Mercury Minimization Plan
City of Otsego

Updated January 2018
Otsego East WWTF MN0064190
Otsego West WWTF MN0066257

The City of Otsego has implemented a Mercury Minimization Program. The program is intended to identify sources contributing to the mercury levels being discharged at the City's wastewater facilities and find reasonable, cost-effective activities that will reduce mercury reaching the environment. The program is regularly evaluated and will continue to evolve to lower mercury levels and require designation of resources and staffing to support the plan.

Mercury concentrations are contributed from many sources including homes, businesses, schools, and industries. Common sources of mercury include fluorescent lights, mercury thermometers, and dial-style thermostatic switches. Dental offices are required to have mercury separators as part of their plumbing system to capture mercury from fillings. Schools may have chemistry and biology labs that may contain mercury thermometers or barometers. Medical offices may have stations that use the mercury containing thermometers and blood pressure cuffs.

The municipal wastewater treatment facilities (WWTFs) routinely monitor for low level Mercury. The City's East WWTF permit requires twice per month effluent monitoring for Total and Dissolved Mercury in January, March, May, July, August, October and December along with influent Total Mercury monitoring

during the same time frame. Effluent monitored requirements include a 17 nanograms per liter limit. The City's West WWTF permit includes an effluent mercury monitoring requirement annually. Biosolids produced at the respective facilities are also monitored prior to land application. Mercury data found from this sampling is summarized in (Table 1, Table 2 and Table 3 to the nearest tenth). Operational procedures of the facilities that maximize mercury removal are generally related to solids removal.

TABLE 1: East WWTF Mercury Analysis

East WWTF Effluent Total Mercury Results (ng/L) – Previous Permit												
Date	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
JAN			1.4	1.4	1.2	1.4	0.8	<1	1.0	0.9	0.7	<0.5
FEB			1.4	3.9	2.5	1.3	1.2	0.9	1.3	0.9	0.8	<0.5
MAR		0.3	1.9	1.0	1.1	1.3	1.3	1.2	0.6	0.9	1.4	<0.5
APR			1.3	1.1	0.7	<0.5	0.6	0.6	0.8	1.0	0.9	<0.5
MAY			0.9	1.6	2.1	0.7	0.9	0.9	1.0	1.2	0.9	1.3
JUN		<2	1.9	1.0	0.6	<1	0.6	<0.5	0.9	<0.5	0.9	0.7
JUL			0.5	0.8	1.9	0.9	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
AUG			<0.5	0.6	NT	<0.5	0.6	<0.5	1.0	<0.5	0.6	na
SEP	0.3	0.3	<0.5	<0.5	1.1	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	na
OCT			0.6	0.8	1.2	0.9	0.8	<0.5	<0.5	<0.5	0.9	na
NOV			<0.5	2.5	0.6	0.8	1.3	0.6	0.5	<0.5	<0.5	na
DEC	2.1	<0.5	1.3	1.2	1.1	0.6	0.8	1.0	<0.5	<0.5	0.7	na

East WWTF Mercury Results (ng/L) – Previous Permit			
Date	Influent - Total	Effluent - Dissolved	TSS (mg/L)
June 2009	29	0.8	3.6
September 2009	19	<0.5	1.6
December 2009	17	<0.5	5.2
March 2010	43.6	0.9	2.5
June 2010	10.7	0.6	1.6
September 2010	24.7	<0.5	1.2
December 2010	94	<0.5	<1
March 2011	42.2	<0.5	2.4
June 2011	19.9	<0.5	2.4
September 2011	51	<0.5	<1
December 2011	38.9	<0.5	3.6
March 2012	33.3	<0.5	1.2
June 2012	56.4	<0.5	<1
September 2012	224	<0.5	2.4
December 2012	65.8	0.6	2.8
March 2013	24	<0.5	1.6
June 2013	127	<0.5	3.2
September 2013	30.9	<0.5	<1
December 2013	16.9	<0.5	<1
March 2014	18.6	<0.5	3.6
June 2014	14.9	0.7	4.8
September 2014	20.1	<0.5	<1
December 2014	16.6	<0.5	3.2
March 2015	27.3	1.7	3.2
June 2015	31.3	<0.5	9
September 2015	17.6	<0.5	<1
December 2015	30.3	<0.5	2
March 2016	22.5	<0.5	2
June 2016	77	<0.5	2

2016 East WWTF Mercury Results (ng/L)				
Date	Influent-Total	Effluent-Total	Effluent-Dissolved	TSS (mg/L)
August 10	9.86	<0.5	<0.5	2
August 16	21.5	<0.5	0.5	2
October 4	11.3	<0.5	<0.5	2
October 18	10.9	<0.5	<0.5	2
December 13	157	0.5	<0.5	4
December 21	58.7	0.5	<0.5	<1

