



FINAL

2022 Annual Environmental Reporting

City of Barrie Wastewater Treatment Facility
249 Bradford Street, Barrie, Ontario L4M 4T5

Prepared for:

City of Barrie
249 Bradford Street
Barrie, Ontario, L4M 4T5

May 12, 2023

Pinchin File: 318437



2022 Annual Environmental Reporting

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1.0 EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) evaluated the 2022 National Pollutant Release Inventory (NPRI), Ontario Greenhouse Gas Emissions Reporting Program (O.Reg.390/18 GHG), and Federal Greenhouse Gas Emissions Reporting Program (Federal GHG) reporting requirements for the City of Barrie Wastewater Treatment Facility located at 249 Bradford Street, Barrie, Ontario L4M 4T5.

The following is a summary of the assessment for this facility for each applicable annual environmental reporting program.

NPRI

The facility is required to report the following substances:

Substance	CAS #	Reportable 2022?	Reportable 2021?
Ammonia (total)	NA - 16	Yes	Yes
Phosphorus (total)	NA - 22	Yes	Yes
Arsenic (and its compounds)	NA - 02	Yes	No
Lead (and its compounds) except tetraethyl	NA - 08	Yes	Yes
Mercury (and its compounds)	NA - 10	Yes	Yes
Volatile Organic Compounds	NA - M16	Yes	Yes

O. Reg. 390/18 & Federal GHG - Environmental Protection Act, R.S.O. 1990, c. E.19

The generation of CO₂ (and other GHG's) from the treatment of wastewater is not a covered activity under O. Reg. 390/18 (see Table 2). Similarly, CO₂ emissions from the aerobic decomposition of biomass in wastewater is not reportable under the federal Greenhouse Gas Reporting Program (GHGRP).

CO₂ emissions from the combustion of biogas are not to be included under O. Reg. 390/18 or the GHGRP. After excluding these emissions sources, the remaining sources of emissions (e.g. natural gas combustion in stationary equipment) are minimal and amount to less than 300 tonnes of CO₂-equivalent (CO₂e). These emissions are significantly below the O. Reg. 390/18 and the GHGRP reporting threshold (10,000 tCO₂e). Therefore, we can conclude that the City of Barrie is not required to report these substances under either program.

A detailed comparison of the 2022 and 2021 reportable substances is given in Appendix I.

Summaries for the 2022 operating year are listed in Appendices II to IV.

Data and calculations are given in Appendices V to VI.

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APPENDIX I
Comparison of 2022 and 2021 Reportable Substances
(2 Pages)

Comparison of 2022 and 2021 Reportable Substances

Annual releases to air include releases from plant wide emissions, biogas and natural gas combustion.

Rationale Notes:

- Effluent air releases are calculated using total annual influent flow provided by the City and emission factors taken from "Reporting Guidance for the Wastewater Sector to the National Pollutant Release Inventory, (CEPA, 1999)", Dated March 2019.
- Releases from natural gas consumption are calculated using annual gas consumption provided by the City and emission factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998 (B)
- Biogas emissions are calculated using total annual biogas combusted, as provided by the City and emission factors from US EPA WebFIRE (<http://cfpub.epa.gov/webfire/>)
- Annual releases to land are from biosolids application. Application sites, monthly application volumes, contaminants and average concentrations of contaminants are provided by the City. (D)
- Annual releases to water are based on average annual release to Lake Simcoe data provided by the City. (E)

Substance: Ammonia

CAS #: NA - 16

	2022	2021	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	39.1620	40.7167	tonnes	-4%	-
Annual Release (Land)	104.1803	95.1428	tonnes	9%	-
Annual Release (Water)	7.1941	4.5120	tonnes	59%	Concentration of ammonia in effluent increased in 2022 (E)
Annual Recycling (Off-Site)	0.0000	0.0000	tonnes	-	-
Annual Disposal (On-Site)	0.0000	0.0000	tonnes	-	-
Annual Disposal (Off-Site)	0.0000	0.0000	tonnes	-	-

Substance: Phosphorus

CAS #: NA - 22

	2022	2021	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0000	0.0000	tonnes	-	-
Annual Release (Land)	96.3256	83.5275	tonnes	15%	Concentration of phosphorus in biosolids increased in 2022 (D).
Annual Release (Water)	0.4264	0.4664	tonnes	-9%	-
Annual Recycling (Off-Site)	0.0000	0.0000	tonnes	-	-
Annual Disposal (On-Site)	0.0000	0.0000	tonnes	-	-
Annual Disposal (Off-Site)	0.0000	0.0000	tonnes	-	-

Substance: Arsenic (and its compounds)

CAS #: NA - 02

	2022	2021	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0004	NR	kg	-	No significant increase in arsenic air releases from previous year.
Annual Release (Land)	52.8599	NR	kg	-	Increase in concentration of arsenic in biosolids applied to land (D).
Annual Release (Water)	0.0000	NR	kg	-	-
Annual Recycling (Off-Site)	0.0000	NR	kg	-	-
Annual Disposal (On-Site)	0.0000	NR	kg	-	-
Annual Disposal (Off-Site)	0.0000	NR	kg	-	-

Comparison of 2022 and 2021 Reportable Substances

Annual releases to air include releases from plant wide emissions, biogas and natural gas combustion.

Rationale Notes:

- Effluent air releases are calculated using total annual influent flow provided by the City and emission factors taken from "Reporting Guidance for the Wastewater Sector to the National Pollutant Release Inventory, (CEPA, 1999)", Dated March 2019.
- Releases from natural gas consumption are calculated using annual gas consumption provided by the City and emission factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998 (B)
- Biogas emissions are calculated using total annual biogas combusted, as provided by the City and emission factors from US EPA WebFIRE (<http://cfpub.epa.gov/webfire/>)
- Annual releases to land are from biosolids application. Application sites, monthly application volumes, contaminants and average concentrations of contaminants are provided by the City. (D)
- Annual releases to water are based on average annual release to Lake Simcoe data provided by the City. (E)

Substance: VOCs
CAS #: NA - M16

	2022	2021	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	19.3581	20.1196	tonnes	-4%	-
Annual Release (Land)	0.0000	0.0000	tonnes	-	-
Annual Release (Water)	0.0000	0.0000	tonnes	-	-
Annual Recycling (Off-Site)	0.0000	0.0000	tonnes	-	-
Annual Disposal (On-Site)	0.0000	0.0000	tonnes	-	-
Annual Disposal (Off-Site)	0.0000	0.0000	tonnes	-	-

