



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

May 30, 2013

RE: LORAIN COUNTY  
CITY OF LORAIN BRP WWTP  
CEI  
NPDES NO. 3PE00005

Mr. Doug Brown, Acting Director  
City of Lorain  
Municipal Utilities Department  
1106 First Street  
Lorain, OH 44052

Dear Mr. Brown:

A Compliance Evaluation Inspection (CEI) was conducted at the City of Lorain Black River (BRP) wastewater treatment plant (WWTP) on May 7, 2013. Present during the inspection were Messrs. Bob Gall, Alex Berki, and Tony Dore, representing the City of Lorain; and Mr. Dean Stoll and this writer, of the Ohio EPA.

The purpose of the inspection was to evaluate the treatment plant processes and effluent discharge quality, and its general compliance with the current National Pollutant Discharge Elimination System (NPDES) permit. The last CEI conducted at the Lorain BRP WWTP was on February 8, 2011.

At the time of the May 7<sup>th</sup> inspection, the following observations were made and information was obtained:

- 1) The grit removal and bar screen at the headworks of the WWTP were in operation.
- 2) Both pre-aeration tanks were in operation and operating satisfactorily.
- 3) All three primary settling tanks were in operation, and contents of the tanks were turbid and gray in color.
- 4) All 4 aeration tanks were in operation, and contents were a rusty brown color. Dissolved oxygen levels were approximately 3.0 ppm, and Mixed Liquor Suspended Solids concentrations were in the 2,400 ppm range.
- 5) Approximately 350 gal/day of ferrous chloride is fed to the aeration tanks utilizing a chemical feed pump.
- 6) Both final settling tanks were in operation, and the settling tanks contained a slight algal growth. Effluent from the settling tanks was visually clear and free of solids.

- 7) Chlorination and dechlorination facilities were in use at the time of the inspection. Dechlorination is accomplished using a solution of 38% Sodium Bisulfite.
- 8) Observation of the treatment plant outfall found the effluent to be visually clear and free of foam or solids. The mixing zone was clear where the effluent was mixing with the muddy water of the Black River. Minnows were observed in the vicinity of the mixing zone.
- 9) Raw and waste activated sludge is sent to the sludge thickener. From the thickener the sludge is sent to the primary digester, then secondary digester. Digested sludge is pressed 5 days/week on a 2 meter belt filter press. Sludge enters the press @ 4% solids, polymer is added, and sludge cake generated is approximately 21% solids.
- 10) Class B sludge cake generated at the BRP WWTP is hauled by Agri-Sludge, and land applied in Medina County, by Albrecht Trucking.

A review of the electronic Discharge Monitoring Reports (eDMRs) submitted for the Lorain BRP WWTP, and covering the period of February 1, 2011 through May 1, 2013, indicates the Lorain Black River WWTP experienced the following incidences of non-compliance with its NPDES Permit effluent limits:

**LORAIN BRP WWTP  
EFFLUENT NUMERIC LIMIT VIOLATIONS  
NPDES PERMIT NO. 3PE00005  
(FEB. 1, 2011 THROUGH MAY 1, 2013)**

Reporting Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
March 2011	Total Suspended Solids	7D Qty	1710	1893.12	3/1/2011
March 2011	Mercury, Total (Low Level)	30D Conc	1.3	3.99	3/1/2011
March 2011	Mercury, Total (Low Level)	30D Qty	0.0000	.00031	3/1/2011
April 2011	Dissolved Oxygen	1D Conc	5.0	4.	4/20/2011
April 2011	Dissolved Oxygen	1D Conc	5.0	4.4	4/24/2011
April 2011	Dissolved Oxygen	1D Conc	5.0	4.8	4/25/2011
April 2011	Dissolved Oxygen	1D Conc	5.0	4.2	4/27/2011
May 2011	Mercury, Total (Low Level)	30D Conc	1.3	2.58	5/1/2011
May 2011	Mercury, Total (Low Level)	30D Qty	0.0000	.00016	5/1/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.	5/7/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.9	5/11/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.7	5/15/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.9	5/16/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	2.7	5/18/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.4	5/19/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.8	5/20/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.3	5/24/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.6	5/26/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	3.4	5/27/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.5	5/28/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	3.6	5/30/2011
May 2011	Dissolved Oxygen	1D Conc	5.0	4.7	5/31/2011

