Onondaga County Department of
WATER ENVIRONMENT PROTECTION

Joanne M. Mahoney, County Executive
Tom Rhoads, P.E., Commissioner
650 Hiawatha Blvd. West
Syracuse, NY 13204-1194
(315) 435-2260 or (315) 435-6820
FAX (315) 435-5023
http://www.ongov.net/wep/

March 12, 2018

Reginald Parker, P.E.
Regional Engineer
NYSDEC Region 7
615 Erie Blvd. West
Syracuse, NY 13204-2400

Re: SPDES Permit No. NY 002 7081
Metropolitan Syracuse WWTP
Mercury Minimization Program Annual Report

Dear Mr. Parker:

In accordance with the Mercury Minimization Program (MMP) Requirements, Section X.A, of SPDES Permit No. NY 002 7081 for the Metropolitan Syracuse WWTP, please find enclosed the Annual Status Report for the calendar year 2017.

If you have any questions, please contact Tim O'Dell of this office.

Sincerely,

ONONDAGA COUNTY DEPARTMENT OF
WATER ENVIRONMENT PROTECTION

Tom Rhoads, P.E.
Commissioner

RB/ts

Attach.

cc: Koon Tang, Chief
NYSDEC Bureau of Water Permits
625 Broadway
Albany, New York 12233-0001

File: Metro MMP

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Save the Rain
www.savetherain.us

Metropolitan Syracuse WWTP
SPDES Permit # NY 002 7081

Mercury Minimization Program
Annual Status Report for Calendar Year 2017

Summary
In accordance with the requirements of Section X.A of SPDES Permit # NY 002 7081 for the Metropolitan Syracuse (Metro) Wastewater Treatment Plant (WWTP), the Onondaga County Department of Water Environment Protection (OCDWEP) has developed and implemented a Mercury Minimization Plan (MMP).

The following is the MMP status report for calendar year 2017.

A. In accordance with Section X - Schedule of Compliance - of the Metro SPDES permit, the Department has developed a Mercury Minimization Plan (MMP). The goal of the MMP will be to reduce Mercury effluent levels in pursuit of the calculated WQBEL of 0.7 ng/l Mercury.

B. Monitoring Results for the Previous Year

1. Metro Effluent
   - In accordance with the Metro SPDES Permit, Mercury samples were collected and analyzed from outfall 001 at the Metro WWTP monthly during calendar year 2017.
   - The average annual effluent Mercury concentration for 2017 was 0.000001059 mg/l (1.06 ng/l).
   - Mercury samples were collected following EPA Method 1669 protocols, and were analyzed using EPA Method 1631.
2. Metro Influent
   - Mercury samples were collected and analyzed weekly from the Metro Influent, utilizing USEPA Method 245.
   - The average annual influent Mercury concentration for 2017 was 0.000142 mg/l.
3. Major influent Streams
   - Mercury samples were collected and analyzed once per quarter from the major contributing treatment plant inputs: Main Interceptor, Liverpool, Ley Creek, Harbor Brook, and Westside. The average annual results were as follows:

Main Interceptor	0.000 044 mg/l
Liverpool	0.000 024 mg/l
Ley Creek	0.000 226 mg/l
Harbor Brook	0.000 752 mg/l
Westside	0.000 036 mg/l

4. A summary of laboratory results is attached in Appendix A.

C. List All Known and Potential Mercury Sources

1. A survey was conducted in order to identify potential sources of Mercury to the sewer system.
2. Dental Offices: As a result of the survey, there are approximately 80 dental offices that have the potential to discharge Mercury to the sewer system.
3. Auto Salvage Yards: Salvage yards have been determined not to be significant sources of Hg to the sewer system.
4. There are approximately 130 medical facilities, including hospitals, nursing homes, clinics, and approximately 15 veterinary facilities operating in the Metro service area.
5. There are approximately seven school districts, 86 schools, and four colleges in the Metro service area. Schools have been determined not to be significant sources of Hg to the sewer system.
6. Industries/Laboratories: Currently there are 58 permitted industries, 30 permitted waste haulers, and approximately five independent laboratories (those not co-located in another medical facility) within the Metro service area. These are not known or suspected users with controllable sources of Mercury.
7. General Public.

