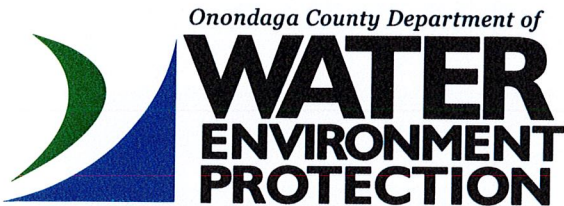


Appendix E
2018 Mercury Minimization Program Annual
Report



J. Ryan McMahon II, 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, 2019

Thomas Vigneault, 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. Vigneault:

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 2018..

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: Carol Lamb-Lafay, P.E., Chief
NYSDEC Bureau of Water Permits
625 Broadway
Albany, New York 12233-0001

Valarie D Ellis, PE
NYSDEC Division of Water, Region 7

File: Metro MMP

w:\ets\bburke\source\mercury - mmp\metro\yearly mmp reports\3-21-2019\2018 status rpt cov let.doc

**Metropolitan Syracuse WWTP
SPDES Permit # NY 002 7081**

**Mercury Minimization Program
Annual Status Report for Calendar Year 2018**

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 2018.

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 2018.
- The average annual effluent Mercury concentration for 2018 was 0.00000147 mg/l (1.5 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 2018 was 0.000199 mg/l (199 ng/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	0.000 069 mg/l
Liverpool	0.000 020 mg/l
Ley Creek	0.000 022 mg/l
Harbor Brook	0.000 341 mg/l
Westside	0.000 035 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 53 permitted industries, 34 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 2018.
 - 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 2018, 54 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 2018.
 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 2019

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 2018 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. It is believed that the average effluent concentration also increased due to the Metro Optimization Project. The construction for this project required the bypass of the tertiary system ostensibly causing the increase of the effluent mercury. The results for mercury nearly met the WQBEL target when plant was fully operational. 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
2018	0.000 199 mg/l	0.000 001 470 mg/l