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Reporting Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
June 2011	Mercury, Total (Low Level)	30D Conc	1.3	1.86	6/1/2011
June 2011	Mercury, Total (Low Level)	30D Qty	0.0000	.00009	6/1/2011
June 2011	Dissolved Oxygen	1D Conc	5.0	4.8	6/5/2011
June 2011	Dissolved Oxygen	1D Conc	5.0	4.2	6/7/2011
June 2011	Dissolved Oxygen	1D Conc	5.0	4.3	6/10/2011
June 2011	Dissolved Oxygen	1D Conc	5.0	4.4	6/23/2011
July 2011	Mercury, Total (Low Level)	30D Conc	1.3	2.3	7/1/2011
July 2011	Mercury, Total (Low Level)	30D Qty	0.0000	.00009	7/1/2011
July 2011	Dissolved Oxygen	1D Conc	5.0	4.8	7/23/2011
July 2011	Dissolved Oxygen	1D Conc	5.0	3.7	7/24/2011
August 2011	Dissolved Oxygen	1D Conc	5.0	2.3	8/14/2011
August 2011	Dissolved Oxygen	1D Conc	5.0	4.8	8/15/2011
August 2011	Dissolved Oxygen	1D Conc	5.0	4.3	8/24/2011
September 2011	Mercury, Total (Low Level)	30D Conc	1.3	1.68	9/1/2011
September 2011	Mercury, Total (Low Level)	30D Qty	0.0000	.00009	9/1/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	4.5	9/5/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	4.2	9/7/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	4.6	9/8/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	4.8	9/10/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	4.8	9/17/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	3.9	9/21/2011
September 2011	Dissolved Oxygen	1D Conc	5.0	4.1	9/23/2011
October 2011	Mercury, Total (Low Level)	30D Conc	1.3	1.69	10/1/2011
October 2011	Mercury, Total (Low Level)	30D Qty	0.0000	.00008	10/1/2011
October 2011	Dissolved Oxygen	1D Conc	5.0	4.9	10/2/2011
October 2011	Dissolved Oxygen	1D Conc	5.0	4.7	10/14/2011
October 2011	Dissolved Oxygen	1D Conc	5.0	4.6	10/19/2011
October 2011	Dissolved Oxygen	1D Conc	5.0	4.5	10/20/2011
November 2011	Mercury, Total (Low Level)	30D Conc	1.3	1.5	11/1/2011
November 2011	Dissolved Oxygen	1D Conc	5.0	3.8	11/15/2011
November 2011	Dissolved Oxygen	1D Conc	5.0	3.	11/18/2011
November 2011	Dissolved Oxygen	1D Conc	5.0	1.5	11/22/2011
November 2011	Dissolved Oxygen	1D Conc	5.0	4.	11/23/2011
November 2011	Dissolved Oxygen	1D Conc	5.0	4.	11/27/2011
November 2011	Dissolved Oxygen	1D Conc	5.0	2.3	11/28/2011
December 2011	Dissolved Oxygen	1D Conc	5.0	4.1	12/2/2011
December 2011	Dissolved Oxygen	1D Conc	5.0	4.6	12/5/2011
December 2011	Dissolved Oxygen	1D Conc	5.0	4.5	12/11/2011
December 2011	Dissolved Oxygen	1D Conc	5.0	4.7	12/20/2011
December 2011	Dissolved Oxygen	1D Conc	5.0	4.7	12/28/2011
December 2011	Dissolved Oxygen	1D Conc	5.0	4.4	12/31/2011
January 2012	Dissolved Oxygen	1D Conc	5.0	4.3	1/12/2012
January 2012	Dissolved Oxygen	1D Conc	5.0	4.4	1/17/2012
January 2012	Dissolved Oxygen	1D Conc	5.0	4.3	1/21/2012
January 2012	Dissolved Oxygen	1D Conc	5.0	3.7	1/23/2012
January 2012	Dissolved Oxygen	1D Conc	5.0	3.8	1/26/2012
January 2012	Dissolved Oxygen	1D Conc	5.0	3.7	1/27/2012
February 2012	Dissolved Oxygen	1D Conc	5.0	4.5	2/3/2012