Substance: Lead
CAS #: NA - 08

	2022	2021	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0009	0.0008	kg	13%	Increase in amount of Natural Gas consumed in 2022 (B)
Annual Release (Land)	104.948	80.7660	kg	30%	Increase in concentration of lead in biosolids applied to land (D).
Annual Release (Water)	0.0000	0.0000	kg	-	-
Annual Recycling (Off-Site)	0.0000	0.0000	kg	-	-
Annual Disposal (On-Site)	0.0000	0.0000	kg	-	-
Annual Disposal (Off-Site)	0.0000	0.0000	kg	-	-

Substance: Mercury
CAS #: NA - 10

	2022	2021	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0005	0.0004	kg	13%	Increase in amount of Natural Gas consumed in 2022 (B)
Annual Release (Land)	8.857	11.4506	kg	-23%	Concentration of mercury in biosolids and total land application decreased in 2022 (D).
Annual Release (Water)	0.0000	0.0000	kg	-	-
Annual Recycling (Off-Site)	0.0000	0.0000	kg	-	-
Annual Disposal (On-Site)	0.0000	0.0000	kg	-	-
Annual Disposal (Off-Site)	0.0000	0.0000	kg	-	-

APPENDIX II
NPRI Reporting Requirements
(7 Pages)

NPRI

The NPRI is a federal initiative directed by Environment Canada under the Canadian Environmental Protection Act, 1999 (CEPA) that is triggered when specific facility and processing criteria are met. When the reporting criteria for this initiative are met, environmental reporting for solid, liquid, and air discharges are required.

The five groups of chemicals/substances that need to be considered under this initiative are:

- Part 1A substances include 181 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include 23 substances with MPO thresholds of 1,000 kg or less.
- Part 2 substances are Polycyclic Aromatic Hydrocarbons (PAHs).
- Part 3 substances are Dioxins, Furans, and Hexachlorobenzene (HCB).
- Part 4 substances are Criteria Air Contaminants (CACs) where reporting is triggered when emissions of these compounds are in excess of specific limits.
- Part 5 substances are 62 Volatile Organic Compounds (VOCs) that are triggered when an individual VOC air emission exceeds 1 tonne.

In accordance with NPRI, Pinchin Ltd. has evaluated the reporting obligations for City of Barrie and concludes the following:

- City of Barrie is required to report Parts 1A, 1B, and 4 substances.

The following tables summarize the data that was assessed for NPRI.

Environment Canada NPRI - PART 1A Substances
Total Facility Emissions - Substances with NPRI Graded MPO Thresholds

Substance	CAS #	MPO Threshold (tonnes/yr)	Annual MPO* (tonnes/yr)	Reportable? (Yes/No)	Annual Release (Air) (tonnes/yr)	Estimation Method	Annual Release (Land) (tonnes/yr)	Estimation Method	Annual Release (Water) (tonnes/yr)	Estimation Method	Annual Recycling (Off Site) (tonnes/yr)	Estimation Method	Annual Disposal (On Site) (tonnes/yr)	Estimation Method	Annual Disposal (Off Site) (tonnes/yr)	Estimation Method
Acetaldehyde	75-07-0	10	0.0029	No	---	---	---	---	---	---	---	---	---	---	---	---
Acrolein	107-02-8	10	0.0018	No	---	---	---	---	---	---	---	---	---	---	---	---
Ammonia (total)	NA - 16	10	143	Yes	39.1620	E	104.1803	C	7.1941	C	0.0000	---	0.0000	---	0.0000	---
Benzene	71-43-2	10	0.1016	No	---	---	---	---	---	---	---	---	---	---	---	---
Carbon tetrachloride	56-23-5	10	0.0205	No	---	---	---	---	---	---	---	---	---	---	---	---
Chloroform	67-66-3	10	0.0344	No	---	---	---	---	---	---	---	---	---	---	---	---
Chromium (and its compounds)	NA - 04	10	0.1014	No	---	---	---	---	---	---	---	---	---	---	---	---
Copper (and its compounds)	NA - 06	10	2	No	---	---	---	---	---	---	---	---	---	---	---	---
Dichloromethane	75-09-2	10	0.0338	No	---	---	---	---	---	---	---	---	---	---	---	---
Ethylbenzene	100-41-4	10	0.0015	No	---	---	---	---	---	---	---	---	---	---	---	---
Formaldehyde	50-00-0	10	0.0072	No	---	---	---	---	---	---	---	---	---	---	---	---
Manganese (and its compounds)	NA - 09	10	0.4934	No	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	91-20-3	10	0.0000	No	---	---	---	---	---	---	---	---	---	---	---	---
n-Hexane	110-54-3	10	0.0034	No	---	---	---	---	---	---	---	---	---	---	---	---
Nickel (and its compounds)	NA - 11	10	0.0617	No	---	---	---	---	---	---	---	---	---	---	---	---
Nitrate ion (in solution at a pH of 6.0 or greater)	NA - 17	10	0.0040	No	---	---	---	---	---	---	---	---	---	---	---	---
Phosphorus (total)	NA - 22	10	96	Yes	0.0000	E	96.3256	C	0.4264	C	0.0000	---	0.0000	---	0.0000	---
Styrene	100-42-5	10	0.0041	No	---	---	---	---	---	---	---	---	---	---	---	---
Toluene	108-88-3	10	0.0131	No	---	---	---	---	---	---	---	---	---	---	---	---
Trichloroethylene	79-01-6	10	0.0077	No	---	---	---	---	---	---	---	---	---	---	---	---
Vanadium (except when in an alloy) and its compounds	NA - 40	10	0.0000*	No	---	---	---	---	---	---	---	---	---	---	---	---
Xylene (all isomers)	1330-20-7	10	0.0083	No	---	---	---	---	---	---	---	---	---	---	---	---
Zinc (and its compounds)	NA - 14	10	0.0001	No	---	---	---	---	---	---	---	---	---	---	---	---

* Annual MPO value less than 0.0000 tonnes

NA - Not Applicable

*Includes emissions of by-products.

C - Mass Balance

E - Published Emission Factors

Environment Canada NPRI - PART 1B Substances
Total Facility Emissions - Substances with NPRI Graded MPO Thresholds

Substance	CAS #	MPO Threshold (kg/yr)	Annual MPO* (kg/yr)	Reportable? (Yes/No)	Annual Release (Air) (kg/yr)	Estimation Method	Annual Release (Land) (kg/yr)	Estimation Method	Annual Release (Water) (kg/yr)	Estimation Method	Annual Recycling (Off Site) (kg/yr)	Estimation Method	Annual Disposal (On Site) (kg/yr)	Estimation Method	Annual Disposal (Off Site) (kg/yr)	Estimation Method
Arsenic (and its compounds)	NA - 02	50	53	Yes	0.0004	E	52.8599	C	0.0000	---	0.0000	---	0.0000	---	0.0000	---
Cadmium (and its compounds)	NA - 03	5	4	No	---	---	---	---	---	---	---	---	---	---	---	---
Cobalt (and its compounds)	NA - 05	50	13	No	---	---	---	---	---	---	---	---	---	---	---	---
Lead (and its compounds) except tetraethyl lead	NA - 08	50	105	Yes	0.0009	E	104.9483	C	0.0000	---	0.0000	---	0.0000	---	0.0000	---
Mercury (and its compounds)	NA - 10	5	9	Yes	0.0005	E	8.8571	C	0.0000	---	0.0000	---	0.0000	---	0.0000	---
Selenium (and its compounds)	NA - 12	100	27	No	---	---	---	---	---	---	---	---	---	---	---	---

NA - Not Applicable
*Includes emissions of by-products.