D. All Actions Undertaken Pursuant to the MMP

1. Sampling
   - Refer to Section B, above, and Appendix A for results of all Mercury sampling done during 2017.
   - Appendix B contains graphs to compare the previous five years results of effluent and influent sampling.
2. Dentists
   - We have received updated NYSDEC "Notice of Dental Amalgam Separator Installation" forms from 80 dental offices in the Metro service area.
   - During 2017, 63 dental facilities were inspected and all of these have come into compliance with the regulations. Follow-up will be performed to ensure the filters were replaced and recycled properly.
3. Industries
   - All permitted industrial users were inspected during 2017.
4. Local Limits
   - A full-scale local limits analysis was conducted during 2010.
   - As a result of the Local Limits Analysis, the Department reduced the Daily Allowable Effluent Concentration of Mercury to 0.004 mg/l and the Instantaneous Allowable Effluent Concentration of Mercury to 0.006 mg/l effective August 21, 2012.
5. Partnerships
   - OCDWEP has a long term partnership with the Onondaga County Resource Recovery Agency (OCRRA). Through this partnership, approximately 2,000 non-Mercury thermometers have been given to residents in exchange for a Mercury containing thermometer. Although OCDWEP no longer supplies OCRRA with the thermometers for this program, it is being continued through a partnership with Covanta and a underwritten by a grant from the NYSDEC.

E. MMP Actions Planned for 2018

1. Continue sampling in accordance with the Metro SPDES Permit requirements.
2. Inspect the dental offices to ensure installation and proper maintenance of amalgam separators, and amalgam waste containers. Required Hg recycling records will also be inspected.
3. Develop and mail questionnaires to potential medical facilities in the sewer district. Conduct inspections as needed.

F. Progress Toward the Goal

The 2017 sampling results show that the Metro WWTP effluent has achieved compliance with the 50 ng/l TBEL but not the target Water Quality Based Effluent Limitation (WQBEL) of 0.7 ng/l. As shown in the table below, and in the attachments, the average influent concentration increased, due to one very high result. The yearly average would have been consistent with 2016 without this outlier. The average effluent concentration continued to decrease, through October. However, construction began on the Metro Optimization Project, which required the bypass of the tertiary treatment system. The Mercury concentration for the last two months of the year averaged 3 ng/l, a four (4) fold increase. OCDWEP will continue to monitor and identify potential source reduction opportunities for Mercury in the sewer system in pursuit of achieving the WQBEL target.

YEAR	Influent Hg Average	Effluent Hg Average
2012	0.000 150 mg/l	0.000 001 010 mg/l
2013	0.000 054 mg/l	0.000 001 111 mg/l
2014	0.000 039 mg/l	0.000 000 929 mg/l
2015	0.000 059 mg/l	0.000 000 867 mg/l
2016	0.000 044 mg/l	0.000 000 706 mg/l
2017	0.000 142 mg/l	0.000 001 059 mg/l