Reporting Period	Parameter	Limit Type	Limit	Reported Value	Violation Date
February 2012	Dissolved Oxygen	1D Conc	5.0	4.1	2/4/2012
February 2012	Dissolved Oxygen	1D Conc	5.0	4.5	2/5/2012
March 2012	Mercury, Total (Low Level)	30D Conc	1.3	1.52	3/1/2012
March 2012	Mercury, Total (Low Level)	30D Qty	0.0000	.00008	3/1/2012
March 2012	Dissolved Oxygen	1D Conc	5.0	4.5	3/19/2012
April 2012	Dissolved Oxygen	1D Conc	5.0	4.1	4/16/2012
April 2012	Dissolved Oxygen	1D Conc	5.0	4.9	4/26/2012
May 2012	Mercury, Total (Low Level)	30D Conc	1.3	1.42	5/1/2012
August 2012	Dissolved Oxygen	1D Conc	5.0	4.9	8/26/2012
September 2012	Mercury, Total (Low Level)	30D Conc	1.3	2.61	9/1/2012
September 2012	Mercury, Total (Low Level)	30D Qty	0.0000	.00009	9/1/2012
September 2012	Dissolved Oxygen	1D Conc	5.0	3.7	9/2/2012
September 2012	Dissolved Oxygen	1D Conc	5.0	4.8	9/3/2012
September 2012	Dissolved Oxygen	1D Conc	5.0	3.4	9/8/2012
September 2012	Dissolved Oxygen	1D Conc	5.0	4.	9/18/2012
September 2012	Dissolved Oxygen	1D Conc	5.0	3.6	9/22/2012
October 2012	Mercury, Total (Low Level)	30D Conc	1.3	2.06	10/1/2012
October 2012	Mercury, Total (Low Level)	30D Qty	0.0000	.00008	10/1/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	4.7	10/7/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	3.8	10/13/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	4.7	10/14/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	4.1	10/23/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	3.8	10/26/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	4.1	10/27/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	3.9	10/28/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	4.6	10/29/2012
October 2012	Dissolved Oxygen	1D Conc	5.0	4.6	10/31/2012
November 2012	Dissolved Oxygen	1D Conc	5.0	3.8	11/1/2012
November 2012	Mercury, Total (Low Level)	30D Conc	1.3	2.74	11/1/2012
November 2012	Mercury, Total (Low Level)	30D Qty	0.0000	.00011	11/1/2012
November 2012	Dissolved Oxygen	1D Conc	5.0	4.2	11/2/2012
December 2012	Dissolved Oxygen	1D Conc	5.0	4.2	12/10/2012
December 2012	Dissolved Oxygen	1D Conc	5.0	4.7	12/18/2012
December 2012	Dissolved Oxygen	1D Conc	5.0	4.4	12/20/2012
December 2012	Dissolved Oxygen	1D Conc	5.0	4.5	12/21/2012
January 2013	Dissolved Oxygen	1D Conc	5.0	4.8	1/9/2013
January 2013	Dissolved Oxygen	1D Conc	5.0	4.1	1/11/2013
January 2013	Dissolved Oxygen	1D Conc	5.0	4.4	1/12/2013
January 2013	Dissolved Oxygen	1D Conc	5.0	3.4	1/13/2013
January 2013	Dissolved Oxygen	1D Conc	5.0	3.7	1/14/2013

**NOTE: Modified NPDES Permit (3PE00005\*KD) went effective February 1, 2013, changing Hg limit ( 30 day average) to 4.1 ng/l, and changing D.O. limit to monitor only.**

Review of the eDMR data for the same time period also flagged the following potential reporting code inconsistencies/violations:

**LORAIN BRP WWTP  
REPORTING CODE VIOLATIONS  
NPDES PERMIT NO. 3PE0005  
(FEB. 1, 2011 THROUGH MAY 1, 2013)**

Reporting Period	Station	Reporting Code	Parameter	Reported Value	Violation Date
February 2011	001	00300	Dissolved Oxygen	AF	2/13/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/14/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/15/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/16/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/17/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/18/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/20/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/21/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/27/2011
February 2011	001	00300	Dissolved Oxygen	AF	2/28/2011
July 2011	001	61941	pH, Maximum	AD	7/29/2011
July 2011	001	61942	pH, Minimum	AD	7/29/2011
July 2011	001	61941	pH, Maximum	AD	7/30/2011
July 2011	001	61942	pH, Minimum	AD	7/30/2011
July 2011	001	61941	pH, Maximum	AD	7/31/2011
July 2011	001	61942	pH, Minimum	AD	7/31/2011
March 2012	601	00010	Water Temperature	AB	3/13/2012
October 2012	001	61941	pH, Maximum	AD	10/28/2012
October 2012	001	61942	pH, Minimum	AD	10/28/2012
October 2012	001	61941	pH, Maximum	AD	10/31/2012
October 2012	001	61942	pH, Minimum	AD	10/31/2012
November 2012	001	61941	pH, Maximum	AD	11/1/2012
November 2012	001	61942	pH, Minimum	AD	11/1/2012
January 2013	801	00010	Water Temperature	AF	1/23/2013
January 2013	801	00610	Nitrogen, Ammonia (NH3-N)	AF	1/23/2013
January 2013	801	00665	Phosphorus, Total (P)	AF	1/23/2013
January 2013	801	00400	pH	AF	1/23/2013
January 2013	801	00630	Nitrite Plus Nitrate,	AF	1/23/2013
January 2013	801	00300	Dissolved Oxygen	AF	1/23/2013
February 2013	801	00010	Water Temperature	AF	2/14/2013
February 2013	801	00610	Nitrogen, Ammonia (NH3-N)	AF	2/14/2013
February 2013	801	00665	Phosphorus, Total (P)	AF	2/14/2013
February 2013	801	00400	pH	AF	2/14/2013
February 2013	801	00630	Nitrite Plus Nitrate,	AF	2/14/2013
February 2013	801	00300	Dissolved Oxygen	AF	2/14/2013