Appendix A

METRO EFFLUENT MERCURY 2018
USEPA Method 1631

DATE	SOURCE	SAMPLE_NO	TYPE	PARAM	RESULT	UNITS
1/3/2018	Metro BAF (Eff Sub)	2018000050	Grab	Hg	0.000 002 130	mg/L
1/3/2018	Metro BAF (Eff Sub)	2018000050	Grab	Hg	0.000 002 190	mg/L
1/3/2018	Metro BAF (Eff Sub)	2018000050	Grab	Hg	0.000 002 410	mg/L
				Average	0.000 002 243	mg/L
2/7/2018	Metro BAF (Eff Sub)	2018001378	Grab	Hg	0.000 003 340	mg/L
2/7/2018	Metro BAF (Eff Sub)	2018001378	Grab	Hg	0.000 004 300	mg/L
2/7/2018	Metro BAF (Eff Sub)	2018001378	Grab	Hg	0.000 005 000	mg/L
				Average	0.000 004 213	mg/L
3/14/2018	Metro Final Effluent	2018002841	Grab	Hg	0.000 001 310	mg/L
3/14/2018	Metro Final Effluent	2018002841	Grab	Hg	0.000 001 590	mg/L
3/14/2018	Metro Final Effluent	2018002841	Grab	Hg	0.000 001 920	mg/L
				Average	0.000 001 607	mg/L
4/4/2018	Metro Final Effluent	2018003711	Grab	Hg	0.000 000 860	mg/L
4/4/2018	Metro Final Effluent	2018003711	Grab	Hg	0.000 000 890	mg/L
4/4/2018	Metro Final Effluent	2018003711	Grab	Hg	0.000 000 930	mg/L
				Average	0.000 000 893	mg/L
5/9/2018	Metro Final Effluent	2018005630	Grab	Hg	0.000 000 500	mg/L
5/9/2018	Metro Final Effluent	2018005630	Grab	Hg	0.000 000 530	mg/L
5/9/2018	Metro Final Effluent	2018005630	Grab	Hg	0.000 000 550	mg/L
				Average	0.000 000 527	mg/L
6/7/2018	Metro Final Effluent	2018007109	Grab	Hg	0.000 000 510	mg/L
6/7/2018	Metro Final Effluent	2018007109	Grab	Hg	0.000 000 890	mg/L
6/7/2018	Metro Final Effluent	2018007109	Grab	Hg	0.000 001 010	mg/L
				Average	0.000 000 803	mg/L
7/5/2018	Metro Final Effluent	2018008771	Grab	Hg	0.000 000 500	mg/L
7/5/2018	Metro Final Effluent	2018008771	Grab	Hg	0.000 000 570	mg/L
7/5/2018	Metro Final Effluent	2018008771	Grab	Hg	0.000 000 610	mg/L
				Average	0.000 000 560	mg/L
8/9/2018	Metro Final Effluent	2018010414	Grab	Hg	0.000 000 570	mg/L
8/9/2018	Metro Final Effluent	2018010414	Grab	Hg	0.000 000 590	mg/L
8/9/2018	Metro Final Effluent	2018010414	Grab	Hg	0.000 000 640	mg/L
				Average	0.000 000 600	mg/L
9/12/2018	Metro Final Effluent	2018012199	Grab	Hg	0.000 000 600	mg/L
9/12/2018	Metro Final Effluent	2018012199	Grab	Hg	0.000 000 630	mg/L
9/12/2018	Metro Final Effluent	2018012199	Grab	Hg	0.000 000 650	mg/L
				Average	0.000 000 627	mg/L
10/4/2018	Metro Final Effluent	2018013628	Grab	Hg	0.000 000 640	mg/L
10/4/2018	Metro Final Effluent	2018013628	Grab	Hg	0.000 000 680	mg/L
10/4/2018	Metro Final Effluent	2018013628	Grab	Hg	0.000 000 770	mg/L
				Average	0.000 000 697	mg/L
11/7/2018	Metro BAF (Eff Sub)	2018015244	Grab	Hg	0.000 001 690	mg/L
11/7/2018	Metro BAF (Eff Sub)	2018015244	Grab	Hg	0.000 001 830	mg/L
11/7/2018	Metro BAF (Eff Sub)	2018015244	Grab	Hg	0.000 002 060	mg/L
				Average	0.000 001 860	mg/L
12/5/2018	Metro BAF (Eff Sub)	2018016607	Grab	Hg	0.000 002 510	mg/L
12/5/2018	Metro BAF (Eff Sub)	2018016607	Grab	Hg	0.000 002 590	mg/L
12/5/2018	Metro BAF (Eff Sub)	2018016607	Grab	Hg	0.000 003 750	mg/L
				Average	0.000 002 950	mg/L
Yearly Average					0.000 001 47	mg/L