Appendix A

METRO EFFLUENT MERCURY 2017
USEPA Method 1631

DATE	SOURCE	SAMPLE_NO	TYPE	PARAMETER	RESULT	UNITS
1/4/2017	Metro Final Effluent	2017000090	Grab	Hg	0.000 000 550	mg/l
1/4/2017	Metro Final Effluent	2017000090	Grab	Hg	0.000 000 680	mg/l
1/4/2017	Metro Final Effluent	2017000090	Grab	Hg	0.000 000 540	mg/l
				Average	**0.000 000 590**	mg/l
2/1/2017	Metro Final Effluent	2017001655	Grab	Hg	0.000 001 020	mg/l
2/1/2017	Metro Final Effluent	2017001655	Grab	Hg	0.000 000 670	mg/l
2/1/2017	Metro Final Effluent	2017001655	Grab	Hg	0.000 000 870	mg/l
				Average	**0.000 000 853**	mg/l
3/1/2017	Metro Final Effluent	2017003047	Grab	Hg	0.000 000 720	mg/l
3/1/2017	Metro Final Effluent	2017003047	Grab	Hg	0.000 000 530	mg/l
3/1/2017	Metro Final Effluent	2017003047	Grab	Hg	0.000 000 730	mg/l
				Average	**0.000 000 660**	mg/l
4/5/2017	Metro Final Effluent	2017004699	Grab	Hg	0.000 000 560	mg/l
4/5/2017	Metro Final Effluent	2017004699	Grab	Hg	0.000 000 670	mg/l
4/5/2017	Metro Final Effluent	2017004699	Grab	Hg	0.000 000 640	mg/l
				Average	**0.000 000 623**	mg/l
5/3/2017	Metro Final Effluent	2017006276	Grab	Hg	0.000 001 370	mg/l
5/3/2017	Metro Final Effluent	2017006276	Grab	Hg	0.000 000 510	mg/l
5/3/2017	Metro Final Effluent	2017006276	Grab	Hg	0.000 000 540	mg/l
				Average	**0.000 000 807**	mg/l
6/7/2017	Metro Final Effluent	2017008246	Grab	Hg	0.000 000 710	mg/l
6/7/2017	Metro Final Effluent	2017008246	Grab	Hg	0.000 000 780	mg/l
6/7/2017	Metro Final Effluent	2017008246	Grab	Hg	0.000 000 630	mg/l
				Average	**0.000 000 707**	mg/l
7/5/2017	Metro Final Effluent	2017009714	Grab	Hg	0.000 000 700	mg/l
7/5/2017	Metro Final Effluent	2017009714	Grab	Hg	0.000 000 720	mg/l
7/5/2017	Metro Final Effluent	2017009714	Grab	Hg	0.000 000 680	mg/l
				Average	**0.000 000 700**	mg/l
8/2/2017	Metro Final Effluent	2017011494	Grab	Hg	0.000 000 720	mg/l
8/2/2017	Metro Final Effluent	2017011494	Grab	Hg	0.000 000 720	mg/l
8/2/2017	Metro Final Effluent	2017011494	Grab	Hg	0.000 000 740	mg/l
				Average	**0.000 000 727**	mg/l
9/6/2017	Metro Final Effluent	2017013252	Grab	Hg	0.000 000 690	mg/l
9/6/2017	Metro Final Effluent	2017013252	Grab	Hg	0.000 000 520	mg/l
9/6/2017	Metro Final Effluent	2017013252	Grab	Hg	0.000 000 540	mg/l
				Average	**0.000 000 583**	mg/l
10/4/2017	Metro Final Effluent	2017014778	Grab	Hg	0.000 000 590	mg/l
10/4/2017	Metro Final Effluent	2017014778	Grab	Hg	0.000 000 500	mg/l
10/4/2017	Metro Final Effluent	2017014778	Grab	Hg	0.000 000 550	mg/l
				Average	**0.000 000 547**	mg/l
11/1/2017	Metro BAF (Eff Sub)	2017016392	Grab	Hg	0.000 002 180	mg/l
11/1/2017	Metro BAF (Eff Sub)	2017016392	Grab	Hg	0.000 002 900	mg/l
11/1/2017	Metro BAF (Eff Sub)	2017016392	Grab	Hg	0.000 006 010	mg/l
				Average	**0.000 003 697**	mg/l
12/6/2017	Metro BAF (Eff Sub)	2017017639	Grab	Hg	0.000 002 230	mg/l
12/6/2017	Metro BAF (Eff Sub)	2017017639	Grab	Hg	0.000 002 140	mg/l
12/6/2017	Metro BAF (Eff Sub)	2017017639	Grab	Hg	0.000 002 270	mg/l
				Average	**0.000 002 213**	mg/l
				Yearly Average	**0.000 001 059**	**mg/l**