**NOTE: AF=SAMPLE SITE INACCESSIBLE DUE TO FLOODING OR FREEZING.  
AD=AUTOMATIC ANALYZER OUT OF SERVICE.  
AB=ANALYTICAL DATA LOST.**

Various items discussed with Messrs. Gall, Berki, and Dore included the following:

- 1) Since the last inspection, the City submitted an NPDES permit modification request to the Ohio EPA, requesting a mercury variance from the 1.3 ng/l (30 day average) effluent limit for mercury, and requesting the elimination of the 5.0 mg/l (minimum) Dissolved Oxygen (DO) limit. It has been noted that the Lorain BRP WWTP has never had a DO limit in all previous NPDES permits issued for the facility.
- 2) On February 1, 2013, the modified NPDES permit issued to the Lorain BRP WWTP went effective, incorporating a mercury variance (4.1 ng/l for 30 day average), and changing DO to monitoring requirements only. There have been no effluent violations since the permit modification went effective.
- 3) The use of an NPDES permit-required operator's log book has been implemented at the BRP WWTP. The hardbound operator's logbook was examined, and was found to be deficient in certain information. Particularly important is the fact that the logbook needs to indicate in writing on each day, the name or initials of the operator in charge (ORC), and the start and stop time the ORC is at the WWTP. Other information, as per Ohio Administrative Code 3745-7-09 (A), should also be contained within the logbook.
- 4) DMRQA-32 unknown sample results were analyzed by the BRP wastewater lab in July 2012. Analytical results for heavy metals and Total Kjeldahl Nitrogen (TKN) were unacceptable, and needed to be analyzed again. The TKN analysis was run again, and the results determined to be within the acceptable range. Heavy metals were sent to an outside lab for analysis.
- 5) A lab audit was conducted by an Ohio EPA Columbus Office representative, and it was determined that the atomic absorption (AA) equipment was faulty. Rather than replace the expensive analytical equipment, it was the City's choice to abandon the AA, and send heavy metals samples out to a contracted lab for analysis. The heavy metals samples are currently sent out to Precision Analytical labs for analysis.
- 6) Since the last inspection, disinfection at the Lorain BRP WWTP was switched from chlorine gas to liquid sodium hypochlorite. A Permit To Install was issued for the project.
- 7) The BRP WWTP receives approximately 27,000 gallons per week from the PQM WWTP for processing.
- 8) A new tanker truck was purchased by the City, to haul liquid sludge from the Lorain PQM WWTP, for treatment at the Lorain BRP WWTP.
- 9) A new rake was installed in the detritus tank in 2012.
- 10) Approximately twice per week, grit and screenings are hauled away in a 2 c.y. dumpster to the Republic Landfill in Lorain County.
- 11) New air diffusers were installed in the No. 1 aeration tank in 2012.

- 12) A new ferrous chloride chemical feed pump was installed since the last inspection.
- 13) A new effluent sample pump and sample station were installed in the chlorine room. A new pH and DO meter were also installed at the effluent sample location.
- 14) The NPDES new permit reporting Station 602 (internal bypass of secondary treatment) was used approximately twice in the last year (January 17, 2012, and October 29-30, 2012).
- 15) The BRP WWTP does not accept hauled waste for treatment.
- 16) The BRP WWTP currently employs 21 full time employees, 24/7.
- 17) Annual SSO Reports for 2011 and 2012 were submitted by Mr. Gall on January 10, 2012, and January 28, 2013.
- 18) Annual Mercury Pollutant Minimization Plan (PMP) update reports were submitted to Ohio EPA on February 25, 2011, and February 27, 2013.
- 19) The NPDES permit-required effluent outfall sign posting, which was required to have been erected by December 1, 2010 and was not posted as of the last CEI, has been posted.
- 20) The Lorain BRP WWTP final effluent limits for fecal coliform were eliminated, and replaced with new E.coli limits.
- 21) An Ohio EPA pretreatment program reconnaissance inspection check list was presented, and items concerning the City of Lorain Pretreatment Program were discussed with the City of Lorain representatives present.

The Lorain BRP WWTP should continue with all efforts that will enable the WWTP to consistently meet its NPDES Permit limits.

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

Respectfully,



Charles E. Allen  
Environmental Engineer  
Division of Surface Water

CEA/cs