THESE TABLES ILLUSTRATE THE EFFECT OF THE METRO OPTIMIZATION PROJECT ON EFFLUENT MERCURY RESULTS

METRO EFFLUENT MERCURY RESULTS WITH FULL TREATMENT						
DATE	SOURCE	SAMPLE_NO	TYPE	PARAMETER	RESULT	UNITS
3/14/2018	Metro Final Effluent	2018002841	Grab	Hg	0.000 001 590	mg/l
3/14/2018	Metro Final Effluent	2018002841	Grab	Hg	0.000 001 310	mg/l
3/14/2018	Metro Final Effluent	2018002841	Grab	Hg	0.000 001 920	mg/l
				Average	0.000 001 607	mg/l
4/5/2018	Metro Final Effluent	2018003711	Grab	Hg	0.000 000 860	mg/l
4/5/2018	Metro Final Effluent	2018003711	Grab	Hg	0.000 000 930	mg/l
4/5/2018	Metro Final Effluent	2018003711	Grab	Hg	0.000 000 890	mg/l
				Average	0.000 000 893	mg/l
5/9/2018	Metro Final Effluent	2018005630	Grab	Hg	0.000 000 500	mg/l
5/9/2018	Metro Final Effluent	2018005630	Grab	Hg	0.000 000 550	mg/l
5/9/2018	Metro Final Effluent	2018005630	Grab	Hg	0.000 000 530	mg/l
				Average	0.000 000 527	mg/l
6/7/2018	Metro Final Effluent	2018007109	Grab	Hg	0.000 000 510	mg/l
6/7/2018	Metro Final Effluent	2018007109	Grab	Hg	0.000 000 890	mg/l
6/7/2018	Metro Final Effluent	2018007109	Grab	Hg	0.000 001 010	mg/l
				Average	0.000 000 803	mg/l
7/6/2018	Metro Final Effluent	2018008771	Grab	Hg	0.000 000 610	mg/l
7/6/2018	Metro Final Effluent	2018008771	Grab	Hg	0.000 000 500	mg/l
7/6/2018	Metro Final Effluent	2018008771	Grab	Hg	0.000 000 570	mg/l
				Average	0.000 000 560	mg/l
8/9/2018	Metro Final Effluent	2018010414	Grab	Hg	0.000 000 570	mg/l
8/9/2018	Metro Final Effluent	2018010414	Grab	Hg	0.000 000 590	mg/l
8/9/2018	Metro Final Effluent	2018010414	Grab	Hg	0.000 000 640	mg/l
				Average	0.000 000 600	mg/l
9/12/2018	Metro Final Effluent	2018012199	Grab	Hg	0.000 000 650	mg/l
9/12/2018	Metro Final Effluent	2018012199	Grab	Hg	0.000 000 600	mg/l
9/12/2018	Metro Final Effluent	2018012199	Grab	Hg	0.000 000 630	mg/l
				Average	0.000 000 627	mg/l
10/4/2018	Metro Final Effluent	2018013628	Grab	Hg	0.000 000 680	mg/l
10/4/2018	Metro Final Effluent	2018013628	Grab	Hg	0.000 000 640	mg/l
10/4/2018	Metro Final Effluent	2018013628	Grab	Hg	0.000 000 770	mg/l
				Average	0.000 000 697	mg/l
Metro Final Effluent Average (IC #789)					0.000 000 701	mg/l

METRO EFFLUENT MERCURY RESULTS WITH TERTIARY TREATMENT OFF LINE						
DATE	SOURCE	SAMPLE_NO	TYPE	PARAMETER	RESULT	UNITS
1/3/2018	Metro BAF (Eff Sub)	2018000050	Grab	Hg	0.000 002 130	mg/L
1/3/2018	Metro BAF (Eff Sub)	2018000050	Grab	Hg	0.000 002 190	mg/L
1/3/2018	Metro BAF (Eff Sub)	2018000050	Grab	Hg	0.000 002 410	mg/L
				Average	0.000 002 243	mg/L
2/7/2018	Metro BAF (Eff Sub)	2018001378	Grab	Hg	0.000 003 340	mg/L
2/7/2018	Metro BAF (Eff Sub)	2018001378	Grab	Hg	0.000 004 300	mg/L
2/7/2018	Metro BAF (Eff Sub)	2018001378	Grab	Hg	0.000 005 000	mg/L
				Average	0.000 004 213	mg/L
11/7/2018	Metro BAF (Eff Sub)	2018015244	Grab	Hg	0.000 001 690	mg/L
11/7/2018	Metro BAF (Eff Sub)	2018015244	Grab	Hg	0.000 001 830	mg/L
11/7/2018	Metro BAF (Eff Sub)	2018015244	Grab	Hg	0.000 002 060	mg/L
				Average	0.000 001 860	mg/L
12/5/2018	Metro BAF (Eff Sub)	2018016607	Grab	Hg	0.000 002 510	mg/L
12/5/2018	Metro BAF (Eff Sub)	2018016607	Grab	Hg	0.000 002 590	mg/L
12/5/2018	Metro BAF (Eff Sub)	2018016607	Grab	Hg	0.000 003 750	mg/L
				Average	0.000 002 950	mg/L
Metro BAF (Effluent Substitute) Average (IC #631)					0.000 002 253	mg/l