C - Mass Balance

E - Published Emission Factors

**Environment Canada NPRI - PART 2 Substances
Total Facility Emissions - Polycyclic Aromatic Hydrocarbons**

Substance	CAS #	Release Threshold (kg/yr)	Annual Release Rate (Air) (kg/yr)	Estimation Method	Reportable? (Yes/No)
Acenaphthene	83-32-9	5	0.0000*	E	No
Acenaphthylene	208-96-8	5	0.0000*	E	No
Anthracene	120-12-7	5	0.0000*	E	No
Benzo(a)anthracene	56-55-3	5	0.0000*	E	No
Chrysene	218-01-9	5	0.0000*	E	No
Benzo(a)pyrene	50-32-8	5	0.0000*	E	No
Benzo(b)fluoranthene	205-99-2	5	0.0000*	E	No
Benzo(g,h,i)perylene	191-24-2	5	0.0000*	E	No
Benzo(k)fluoranthene	207-08-9	5	0.0000*	E	No
Dibenzo(a,h)anthracene	53-70-3	5	0.0000*	E	No
7,12-Dimethylbenz(a)anthracene	57-97-6	5	0.0000*	E	No
Fluoranthene	206-44-0	5	0.0000*	E	No
Fluorene	86-73-7	5	0.0000*	E	No
Indeno(1,2,3-c,d)pyrene	193-39-5	5	0.0000*	E	No
3-Methylchloranthrene	56-49-5	5	0.0000*	E	No
Phenanthrene	85-01-8	5	0.0000*	E	No
Pyrene	129-00-0	5	0.0001	E	No
Total PAHs	NA - P/H	50	0.0002	E	No

NA - Not Applicable

E - Published Emission Factors

*Value less than 0.0000 kg/year.

Environment Canada NPRI - PART 3 Substances
Total Facility Emissions - Dioxins/Furans and Hexachlorobenzene

Substance	CAS #	Annual Emission Rate (g TEQ/yr)	Estimation Method
No Reportable Part 3 Substances (i.e. company not engaged in identified activities)*			

*identified activities - as listed in "Guide for Reporting to the National Pollutant Release Inventory"

**Environment Canada NPRI - PART 4 Substances
 Total Facility Emissions - Criteria Air Contaminants**

Substance	CAS #	Release Threshold (tonne/yr)	Annual Emission Rate (tonne/yr)	Estimation Method	Reportable? (Yes/No)
Carbon Monoxide	630-08-0	20	0.1572	E	No
Oxides of Nitrogen	11104-93-1	20	4.3073	E	No
Sulphur Dioxide	7446-09-5	20	0.1475	E	No
Particulate Matter <=2.5 micrometers	NA - M10	0.3	0.0036	E	No
Particulate Matter <=10 micrometers	NA - M09	0.5	0.0036	E	No
Total Particulate Matter	NA - M08	20	0.0036	E	No
Volatile Organic Compounds (Total)	NA - M16	10	19.3581	E	Yes

NA - Not Applicable

E - Published Emission Factors

**Environment Canada NPRI - PART 5 Substances (VOCs)
Total Facility Emissions - Speciated Volatile Organic Compounds**

Substance	CAS #	Release Threshold (tonne/yr)	Annual Emission Rate (tonne/yr)	Estimation Method	Reportable? (Yes/No)
Benzene	71-43-2	1	0.1016	E	No
Formaldehyde	50-00-0	1	0.0072	E	No
n-Hexane	110-54-3	1	0.0034	E	No
Propane	74-98-6	1	0.0030	E	No
Styrene	100-42-5	1	0.0041	E	No
Toluene	108-88-3	1	0.0131	E	No
Butane (all isomers)	NA - 24	1	0.0039	E	No
Pentane (all isomers)	NA - 35	1	0.0049	E	No
Xylene (all isomers)	1330-20-7	1	0.0083	E	No

NA - Not Applicable

E - Published Emission Factors

APPENDIX III
O.Reg. 390/18 GHG Reporting Requirements
(1 Page)

O. Reg. 390/18 GHG Reporting

In July 2019, the MECP enacted O.Reg 390/18, Greenhouse Gas Emissions: Quantification, Reporting and Verification., made under the Environmental Protection Act (1990). Under this regulation, facilities emitting 10,000 tonnes of CO₂e are required to report GHG emissions. Facilities that are registered or required to register under O.Reg.241/19 (Greenhouse Gas Emissions Performance Standards Regulation) must have the emissions verified by a 3rd party. The regulated gases include the six (6) Kyoto gases (Carbon Dioxide, Methane, Nitrous Oxide, Sulphur Hexafluoride, Hydrofluorocarbons, and Perfluorocarbons), as well as Nitrogen Trifluoride.

NOTE 1: On-site mobile fuel combustion and emergency generators under 10MW in nameplate capacity are not to be included in emissions calculations under this Regulation, and thus these sources were omitted from the analysis.

NOTE 2: The MECP's "Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions", February 2020, lists the methods to be used to calculate the applicable emissions. However, the US EPA AP-42 emission factors for natural gas combustion (Chapter 1.4) list emission factors which result in more conservative results than the MECP emission factors. As such, the US EPA AP-42 emission factors were used in the assessment.

NOTE 3: For General Stationary Combustion only Carbon Dioxide, Methane, and Nitrous Oxide emissions are required to be assessed.

Pinchin Ltd. has provided a preliminary screening level assessment of Ontario GHG emissions for this program. Pinchin Ltd. has evaluated the reporting obligations for City of Barrie and concludes:

- City of Barrie is not required to report Ontario GHG emissions to the MECP.

The table below summarizes the data that was assessed for the Ontario GHG reporting program.