METRO EFFLUENT MERCURY 2017
USEPA Method 1631

DATE	SOURCE	SAMPLE_NO	TYPE	PARAMETER	RESULT	UNITS
1/4/2017	Metro Final Effluent	2017000090	Grab	Hg	0.00000055	mg/l
1/4/2017	Metro Final Effluent	2017000090	Grab	Hg	0.00000068	mg/l
1/4/2017	Metro Final Effluent	2017000090	Grab	Hg	0.00000054	mg/l
2/1/2017	Metro Final Effluent	2017001655	Grab	Hg	0.00000102	mg/l
2/1/2017	Metro Final Effluent	2017001655	Grab	Hg	0.00000067	mg/l
2/1/2017	Metro Final Effluent	2017001655	Grab	Hg	0.00000087	mg/l
3/1/2017	Metro Final Effluent	2017003047	Grab	Hg	0.00000072	mg/l
3/1/2017	Metro Final Effluent	2017003047	Grab	Hg	0.00000053	mg/l
3/1/2017	Metro Final Effluent	2017003047	Grab	Hg	0.00000073	mg/l
4/5/2017	Metro Final Effluent	2017004699	Grab	Hg	0.00000056	mg/l
4/5/2017	Metro Final Effluent	2017004699	Grab	Hg	0.00000067	mg/l
4/5/2017	Metro Final Effluent	2017004699	Grab	Hg	0.00000064	mg/l
5/3/2017	Metro Final Effluent	2017006276	Grab	Hg	0.00000137	mg/l
5/3/2017	Metro Final Effluent	2017006276	Grab	Hg	0.00000051	mg/l
5/3/2017	Metro Final Effluent	2017006276	Grab	Hg	0.00000054	mg/l
6/7/2017	Metro Final Effluent	2017008246	Grab	Hg	0.00000071	mg/l
6/7/2017	Metro Final Effluent	2017008246	Grab	Hg	0.00000078	mg/l
6/7/2017	Metro Final Effluent	2017008246	Grab	Hg	0.00000063	mg/l
7/5/2017	Metro Final Effluent	2017009714	Grab	Hg	0.0000007	mg/l
7/5/2017	Metro Final Effluent	2017009714	Grab	Hg	0.00000072	mg/l
7/5/2017	Metro Final Effluent	2017009714	Grab	Hg	0.00000068	mg/l
8/2/2017	Metro Final Effluent	2017011494	Grab	Hg	0.00000072	mg/l
8/2/2017	Metro Final Effluent	2017011494	Grab	Hg	0.00000072	mg/l
8/2/2017	Metro Final Effluent	2017011494	Grab	Hg	0.00000074	mg/l
9/6/2017	Metro Final Effluent	2017013252	Grab	Hg	0.00000069	mg/l
9/6/2017	Metro Final Effluent	2017013252	Grab	Hg	0.00000052	mg/l
9/6/2017	Metro Final Effluent	2017013252	Grab	Hg	0.00000054	mg/l
10/4/2017	Metro Final Effluent	2017014778	Grab	Hg	0.00000059	mg/l
10/4/2017	Metro Final Effluent	2017014778	Grab	Hg	0.0000005	mg/l
10/4/2017	Metro Final Effluent	2017014778	Grab	Hg	0.00000055	mg/l
		January thru October		**Average**	**0.000 000 680**	**mg/l**
11/1/2017	Metro BAF (Eff Sub)	2017016392	Grab	Hg	0.00000218	mg/l
11/1/2017	Metro BAF (Eff Sub)	2017016392	Grab	Hg	0.0000029	mg/l
11/1/2017	Metro BAF (Eff Sub)	2017016392	Grab	Hg	0.00000601	mg/l
12/6/2017	Metro BAF (Eff Sub)	2017017639	Grab	Hg	0.00000223	mg/l
12/6/2017	Metro BAF (Eff Sub)	2017017639	Grab	Hg	0.00000214	mg/l
12/6/2017	Metro BAF (Eff Sub)	2017017639	Grab	Hg	0.00000227	mg/l
		October thru December		**Average**	**0.000 002 955**	**mg/l**

This chart illustrates the change due to the Metro Optimization Project.