**METRO INFLUENT MERCURY 2018
USEPA Method 245**

END_DATE	SOURCE	SAMPLE_NO	Type	PARAM	RESULT	UNITS
1/1/2018	Metro Influent	201800005	Composite	Hg	0.000 062	mg/L
1/8/2018	Metro Influent	2018000237	Composite	Hg	0.000 063	mg/L
1/15/2018	Metro Influent	2018000431	Composite	Hg	0.000 031	mg/L
1/22/2018	Metro Influent	2018000823	Composite	Hg	0.000 023	mg/L
1/29/2018	Metro Influent	2018001032	Composite	Hg	0.000 025	mg/L
2/5/2018	Metro Influent	2018001291	Composite	Hg	0.000 210	mg/L
2/12/2018	Metro Influent	2018001541	Composite	Hg	0.000 040	mg/L
2/19/2018	Metro Influent	2018001848	Composite	Hg	0.000 020	mg/L
2/26/2018	Metro Influent	2018002151	Composite	Hg	0.000 020	mg/L
3/5/2018	Metro Influent	2018002485	Composite	Hg	0.000 045	mg/L
3/12/2018	Metro Influent	2018002772	Composite	Hg	0.000 024	mg/L
3/19/2018	Metro Influent	2018003009	Composite	Hg	0.000 020	mg/L
3/26/2018	Metro Influent	2018003282	Composite	Hg	0.000 057	mg/L
4/2/2018	Metro Influent	2018003572	Composite	Hg	0.000 238	mg/L
4/9/2018	Metro Influent	2018003952	Composite	Hg	0.000 093	mg/L
4/16/2018	Metro Influent	2018004281	Composite	Hg	0.000 110	mg/L
4/23/2018	Metro Influent	2018004655	Composite	Hg	0.000 053	mg/L
4/30/2018	Metro Influent	2018005048	Composite	Hg	0.000 289	mg/L
5/7/2018	Metro Influent	2018005544	Composite	Hg	0.000 339	mg/L
5/14/2018	Metro Influent	2018005880	Composite	Hg	0.001 180	mg/L
5/21/2018	Metro Influent	2018006289	Composite	Hg	0.000 411	mg/L
5/28/2018	Metro Influent	2018006630	Composite	Hg	0.000 356	mg/L
6/4/2018	Metro Influent	2018006943	Composite	Hg	0.000 409	mg/L
6/11/2018	Metro Influent	2018007444	Composite	Hg	0.000 700	mg/L
6/18/2018	Metro Influent	2018007838	Composite	Hg	0.000 316	mg/L
6/25/2018	Metro Influent	2018008196	Composite	Hg	0.000 176	mg/L
7/2/2018	Metro Influent	2018008600	Composite	Hg	0.000 313	mg/L
7/9/2018	Metro Influent	2018008894	Composite	Hg	0.000 805	mg/L
7/16/2018	Metro Influent	2018009258	Composite	Hg	0.001 480	mg/L
7/23/2018	Metro Influent	2018009582	Composite	Hg	0.000 334	mg/L
7/30/2018	Metro Influent	2018009940	Composite	Hg	0.000 425	mg/L
8/6/2018	Metro Influent	2018010282	Composite	Hg	0.000 666	mg/L
8/13/2018	Metro Influent	2018010661	Composite	Hg	0.000 535	mg/L
8/20/2018	Metro Influent	2018011097	Composite	Hg	0.000 068	mg/L
8/27/2018	Metro Influent	2018011465	Composite	Hg	0.000 020	mg/L
9/3/2018	Metro Influent	2018011704	Composite	Hg	0.000 058	mg/L
9/10/2018	Metro Influent	2018012044	Composite	Hg	0.000 030	mg/L
9/17/2018	Metro Influent	2018012617	Composite	Hg	0.000 062	mg/L
9/24/2018	Metro Influent	2018013086	Composite	Hg	0.000 020	mg/L
10/1/2018	Metro Influent	2018013449	Composite	Hg	0.000 029	mg/L
10/8/2018	Metro Influent	2018013919	Composite	Hg	0.000 065	mg/L
10/15/2018	Metro Influent	2018014272	Composite	Hg	0.000 035	mg/L
10/22/2018	Metro Influent	2018014627	Composite	Hg	0.000 021	mg/L
10/29/2018	Metro Influent	2018014857	Composite	Hg	0.000 021	mg/L
11/5/2018	Metro Influent	2018015111	Composite	Hg	0.000 022	mg/L
11/12/2018	Metro Influent	2018015450	Composite	Hg	0.000 024	mg/L
11/19/2018	Metro Influent	2018015900	Composite	Hg	0.000 020	mg/L
11/26/2018	Metro Influent	2018016025	Composite	Hg	0.000 047	mg/L
12/3/2018	Metro Influent	2018016506	Composite	Hg	0.000 032	mg/L
12/10/2018	Metro Influent	2018016748	Composite	Hg	0.000 022	mg/L
12/17/2018	Metro Influent	2018016991	Composite	Hg	0.000 021	mg/L
12/24/2018	Metro Influent	2018017192	Composite	Hg	0.000 020	mg/L
12/31/2018	Metro Influent	2018017398	Composite	Hg	0.000 033	mg/L