O. Reg. 390/18 - TABLE 1
Total Facility Emissions by Source

Substance	CAS #	Release Threshold CO ₂ e (tonnes/yr)	General Stationary Combustion Emissions (kg/yr)	100 Yr GWP (kg/yr)	Estimation Method	Annual Emission CO ₂ e (tonnes/yr)	Reportable? (Yes/No)
Carbon Dioxide	124-38-9	NA	2.25E+05	1	E	224.5741	NA
Methane	74-82-8	NA	4.30E+00	28	E	0.1205	NA
Nitrous Oxide	10024-97-2	NA	4.12E+00	265	E	1.0911	NA
Total	NA	10,000	NA	NA	NA	226	No

NA - Not Applicable

E - Published Emission Factors

APPENDIX IV
Federal GHG Reporting Requirements
(1 Page)

Federal GHG Reporting

In March 2004, the Government of Canada announced the introduction of mandatory reporting of greenhouse gas (Federal GHG) emissions. Statistics Canada jointly collects the information under the authority of the Statistics Act, Revised Statutes of Canada 1985, c.S-19, as well as under the authority of the CEPA and the Climate Change Emissions Management Act (Alberta). Completion of this report is a legal requirement under these Acts. Beginning with the 2017 reporting year, the reporting threshold for facility emissions is set at 10 kilotonnes of Carbon Dioxide equivalent annually.

Pinchin Ltd. provides all NPRI clients with a screening level assessment of Federal GHG emissions for this program. As per the Technical Guidance on Reporting GHG Emissions (November 2016), only direct emissions are evaluated for this Government of Canada program (i.e., indirect emissions from electricity generation are not evaluated and therefore this assessment should not be considered a completed GHG inventory in accordance with ISO 14064 or the World Resource Institute’s GHG Protocol). Pinchin Ltd. has evaluated the reporting obligations for City of Barrie and concludes:

- City of Barrie is not required to report Federal GHG emissions to the Government of Canada.

The table below summarizes the data that was assessed for the Federal GHG reporting program.

Greenhouse Gas Reporting Program - Environment Canada and Statistics Canada Total Facility Emissions

Substance	CAS #	Release Threshold CO ₂ e (tonnes/yr)	Emission Rate (kg/yr)	100 Yr GWP (kg/yr)	Estimation Method	Annual Emission CO ₂ e (tonnes/yr)	Reportable? (Yes/No)
Carbon Dioxide	124-38-9	NA	2.25E+05	1	E	224.5741	NA
Methane	74-82-8	NA	4.30E+00	28	E	0.1205	NA
Nitrous Oxide	10024-97-2	NA	4.12E+00	265	E	1.0911	NA
Total	NA	10,000	NA	NA	NA	226	No

NA - Not Applicable

E - Published Emission Factors

APPENDIX V
Information Provided by City of Barrie Wastewater Treatment Facility
(5 Pages)

Influent Flow and Composition				
Month	Daily Flow (1000 m ³ /day)	Average Contaminant Concentrations		
		Ammonia mg/L	Nitrate- Nitrogen mg/L	Phosphorous mg/L
January	49.5	25.22	0.040	4.54
February	49.4	27.89	0.040	5.06
March	51.6	29.10	0.040	5.07
April	53.4	25.93	0.040	4.70
May	50.3	26.63	0.040	4.79
June	51.2	22.40	0.040	3.19
July	46.6	22.25	0.040	5.16
August	47.5	24.36	0.040	4.84
September	47.1	20.75	0.040	4.47
October	46.0	26.15	0.040	5.43
November	45.1	26.91	0.040	5.09
December	47.7	28.19	0.040	4.77

Effluent Flow and Composition					
Month	Daily Flow (1000 m ³ /day)	Ammonia (mg/L)	Nitrate- Nitrogen (mg/L)	Nitrate-Ion (mg/L)	Phosphorus (mg/L)
January	49.5	0.50	15.11	66.5	0.02
February	49.4	0.71	15.75	69.3	0.02
March	51.6	0.82	16.17	71.2	0.05
April	53.4	0.19	15.10	66.4	0.02
May	50.3	0.50	16.28	71.6	0.02
June	51.2	0.14	14.35	63.1	0.03
July	46.6	0.07	15.52	68.3	0.02
August	47.5	0.08	15.03	66.1	0.02
September	47.1	0.12	16.13	71.0	0.02
October	46.0	0.15	15.76	69.4	0.02
November	45.1	1.14	16.38	72.1	0.02
December	47.7	0.47	16.58	73.0	0.02

Average Annual Releases to Lake Simcoe in Effluent				
Month	Average Daily Flow (m ³ /d)	Ammonia- N (mg/L)	Nitrate- Nitrogen (mg/L)	Phosphorus- Ptot (mg/L)
Jan	49,543	0.50	15.11	0.020
Feb	49,385	0.71	15.75	0.023
Mar	51,620	0.82	16.17	0.047
April	53,399	0.19	15.10	0.020
May	50,259	0.50	16.28	0.021
June	51,161	0.14	14.35	0.028
July	46,639	0.07	15.52	0.020
Aug	47,450	0.08	15.03	0.022
Sept	47,112	0.12	16.13	0.023
Oct	45,959	0.15	15.76	0.020
Nov	45,097	1.14	16.38	0.021
Dec	47,724	0.47	16.58	0.020

2022 Natural Gas Consumption

Month	Usage (M₃)
January	17,846
February	14,642
March	13,382
April	12,911
May	11,435
June	7,283
July	3,087
August	2,306
September	3,010
October	4,830
November	9,400
December	16,696
Total	116,830

Biogas Production (m³)				
Date By Month	Avg Of Gas to Process	Waste Gas Readings	no. days	Total m³/mo
January	3,916	1812	31	177,568
February	3,942	1922	28	164,192
March	3,943	2126	31	188,139
April	3,895	2271	30	184,980
May	3,912	2027	31	184,109
June	3,763	2050	30	174,390
July	3,819	1706	31	171,275
August	3,614	1534	31	159,588
September	3,708	1348	30	151,680
October	3,788	1270	31	156,798
November	3,544	1387	30	147,930
December	3,859	1642	31	170,531

The total biogas consumption for 2022 (249 Bradford St.) was 2,031,180 cubic metres.