METRO INFLUENT MERCURY 2017
USEPA Method 245

DATE	SOURCE	IC CODE	SAMPLE_NO	TYPE	PARAM	RESULT	UNITS
1/2/2017	Metro Inf.	604	2017000024	Composite	Hg	0.000 025	mg/l
1/9/2017	Metro Inf.	604	2017000461	Composite	Hg	0.000 020	mg/l
1/16/2017	Metro Inf.	604	2017000745	Composite	Hg	0.000 020	mg/l
1/23/2017	Metro Inf.	604	2017001057	Composite	Hg	0.000 027	mg/l
1/30/2017	Metro Inf.	604	2017001530	Composite	Hg	0.000 033	mg/l
2/6/2017	Metro Inf.	604	2017001996	Composite	Hg	0.000 032	mg/l
2/13/2017	Metro Inf.	604	2017002352	Composite	Hg	0.000 024	mg/l
2/20/2017	Metro Inf.	604	2017002648	Composite	Hg	0.000 024	mg/l
2/27/2017	Metro Inf.	604	2017002941	Composite	Hg	0.000 023	mg/l
3/6/2017	Metro Inf.	604	2017003241	Composite	Hg	0.000 020	mg/l
3/13/2017	Metro Inf.	604	2017003539	Composite	Hg	0.000 020	mg/l
3/20/2017	Metro Inf.	604	2017003781	Composite	Hg	0.000 020	mg/l
3/27/2017	Metro Inf.	604	2017004083	Composite	Hg	0.000 040	mg/l
4/3/2017	Metro Inf.	604	2017004567	Composite	Hg	0.000 020	mg/l
4/10/2017	Metro Inf.	604	2017004972	Composite	Hg	0.000 023	mg/l
4/17/2017	Metro Inf.	604	2017005401	Composite	Hg	0.000 028	mg/l
4/24/2017	Metro Inf.	604	2017005815	Composite	Hg	0.000 020	mg/l
5/1/2017	Metro Inf.	604	2017006159	Composite	Hg	0.000 020	mg/l
5/8/2017	Metro Inf.	604	2017006545	Composite	Hg	0.000 025	mg/l
5/15/2017	Metro Inf.	604	2017007012	Composite	Hg	0.000 023	mg/l
5/22/2017	Metro Inf.	604	2017007422	Composite	Hg	0.000 020	mg/l
5/29/2017	Metro Inf.	604	2017007709	Composite	Hg	0.000 025	mg/l
6/5/2017	Metro Inf.	604	2017008122	Composite	Hg	0.000 077	mg/l
6/12/2017	Metro Inf.	604	2017008480	Composite	Hg	0.000 020	mg/l
6/19/2017	Metro Inf.	604	2017008845	Composite	Hg	0.000 058	mg/l