Yearly Average	0.000 199	mg/L
-----------------------	------------------	-------------

METRO INFLUENT PUMP STATIONS MERCURY 2018

USEPA Method 245

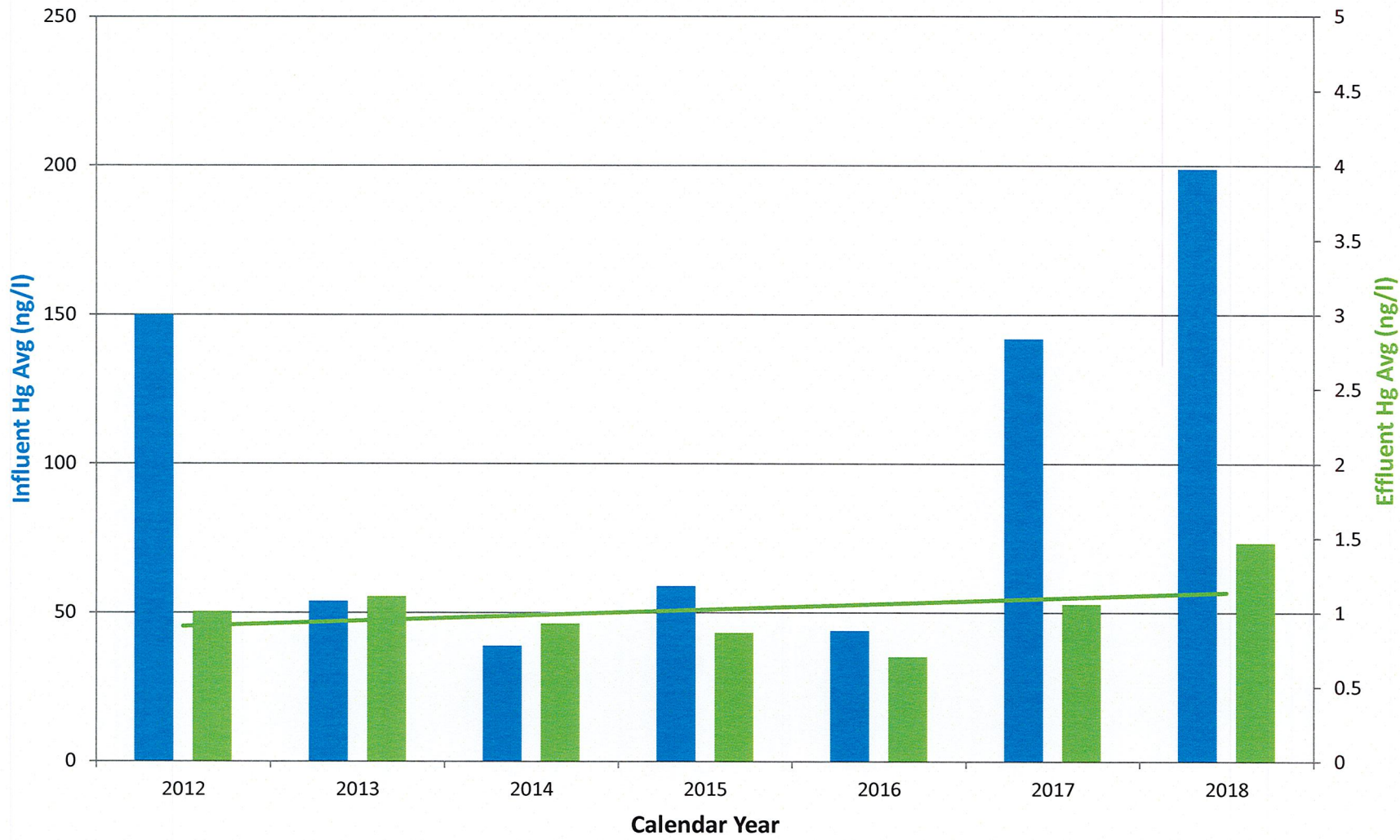
	Liverpool Pump Station	Ley Creek Pump Station	Main Intercept	Westside Pump Station	Harbor Brook Pump Station
DATE	IC 600	IC 603	IC 610	IC 725	IC 1700
1/22/2018	0.000020	0.000020	0.000032	0.000022	0.000408
4/15/2018	0.000020	0.000026	0.000202	0.000038	0.000369
7/15/2018	0.000020	0.000020	0.000020	0.000048	0.000277
10/14/2018	0.000020	0.000020	0.000020	0.000032	0.000311
Average	0.000 020	0.000 022	0.000 069	0.000 035	0.000 341