Biosolids Land Application - 2022						
Month	Site ID	NASM	m ³ from WwTF	m ³ from BSF	Site Total m ³	Date Spread
April	S11080	24923	579.17	487	1066.04	April 11
	S11081	24897	935.32	1639.83	2575.15	April 12, 16, 18
	S11069	24529	578.71	677	1255.24	April 18, 22
	S11087	24934	345.34	656.94	1002.28	April 21
	S11034	24886	1606.59	2285.32	3891.91	April 28, 29, 30
Monthly Total m³			4045.13	5745.49	9790.62	
May	S12069	23703	1200.93	1644.38	2845.31	May 5, 10
	S12069	24122	489.05	956.09	1445.14	May 11, 12
	S12049	24890	1542.19	1277.88	2820.07	May 13, 15, 18, 19
	S12010	24907	2271.52	1544.66	3816.18	May 20, 24, 25, 26
	S12053	24893	980.19	1787.54	2767.73	May 30,31
Monthly Total m³			6483.88	7210.55	13694.43	
June	S12053	24893	311.63	379.74	691.37	June 1
	S12070	23707	1291.03	2303.9	3594.93	June 2, 3, 4
	S12027	23847	927.41	1849.1	2776.51	June 23, 24, 25
	S12099	24399	1463.81	849.69	2313.5	June 27, 28, 29
	S12098	24293	355.47	941.12	1296.59	June 30
	Monthly Total m³			4349.35	6323.55	10672.90
July	S5008	25065	665.75		665.75	45113
	S5024	24086	355.44		355.44	July 7
	S5048	24520	311.42		311.42	July 13, 14
	S12116	25048	1640.65	2191.04	3831.69	July 19, 20, 21
	S12016	24739	399.01	1023.32	1422.33	July 22
	S12015	24708	712.32	872.38	1584.7	July 26
	S11075	24084	400.85	460.64	861.49	45136
Monthly Total m³			4485.44	4547.38	9032.82	
August	S11075	24084	623.41	663.81	1287.22	45140
	S11078	24519, 24001	2002.89	2568.69	4571.58	August 3, 5, 6, 8
	S11098	24915	667.7	1898	2565.86	August 9, 10
	S5018	25105	1780.21		1780.21	August 12, 15, 16
	S12094	24030		2901	2901.10	August 16, 17, 18
	S5055	24131	1024.24	347	1371.38	August 18, 19, 25
	S17010	25045	89.01	1023	1111.56	August 24, 25
	S12048	24962	846.18	778	1624.62	August 26, 27, 29, 30
	S12036	24319	400.89	510	911.19	45169
Monthly Total m³			7434.53	10690.19	18124.72	
September	S12036	24319	975.97	733.68	1709.65	September 1,6
	S17009	25046		552.83	552.83	September 7, 8, 9
	S12054	24323	844.19	1027.60	1871.79	September 7, 8
	S11063	25175	1558.42	1018.84	2577.26	September 9, 12, 14
	S11063	24519	2405.37	1616.79	4022.16	September 16, 20, 21, 23
	S11072	24935	1157.08	1479	2636.55	September 29, 30
Monthly Total m³			6941.03	6429.21	13370.24	
October	S11072	24935	801.62	1915.58	2717.20	October 1,3
	S5044	24926	1149.27		1149.27	October 4, 6, 7
	S11086	25125	1336.26	786.86	2123.12	October 14, 15, 17, 18
	S4011	25136	1193.53		1193.53	October 11, 14, 19, 20, 21
	S4006	25122	1737.24		1737.24	October 24, 26, 27, 28, 31
Monthly Total m³			6217.92	2702.44	8920.36	
November	S4030	25146	1552.92		1552.92	November 1, 2, 4, 7, 8
	S12017	24940	1023.6	4518.80	5542.4	November 8, 9, 10, 11, 12
	S12078	23713	578.91	1539	2117.94	November 12, 14
	S11099	24949	534.34	401	935.71	November 15
	S50410	25249	178.07		178.07	November 25
	S11002	23455, 23458	400.58	267.80	668.38	Nov 29
Monthly Total m³			3689.77	6459.20	10148.97	
Totals			43647.05	50108.01	93755.06	

Biosolids Site Locations - 2022				
Site	Lot	Conc	Township	County
S11080	8	3	Vespra	Simcoe
S11081	27	2	Vespra	Simcoe
S11069	8	3	Vespra	Simcoe
S11087	9	10	Springwater	Simcoe
S11034	15	1	Vespra	Simcoe
S12069	10	3	Oro-Medonte	Simcoe
S12069	15	7	Oro-Medonte	Simcoe
S12049	18	5	Oro-Medonte	Simcoe
S12010	17, 18	6	Oro-Medonte	Simcoe
S12053	25	5	Oro-Medonte	Simcoe
S12070	28	2	Oro-Medonte	Simcoe
S12027	6	3	Oro Medonte	Simcoe
S12099	26, 27	4	Oro-Medonte	Simcoe
S12098	13	10	Oro-Medonte	Simcoe
S5008	24	10	Essa	Simcoe
S5024	23	8	Essa	Simcoe
S5048	5	10	Essa	Simcoe
S12116	4	2nd Range	Oro-Medonte	Simcoe
S12016	12	5	Oro Medonte	Simcoe
S12015	13	11	Oro-Medonte	Simcoe
S11075	6	1	Springwater	Simcoe
S11078	4, 5	9	Springwater	Simcoe
S11098	12, 13	1	Springwater	Simcoe
S5018	19, 20	9	Essa	Simcoe
S12094	9	2	Oro-Medonte	Simcoe
S5055	19	9	Essa	Simcoe
S17010	8	5 North	Severn	Simcoe
S12048	6	16	Oro-Medonte	Simcoe
S12036	17	9	Oro-Medonte	Simcoe
S17009	11, 12,	6 Northern	Severn	Simcoe
S12054	23, 24	9	Oro-Medonte	Simcoe
S11063	14, 15	5	Oro-Medonte	Simcoe
S11063	5	9	Springwater	Simcoe
S11072	13	2	Springwater	Simcoe
S5044	8	9	Essa	Simcoe
S11086	10	2	Springwater	Simcoe
S4011	16	9	New Tecumseth	Simcoe
S4006	16	13	New Tecumseth	Simcoe
S4030	16, 17	14	New Tecumesth	Simcoe
S12017	26, 28	4	Oro-Medonte	Simcoe
S12078	24	4	Oro-Medonte	Simcoe
S11099	15	1	Oro-Medonte	Simcoe
S50410	9	31	Essa	Simcoe
S11002	18	4	Springwater	Simcoe

APPENDIX VI
Calculation Datasheets and Summary Tables
(25 Pages)