6/26/2017	Metro Inf.	604	2017009263	Composite	Hg	0.000 028	mg/l
7/4/2017	Metro Inf.	604	2017009669	Composite	Hg	0.000 024	mg/l
7/10/2017	Metro Inf.	604	2017010145	Composite	Hg	0.000 057	mg/l
7/17/2017	Metro Inf.	604	2017010472	Composite	Hg	0.000 054	mg/l
7/24/2017	Metro Inf.	604	2017010965	Composite	Hg	0.000 042	mg/l
7/31/2017	Metro Inf.	604	2017011368	Composite	Hg	0.000 071	mg/l
8/7/2017	Metro Inf.	604	2017011760	Composite	Hg	0.000 031	mg/l
8/14/2017	Metro Inf.	604	2017012086	Composite	Hg	0.000 022	mg/l
8/21/2017	Metro Inf.	604	2017012421	Composite	Hg	0.000 023	mg/l
8/28/2017	Metro Inf.	604	2017012783	Composite	Hg	0.000 030	mg/l
9/4/2017	Metro Inf.	604	2017013131	Composite	Hg	0.000 087	mg/l
9/11/2017	Metro Inf.	604	2017013511	Composite	Hg	0.000 091	mg/l
9/18/2017	Metro Inf.	604	2017013886	Composite	Hg	0.000 110	mg/l
9/25/2017	Metro Inf.	604	2017014361	Composite	Hg	0.000 060	mg/l
10/2/2017	Metro Inf.	604	2017014658	Composite	Hg	0.000 092	mg/l
10/9/2017	Metro Inf.	604	2017015029	Composite	Hg	0.000 085	mg/l
10/16/2017	Metro Inf.	604	2017015384	Composite	Hg	0.000 022	mg/l
10/23/2017	Metro Inf.	604	2017015694	Composite	Hg	0.000 062	mg/l
10/30/2017	Metro Inf.	604	2017016056	Composite	Hg	0.000 086	mg/l
11/6/2017	Metro Inf.	604	2017016462	Composite	Hg	0.000 090	mg/l
11/13/2017	Metro Inf.	604	2017016674	Composite	Hg	0.000 057	mg/l
11/20/2017	Metro Inf.	604	2017017031	Composite	Hg	0.000 040	mg/l
11/27/2017	Metro Inf.	604	2017017270	Composite	Hg	0.000 034	mg/l
12/4/2017	Metro Inf.	604	2017017525	Composite	Hg	0.000 107	mg/l
12/11/2017	Metro Inf.	604	2017017778	Composite	Hg	0.005 200	mg/l
12/18/2017	Metro Inf.	604	2017018008	Composite	Hg	0.000 061	mg/l
12/25/2017	Metro Inf.	604	2017018217	Composite	Hg	0.000 038	mg/l