All results shown are Hg in mg/l.

IND_CODE	END_DATE	PARAM_NAME	RESULT	PARAM_UNITS	RESULT(ng)	Year	SAMPLE_NO
600	1/22/2018	Hg	0.00002	mg/L	20	2018	2018000840
600	4/15/2018	Hg	0.00002	mg/L	20	2018	2018004279
600	7/15/2018	Hg	0.00002	mg/L	20	2018	2018009224
600	10/14/2018	Hg	0.00002	mg/L	20	2018	2018014237
603	1/22/2018	Hg	0.00002	mg/L	20	2018	2018000839
603	4/15/2018	Hg	0.000026	mg/L	26	2018	2018004276
603	7/15/2018	Hg	0.00002	mg/L	20	2018	2018009221
603	10/14/2018	Hg	0.00002	mg/L	20	2018	2018014234
610	1/22/2018	Hg	0.000032	mg/L	32	2018	2018000842
610	4/15/2018	Hg	0.000202	mg/L	202	2018	2018004275
610	7/15/2018	Hg	0.00002	mg/L	20	2018	2018009220
610	10/14/2018	Hg	0.00002	mg/L	20	2018	2018014233
725	1/22/2018	Hg	0.000022	mg/L	22	2018	2018000841
725	4/15/2018	Hg	0.000038	mg/L	38	2018	2018004277
725	7/15/2018	Hg	0.000048	mg/L	48	2018	2018009222
725	10/14/2018	Hg	0.000032	mg/L	32	2018	2018014235
1700	1/22/2018	Hg	0.000408	mg/L	408	2018	2018000843
1700	4/15/2018	Hg	0.000369	mg/L	369	2018	2018004278
1700	7/15/2018	Hg	0.000277	mg/L	277	2018	2018009223
1700	10/14/2018	Hg	0.000311	mg/L	311	2018	2018014236

Appendix B

Metro Mercury Concentrations



■ Influent Hg Avg (ng/l)

■ Effluent Hg Avg (ng/l)

— Linear (Effluent Hg Avg (ng/l))