2017 East WWTF Mercury Results (ng/L)				
Date	Influent-Total (10X)	Effluent-Total	Effluent-Dissolved	TSS (mg/L)
January 4	315	<0.500	<0.500	1
January 19	88	0.814	<0.500	1
March 15	71.1	0.596	<0.500	1
March 22	35.0	1.00	0.581	3
May 10	77.1	0.775	0.649	2
May 25	40.6	1.04	0.626	3
July 19	31.1	0.515	<0.500	2
July 26	25.3	<0.500	<0.500	1
August 2	40.4	<0.500	<0.500	1
August 9	22.5	<0.500	<0.500	1
October 4	29.6	2.54	<0.500	9
October 19	23.8	<0.500	<0.500	1
December 7	16.2	<0.500	<0.500	2
December 12	12.1	<0.500	<0.500	2

2018 East WWTF Mercury Results (ng/L)				
Date	Influent-Total (10X)	Effluent-Total	Effluent-Dissolved	TSS (mg/L)
January	19.5	0.528	<0.500	2
January	24.7	<0.500	<0.500	2
March				
March				
May				
May				
July				
July				
August				
August				
October				
October				
December				
December				

TABLE 2: West WWTF Mercury Analysis

West WWTF Mercury Results (ng/L) – Previous Permit				
Date	Influent-Total	Effluent- Total	Effluent-Dissolved	TSS (mg/L)
January 2009	43.8	1.3	1.3	3.2
July 2009	24.5	2.7	1.2	5.5
January 2010	2.4	6.0	0.8	6.8
July 2010	43.2	1.2	0.8	5.2
January 2011	18.4	1.1	0.5	2.8
July 2011	28.4	1.2	0.9	5
January 2012	20.4	1.4	0.5	6.5
July 2012	25.2	<0.5	0.6	6
January 2013	18	1.0	0.6	5.6

West WWTF Mercury Results – Current Permit (ng/L)			
Date	Effluent – Total	Effluent – Dissolved	TSS (mg/L)
2013	<0.5	<0.5	2
2014	0.8	<0.5	4
2015	na	na	na
2016	0.5	<0.5	4
2017	<0.5	<0.5	4

TABLE 3: Biosolids East and West Analysis

WWTF Biosolids Mercury Results (mg/kg)		
Date	East	West
2010	<0.6	3.9
2011	<0.8	<0.6
2012	<0.7	<0.5
2013	0.4	0.2
2014	<0.8	<0.7
2015	<0.9	NT
2016	<0.5	<0.5
2017	<0.6	<0.7

Preventing mercury from entering the environment is the heart of the Mercury Minimization Program. Minimizing source impacts and proper recycling of devices containing mercury will reduce environmental impacts. These opportunities include regulation through local, state and federal mandates, education through newsletters, web sites, community events and institutional functions.

Staffing is designated for sampling, analytical review, community education, recycling support, revisions to sewer use ordinances and development of the mercury minimization program. Activities implemented for mercury reduction has included community educational efforts, proper disposal and recycling techniques implemented at the municipal treatment facilities, removal-discontinuation and recycling of mercury manometers and mercury containing thermostats at the WWTF's, thermometer exchanges, and letters of recommendation for use of non-mercury containing thermometers at institutional sites.

Varieties of mercury containing devices including fluorescent light bulbs, manometers, thermometers and thermostatic switches can be properly recycled at the

Wright County Recycling Center 763-682-7338 (County Office).

Metro Appliance Recycling Otsego 763-241-8787

Fluorescent bulbs tube or compact can be recycled at the following.

Metro Appliance Recycling Otsego 763-241-8787

B & E Recycling Station Inc	Elk River	763-441-7211
DJ's Total Home Care Center	Albertville	763-497-4211

Menards and Home Depot will take compact fluorescent bulbs only.

Mercury management and reduction measures will continue to be carried out. Future goals include expansion of existing educational efforts, public awareness and further reduction and recycling opportunities.

Active Measures

- Mercury sampling is conducted at the municipal treatment facilities including influent, effluent and the biosolids produce. This sampling, the lab analysis at its entirety is accumulated and monitored for irregularities.
- The City of Otsego has amended the water/wastewater use ordinance to include specific language regarding Mercury.
- Community Education activities have included a booth at the Otsego Festival. Supporting items for demonstration purposes included the DNR fish advisory information, examples of mercury containing devices, and local recycling opportunities. This Plan is established on the City web site @ ci.otsego.mn.us for reference. Additional educational efforts have been included in the City newsletter and utility billing.
- A letter of recommendation has been mailed to institutional facilities for the use of non mercury containing devices and further educational opportunities.
- The municipal wastewater treatment facilities have exchanged mercury containing thermometers to the non hazardous type. Several mercury containing thermostats and manometers have also been permanently removed and recycled.