Biosolids Land Application - 2022					
Month	Site ID	m ³ from WwTF	m ³ from BSF	Site Total m ³	Date Spread
April	S11080	579.17	487	1066.04	April 11
	S11081	935.32	1639.83	2575.15	April 12, 16, 18
	S11069	578.71	677	1255.24	April 18, 22
	S11087	345.34	656.94	1002.28	April 21
	S11034	1606.59	2285.32	3891.91	April 28, 29, 30
Monthly Total m³		4045.13	5745.49	9790.62	
May	S12069	1200.93	1644.38	2845.31	May 5, 10
	S12069	489.05	956.09	1445.14	May 11, 12
	S12049	1542.19	1277.88	2820.07	May 13, 15, 18, 19
	S12010	2271.52	1544.66	3816.18	May 20, 24, 25, 26
	S12053	980.19	1787.54	2767.73	May 30,31
Monthly Total m³		6483.88	7210.55	13694.43	
June	S12053	311.63	379.74	691.37	June 1
	S12070	1291.03	2303.9	3594.93	June 2, 3, 4
	S12027	927.41	1849.1	2776.51	June 23, 24, 25
	S12099	1463.81	849.69	2313.5	June 27, 28, 29
	S12098	355.47	941.12	1296.59	June 30
Monthly Total m³		4349.35	6323.55	10672.90	
July	S5008	665.75		665.75	45113
	S5024	355.44		355.44	July 7
	S5048	311.42		311.42	July 13, 14
	S12116	1640.65	2191.04	3831.69	July 19, 20, 21
	S12016	399.01	1023.32	1422.33	July 22
	S12015	712.32	872.38	1584.7	July 26
	S11075	400.85	460.64	861.49	July 29
Monthly Total m³		4485.44	4547.38	9032.82	
August	S11075	623.41	663.81	1287.22	August 2
	S11078	2002.89	2568.69	4571.58	August 3, 5, 6, 8
	S11098	667.7	1898	2565.86	August 9, 10
	S5018	1780.21		1780.21	August 12, 15, 16
	S12094		2901	2901.10	August 16, 17, 18
	S5055	1024.24	347	1371.38	August 18, 19, 25
	S17010	89.01	1023	1111.56	August 24, 25
	S12048	846.18	778	1624.62	August 26, 27, 29, 30
	S12036a	400.89	510	911.19	August 31
Monthly Total m³		7434.53	10690.19	18124.72	
September	S12036b	975.97	733.68	1709.65	September 1,6
	S17009		552.83	552.83	September 7, 8, 9
	S12054	844.19	1027.60	1871.79	September 7, 8
	S11063	1558.42	1018.84	2577.26	September 9, 12, 14
	S11063	2405.37	1616.79	4022.16	September 16, 20, 21, 23
	S11072a	1157.08	1479	2636.55	September 29, 30
Monthly Total m³		6941.03	6429.21	13370.24	
October	S11072b	801.62	1915.58	2717.20	October 1,3
	S5044	1149.27		1149.27	October 4, 6, 7
	S11086	1336.26	786.86	2123.12	October 14, 15, 17, 18
	S4011	1193.53		1193.53	October 11, 14, 19, 20, 21
	S4006	1737.24		1737.24	October 24, 26, 27, 28, 31
Monthly Total m³		6217.92	2702.44	8920.36	
November	S4030	1552.92		1552.92	November 1, 2, 4, 7, 8
	S12017	1023.6	4518.80	5542.4	November 8, 9, 10, 11, 12
	S12078	578.91	1539	2117.94	November 12, 14
	S11099	534.34	401	935.71	November 15
	S50410	178.07		178.07	November 25
	S11002	400.58	267.80	668.38	Nov 29
Monthly Total m³		4268.42	6727.00	10995.42	
Totals		44225.70	50375.81	94601.51	

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11080	1116.67	1116.67	646.74	543.67	1190.41
Ammonia(mg/L)	1116.67	1116.67	646.74	543.67	1190.41
Arsenic(mg/L)	0.09	0.09	0.05	0.05	0.10
Cadmium(mg/L)	0.02	0.02	0.01	0.01	0.02
Chromium(mg/L)	0.65	0.65	0.38	0.32	0.69
Cobalt(mg/L)	0.06	0.06	0.00	0.00	0.01
Copper(mg/L)	20.39	20.39	11.81	9.93	21.74
E.Coli(CFU/g dry)	5983.33	5983.33	3465.37	2913.11	6378.47
Lead(mg/L)	0.69	0.69	0.40	0.33	0.73
Magnesium(mg/L)	116.92	116.92	67.71	56.92	124.64
Manganese(mg/L)	3.36	3.36	1.94	1.63	3.58
Mercury(mg/L)	0.05	0.05	0.03	0.03	0.06
Molybdenum(mg/L)	0.16	0.16	0.09	0.08	0.17
Nickel(mg/L)	0.34	0.34	0.20	0.17	0.36
Nitrite(mg/L)	0.05	0.05	0.03	0.02	0.05
Nitrate(mg/L)	0.04	0.04	0.02	0.02	0.04
pH(SU)	7.43	7.43	4.30	3.62	7.92
Potassium(mg/L)	177.75	177.75	102.95	86.54	189.49
Selenium(mg/L)	0.15	0.15	0.09	0.07	0.16
TKN(mg/L)	2560.00	2560.00	1482.68	1246.39	2729.06
TP(mg/L)	940.58	940.58	544.76	457.94	1002.70
Total Solids(%)	0.03%	0.03%	163.13	137.14	300.27
VSolids (Dry) (%)	0.64%	0.64%	1.04	3102.17	3103.21
Zinc(mg/L)	11.62	11.62	6.73	5.66	12.39

Sample Calculation:

$$\begin{aligned}
 \text{Chromium Applied (Site S11080)} &= (\text{WwTF volume applied (m}^3\text{)} \times \text{WwTF Avg concentrations (mg/L)} + \text{BSF volume (m}^3\text{)}) \\
 &\quad \times \text{BSF Avg concentration (mg/L)} \times 1 \text{ kg}/10^6 \text{ mg} \times 1000 \text{ L}/\text{m}^3 \\
 &= (1290.5 \text{ m}^3 \times 0.56 \text{ mg/L} + 2403 \text{ m}^3 \times 0.56 \text{ mg/L}) \times 1 \text{ kg}/10^6 \text{ mg} \times 1000 \text{ L}/\text{m}^3 \\
 &= 6.90\text{E-}01 \text{ kg}/\text{yr}
 \end{aligned}$$

