUs with any long term changes to their operations and treatment systems, in an effort to reduce the TDS in their discharge to the Elyria WWTP.

In November 2011, the City of Elyria submitted the TDS variance request information required for continuance of the TDS variance granted by Ohio EPA.

- 11) Sampling for Se in the WWTP influent and effluent began in August 2000. Further in-depth sampling at the WWTP, and throughout the industrial section of the City starting in January 2009, found only one potential IU source of Se (BASF Catalysts). BASF Catalysts, which occasionally has had Se concentrations as a raw material in any of their processes, continues to search for any sources of Se in their raw materials.

The Elyria WWTP NPDES permit contains a Se numeric effluent limit of 5.1 ug/l, which became effective December 1, 2011. Based upon sewage system sampling results, the City recently developed a new Se local limit of 12 ug/l for IUs tributary to the system.

Evaluating influent and effluent sampling results, it was determined by the City that the Elyria WWTP cannot remove Se as part of its treatment scheme. It was indicated that the City may have to apply for a Se variance if after BASF pretreats and meets local limits, the influent Se concentrations to the WWTP still have the potential of causing NPDES permit violations for Se.

- 12) As required by the current NPDES permit (3PD00034*LD), in order to continue their Mercury and TDS Variances, the City has submitted a Mercury Variance Renewal request and Mercury Variance Certification, and a TDS Variance Renewal request, with the NPDES permit renewal application. The permit renewal application and variance renewal requests were received by the Ohio EPA on November 22, 2011.
- 13) The City's Mercury Pollutant Minimization Plan (PMP) was discussed. It has been determined through inspection and monitoring, that the Elyria Memorial Hospital and BASF Catalysts are two IUs that still have occasional mercury concentrations in their discharges, which are above the local limit of 136 ng/l. Both IUs are under self-imposed mercury compliance schedule plans for reduction or elimination of sources of mercury in their final discharge to the City sewer system.

Bendix Commercial Vehicle Systems has also been in violation of the Elyria local limit for mercury. However, through utilization of BMPs directed toward their building sewers and pump station wet well, they are very close to being in compliance with the mercury local limit.

- 14) Detail plans of a new Ultra Violet (UV) disinfection system have been submitted to the Ohio EPA Division of Environmental and Financial Assistance (DEFA) for funding assistance and PTI issuance. The renewed NPDES permit will contain limits for chlorine residual until the UV is installed and operational. At such time, the permit will be modified and have the chlorine residual limit eliminated.
- 15) The forthcoming renewed NPDES permit was discussed, with emphasis on the following items:
 - a) The new permit will have an interim and final table, with the interim table including limits for Fecal Coliform, and monitoring for E. Coli. The final table will eliminate the Fecal Coliform monitoring, and have established limits for E. Coli.
 - b) The current NPDES permit has a tiered schedule for ammonia limits: 8 mg/l (Dec. – Mar.); 3 mg/l (Apr., Oct., Nov.); and 1.5 mg/l (May-Sep.). It was indicated that these months do not totally align with the WWTP's ability to meet those limits, due to the temperature variations of the water and the growth of the bacteria in the treatment process. It was requested that, if at all possible, the months and permit limits for ammonia be better aligned. The request will be forwarded to the modelers in Columbus.
 - c) It was requested that the requirement to monitor for Bis(2-ethylhexyl) Phthalate be eliminated in the renewed permit, as there has been none found in the WWTP effluent since August 2008.

- d) The parameters phosphorus, nitrate, and total kjeldahl nitrogen (TKN) will be added to the STA 901 downstream monitoring requirements.
 - e) The City expressed the hope that effluent phosphorus limits remain unchanged during this permit cycle.
 - f) The renewed NPDES permit will require installation of an effluent outfall sign, containing specific information pertaining to the effluent; the owner of the outfall; the NPDES permit number; and a contact telephone number.
- 16) Sludge generated at the Elyria WWTP is hauled by the City to PPG Lime Lakes for landfill disposal. Approximately one 55 cubic yard trailer of sludge (20 – 23% solids) is hauled to PPG. A total of 991 dry tons of sludge was hauled to PPG Lime Lakes in 2011.
 - 17) Liquid sludge is dewatered using belt filter presses. There are four sludge presses, of which two are normally utilized at a time. Sludge belt filter presses are typically operated during one shift per day.
 - 18) The WWTP accepts approximately 18,000 gallons per day of sludge (6 to 7% solids) for treatment from the Elyria Water Treatment Plant.
 - 19) Wastewater analyses are conducted in-house for most parameters contained in the City's NPDES permit, with the exception of TDS, TKN, B2EHP, and Sulfides, which are sent to Cardinal Labs in Youngstown. Results of the DMRQA Study # 31, submitted by the Elyria WWTP lab, were all within the 'acceptable' range.
 - 20) There are approximately 58 full time employees working at the WWTP and on the collection system, with coverage being 24/7.

The City of Elyria should continue with all efforts that will enable the WWTP to consistently meet its NPDES Permit limits. 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:bo

Muni/Elyria/P&C