Yearly Average	**0.000 142**	**mg/l**

12/11/2017 Metro Inf. sample result was very high; 0.005200 mg/l (36 times the yearly average result)

12/11/2017 sample exclusion significantly lowers yearly average:	**0.000 043**	**mg/l**

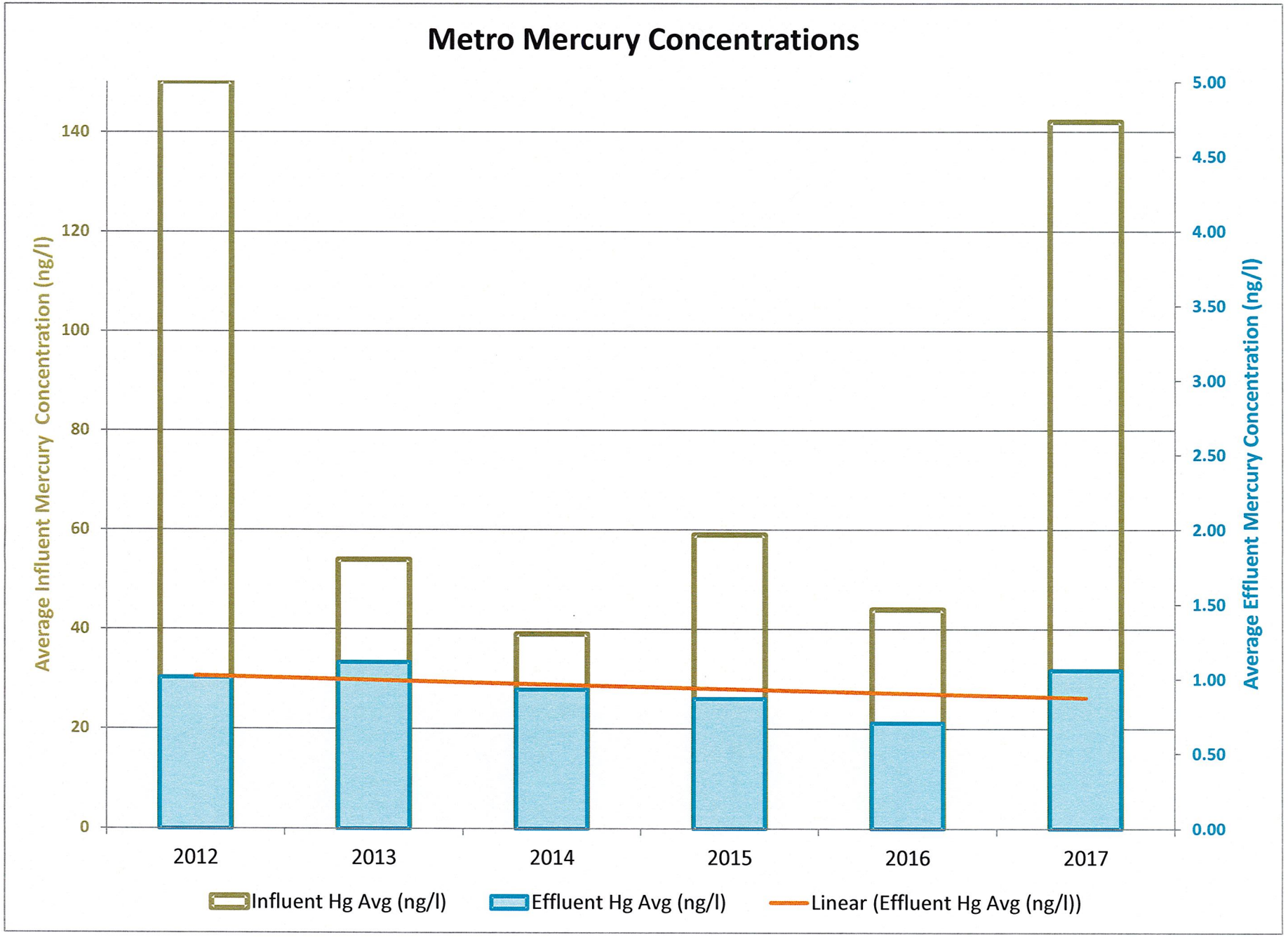
METRO INFLUENT PUMP STATIONS MERCURY 2017