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11081	1116.67	1116.67	1044.44	1831.14	2875.58
Ammonia(mg/L)	1116.67	1116.67	1044.44	1831.14	2875.58
Arsenic(mg/L)	0.09	0.09	0.09	0.15	0.24
Cadmium(mg/L)	0.02	0.02	0.01	0.02	0.04
Chromium(mg/L)	0.65	0.65	0.61	1.06	1.67
Cobalt(mg/L)	0.06	0.06	0.01	0.01	0.01
Copper(mg/L)	20.39	20.39	19.07	33.44	52.51
E.Coli(CFU/g dry)	5983.33	5983.33	5596.33	9811.65	15407.98
Lead(mg/L)	0.69	0.69	0.64	1.12	1.77
Magnesium(mg/L)	116.92	116.92	109.35	191.72	301.08
Manganese(mg/L)	3.36	3.36	3.14	5.50	8.64
Mercury(mg/L)	0.05	0.05	0.05	0.09	0.14
Molybdenum(mg/L)	0.16	0.16	0.15	0.26	0.41
Nickel(mg/L)	0.34	0.34	0.32	0.56	0.88
Nitrite(mg/L)	0.05	0.05	0.05	0.08	0.13
Nitrate(mg/L)	0.04	0.04	0.04	0.07	0.10
Potassium(mg/L)	177.75	177.75	166.25	291.48	457.73
Selenium(mg/L)	0.15	0.15	0.14	0.25	0.39
TKN(mg/L)	2560.00	2560.00	2394.42	4197.96	6592.38
TP(mg/L)	940.58	940.58	879.75	1542.40	2422.14
Total Solids(%)	2.82%	2.82%	26344.85	46188.55	72533.39
VSolids (Dry) (%)	63.72%	63.72%	16786.06	29429.80	46215.86
Zinc(mg/L)	11.62	11.62	0.00	0.00	0.00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11069	1116.67	1116.67	646.23	755.46	1401.68
Ammonia(mg/L)	1116.67	1116.67	646.23	755.46	1401.68
Arsenic(mg/L)	0.09	0.09	0.05	0.06	0.12
Cadmium(mg/L)	0.02	0.02	0.01	0.01	0.02
Chromium(mg/L)	0.65	0.65	0.37	0.44	0.81
Cobalt(mg/L)	0.06	0.06	0.00	0.00	0.01
Copper(mg/L)	20.39	20.39	11.80	13.80	25.60
E.Coli(CFU/g dry)	5983.33	5983.33	3462.61	4047.90	7510.52
Lead(mg/L)	0.69	0.69	0.40	0.46	0.86
Magnesium(mg/L)	116.92	116.92	67.66	79.10	146.76
Manganese(mg/L)	3.36	3.36	1.94	2.27	4.21
Mercury(mg/L)	0.05	0.05	0.03	0.04	0.07
Molybdenum(mg/L)	0.16	0.16	0.09	0.11	0.20
Nickel(mg/L)	0.34	0.34	0.20	0.23	0.43
Nitrite(mg/L)	0.05	0.05	0.03	0.03	0.06
Nitrate(mg/L)	0.04	0.04	0.02	0.03	0.05
Potassium(mg/L)	177.75	177.75	102.87	120.25	223.12
Selenium(mg/L)	0.15	0.15	0.09	0.10	0.19
TKN(mg/L)	2560.00	2560.00	1481.50	1731.92	3213.41
TP(mg/L)	940.58	940.58	544.32	636.33	1180.66
Total Solids(%)	2.82%	2.82%	16300.33	19055.60	35355.93
VSolids (Dry) (%)	63.72%	63.72%	10386.03	12141.59	22527.62
Zinc(mg/L)	11.62	11.62	6.73	7.86	14.59

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11087	1116.67	1116.67	385.63	733.58	1119.21
Ammonia(mg/L)	0.09	0.09	0.03	0.06	0.09
Arsenic(mg/L)	0.02	0.02	0.01	0.01	0.02
Cadmium(mg/L)	0.65	0.65	0.22	0.43	0.65
Chromium(mg/L)	0.06	0.06	0.02	0.04	0.06
Cobalt(mg/L)	20.39	20.39	7.04	13.40	20.44
Copper(mg/L)	5983.33	5983.33	2066.28	3930.69	5996.98
E.Coli(CFU/g dry)	0.69	0.69	0.24	0.45	0.69
Lead(mg/L)	116.92	116.92	40.38	76.81	117.18
Magnesium(mg/L)	3.36	3.36	1.16	2.20	3.36
Manganese(mg/L)	0.05	0.05	0.02	0.04	0.05
Mercury(mg/L)	0.16	0.16	0.05	0.10	0.16
Molybdenum(mg/L)	0.34	0.34	0.12	0.22	0.34
Nickel(mg/L)	0.05	0.05	0.02	0.03	0.05
Nitrite(mg/L)	0.04	0.04	0.01	0.03	0.04
Nitrate(mg/L)	177.75	177.75	61.38	116.77	178.16
Potassium(mg/L)	0.15	0.15	0.05	0.10	0.15
Selenium(mg/L)	2560.00	2560.00	884.07	1681.77	2565.84
TKN(mg/L)	940.58	940.58	324.82	617.91	942.73
TP(mg/L)	2.82%	2.82%	9727.08	18503.81	28230.89
Total Solids(%)	63.72%	63.72%	6197.77	418580.27	424778.04
VSolids (Dry) (%)	11.62	11.62	4.01	7.63	11.65
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11034	1116.67	1116.67	1794.03	2551.94	4345.97
Ammonia(mg/L)	0.09	0.09	0.15	0.21	0.36
Arsenic(mg/L)	0.02	0.02	0.02	0.03	0.06
Cadmium(mg/L)	0.65	0.65	1.04	1.48	2.52
Chromium(mg/L)	0.06	0.06	0.09	0.13	0.23
Cobalt(mg/L)	20.39	20.39	32.76	46.60	79.36
Copper(mg/L)	5983.33	5983.33	9612.76	13673.83	23286.59
E.Coli(CFU/g dry)	0.69	0.69	1.10	1.57	2.67
Lead(mg/L)	116.92	116.92	187.84	267.19	455.03
Magnesium(mg/L)	3.36	3.36	5.39	7.67	13.06
Manganese(mg/L)	0.05	0.05	0.09	0.12	0.21
Mercury(mg/L)	0.16	0.16	0.25	0.36	0.62
Molybdenum(mg/L)	0.34	0.34	0.55	0.78	1.33
Nickel(mg/L)	0.05	0.05	0.08	0.11	0.19
Nitrite(mg/L)	0.04	0.04	0.06	0.09	0.16
Nitrate(mg/L)	177.75	177.75	285.57	406.22	691.79
Potassium(mg/L)	0.15	0.15	0.24	0.34	0.58
Selenium(mg/L)	2560.00	2560.00	4112.87	5850.42	9963.29
TKN(mg/L)	940.58	940.58	1511.13	2149.53	3660.67
TP(mg/L)	2.82%	2.82%	45252.29	64369.85	109622.13
Total Solids(%)	63.72%	63.72%	28833.25	41014.32	69847.57
VSolids (Dry) (%)	11.62	11.62	18.67	26.56	45.23
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12069	1150.67	1150.67	1944.60	2992.27	4936.88
Ammonia(mg/L)	0.15	0.15	0.25	0.38	0.63
Arsenic(mg/L)	0.01	0.01	0.02	0.04	0.06
Cadmium(mg/L)	0.57	0.57	0.96	1.47	2.43
Chromium(mg/L)	0.06	0.06	0.10	0.16	0.26
Cobalt(mg/L)	20.15	20.15	34.06	52.41	86.47
Copper(mg/L)	6253.33	6253.33	10568.01	16261.61	26829.61
E.Coli(CFU/g dry)	0.70	0.70	1.19	1.83	3.02
Lead(mg/L)	109.47	109.47	185.00	284.66	469.66
Magnesium(mg/L)	3.12	3.12	5.28	8.12	13.40
Manganese(mg/L)	0.10	0.10	0.17	0.26	0.43
Mercury(mg/L)	0.15	0.15	0.26	0.39	0.65
Molybdenum(mg/L)	0.27	0.27	0.46	0.71	1.17
Nickel(mg/L)	0.03	0.03	0.05	0.07	0.12
Nitrite(mg/L)	0.04	0.04	0.07	0.10	0.17
Nitrate(mg/L)	167.60	167.60	283.24	435.84	719.08
Potassium(mg/L)	0.16	0.16	0.28	0.43	0.71
Selenium(mg/L)	2530.00	2530.00	4275.65	6579.19	10854.84
TKN(mg/L)	889.13	889.13	1502.62	2312.16	3814.78
TP(mg/L)	2.95%	2.95%	49910.74	76800.55	126711.29
Total Solids(%)	64.08%	64.08%	31982.80	49213.79	81196.59
VSolids (Dry) (%)	11.60	11.60	19.60	30.16	49.75
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12049	1150.67	1150.67	1774.55	1470.41	3244.96
Ammonia(mg/L)	0.15	0.15	0.23	0.19	0.42
Arsenic(mg/L)	0.01	0.01	0.02	0.02	0.04
Cadmium(mg/L)	0.57	0.57	0.87	0.72	1.60
Chromium(mg/L)	0.06	0.06	0.09	0.08	0.17
Cobalt(mg/L)	20.15	20.15	31.08	25.75	56.83
E.Coli(CFU/g dry)	6253.33	6253.33	9643.83	7991.01	17634.84
Lead(mg/L)	0.70	0.70	1.08	0.90	1.98
Magnesium(mg/L)	109.47	109.47	168.82	139.89	308.70
Manganese(mg/L)	3.12	3.12	4.82	3.99	8.81
Mercury(mg/L)	0.10	0.10	0.15	0.13	0.28
Molybdenum(mg/L)	0.15	0.15	0.23	0.19	0.43
Nickel(mg/L)	0.27	0.27	0.42	0.35	0.77
Nitrite(mg/L)	0.03	0.03	0.04	0.04	0.08
Nitrate(mg/L)	0.04	0.04	0.06	0.05	0.11
Potassium(mg/L)	167.60	167.60	258.47	214.17	472.64
Selenium(mg/L)	0.16	0.16	0.25	0.21	0.46
TKN(mg/L)	2530.00	2530.00	3901.74	3233.04	7134.78
TP(mg/L)	889.13	889.13	1371.21	1136.21	2507.42
Total Solids(%)	2.95%	2.95%	45546.01	37740.06	83286.07
VSolids (Dry) (%)	64.08%	64.08%	29185.88	24183.83	53369.71
Zinc(mg/L)	11.60	11.60	17.88	14.82	32.70