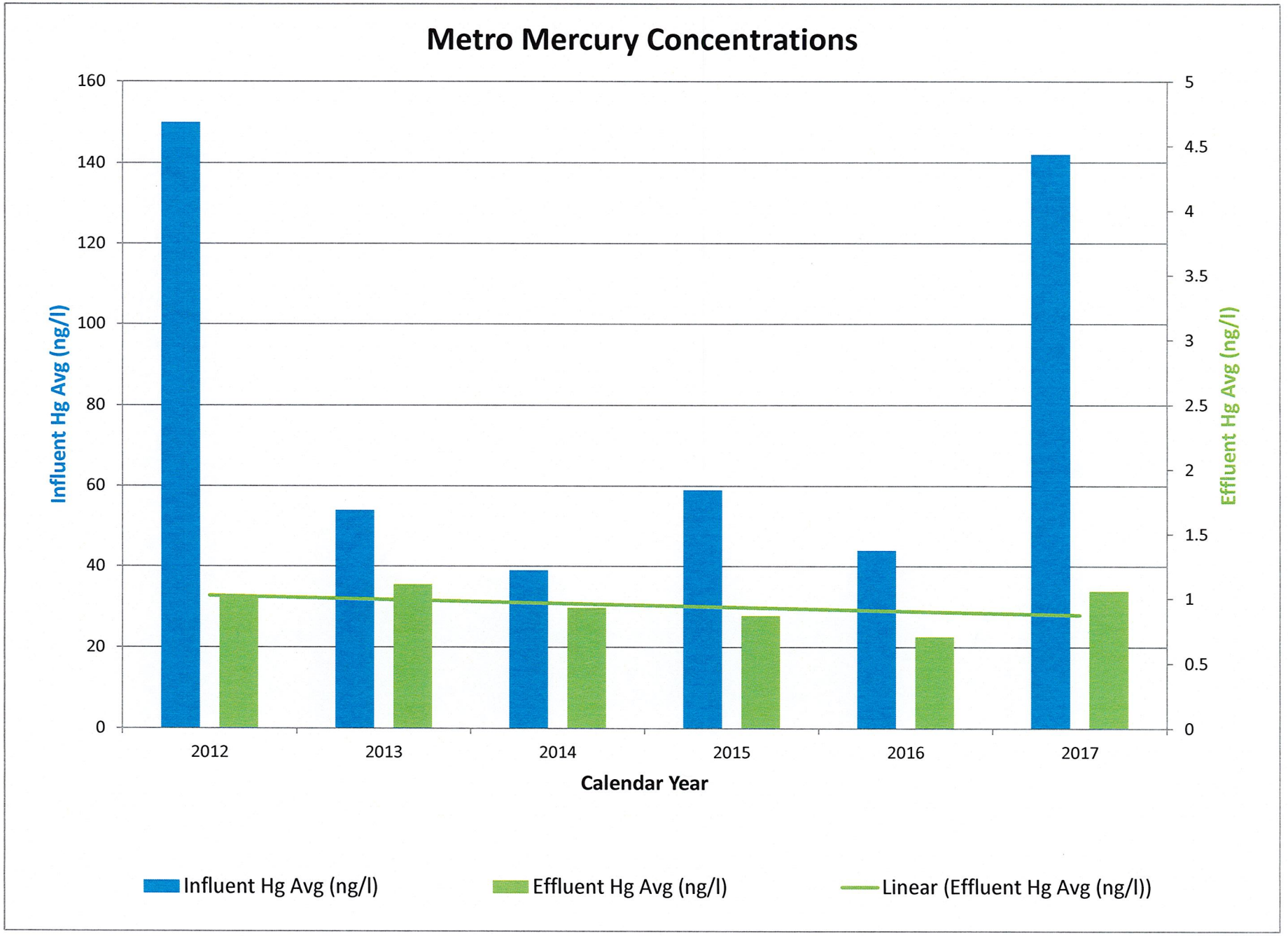
USEPA Method 245

	Liverpool Pump Station	Ley Creek Pump Station	Main Intercept	Westside Pump Station	Harbor Brook Pump Station
DATE	IC 600	IC 603	IC 610	IC 725	IC 1700
2/13/2017	0.000034	0.000706	0.000095	0.000051	0.002560
5/15/2017	0.000020	0.000026	0.000039	0.000026	0.000087
8/14/2017	0.000020	0.000149	0.000020	0.000028	0.000156
10/16/2017	0.000020	0.000023	0.000020	0.000039	0.000206
Average	**0.000 024**	**0.000 226**	**0.000 044**	**0.000 036**	**0.000 752**

All results shown are Hg in mg/l.

Appendix B


Metro Mercury Concentrations
Average Influent Mercury Concentration (ng/l)
Average Effluent Mercury Concentration (ng/l)
0
20
40
60
80
100
120
140
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
2012
2013
2014
2015
2016
2017
Influent Hg Avg (ng/l)
Effluent Hg Avg (ng/l)
Linear (Effluent Hg Avg (ng/l))


Metro Mercury Concentrations
Influent Hg Avg (ng/l)
Effluent Hg Avg (ng/l)
160
140
120
100
80
60
40
20
0
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
2012
2013
2014
2015
2016
2017
Calendar Year
Influent Hg Avg (ng/l)
Effluent Hg Avg (ng/l)
Linear (Effluent Hg Avg (ng/l))