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12010	1150.67	1150.67	2613.76	1777.39	4391.15
Ammonia(mg/L)	0.15	0.15	0.34	0.23	0.56
Arsenic(mg/L)	0.01	0.01	0.03	0.02	0.06
Cadmium(mg/L)	0.57	0.57	1.29	0.88	2.16
Chromium(mg/L)	0.06	0.06	0.14	0.09	0.23
Cobalt(mg/L)	20.15	20.15	45.78	31.13	76.91
E.Coli(CFU/g dry)	6253.33	6253.33	14204.57	9659.27	23863.85
Lead(mg/L)	0.70	0.70	1.60	1.09	2.68
Magnesium(mg/L)	109.47	109.47	248.66	169.09	417.74
Manganese(mg/L)	3.12	3.12	7.09	4.82	11.92
Mercury(mg/L)	0.10	0.10	0.23	0.15	0.38
Molybdenum(mg/L)	0.15	0.15	0.34	0.23	0.58
Nickel(mg/L)	0.27	0.27	0.62	0.42	1.04
Nitrite(mg/L)	0.03	0.03	0.06	0.04	0.11
Nitrate(mg/L)	0.04	0.04	0.09	0.06	0.15
Potassium(mg/L)	167.60	167.60	380.71	258.89	639.59
Selenium(mg/L)	0.16	0.16	0.37	0.25	0.63
TKN(mg/L)	2530.00	2530.00	5746.95	3907.99	9654.94
TP(mg/L)	889.13	889.13	2019.68	1373.41	3393.09
Total Solids(%)	2.95%	2.95%	67085.56	45618.96	112704.52
VSolids (Dry) (%)	64.08%	64.08%	42988.43	29232.63	72221.05
Zinc(mg/L)	11.60	11.60	26.34	17.91	44.25

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12053	1150.67	1150.67	1486.45	2493.82	3980.27
Ammonia(mg/L)	0.15	0.15	0.19	0.32	0.51
Arsenic(mg/L)	0.01	0.01	0.02	0.03	0.05
Cadmium(mg/L)	0.57	0.57	0.73	1.23	1.96
Chromium(mg/L)	0.06	0.06	0.08	0.13	0.21
Cobalt(mg/L)	20.15	20.15	26.03	43.68	69.71
E.Coli(CFU/g dry)	6253.33	6253.33	8078.18	13552.72	21630.91
Lead(mg/L)	0.70	0.70	0.91	1.52	2.43
Magnesium(mg/L)	109.47	109.47	141.41	237.24	378.66
Manganese(mg/L)	3.12	3.12	4.03	6.77	10.80
Mercury(mg/L)	0.10	0.10	0.13	0.22	0.35
Molybdenum(mg/L)	0.15	0.15	0.20	0.33	0.52
Nickel(mg/L)	0.27	0.27	0.35	0.59	0.94
Nitrite(mg/L)	0.03	0.03	0.04	0.06	0.10
Nitrate(mg/L)	0.04	0.04	0.05	0.09	0.14
Potassium(mg/L)	167.60	167.60	216.51	363.24	579.75
Selenium(mg/L)	0.16	0.16	0.21	0.36	0.57
TKN(mg/L)	2530.00	2530.00	3268.30	5483.22	8751.52
TP(mg/L)	889.13	889.13	1148.60	1927.00	3075.60
Total Solids(%)	2.95%	2.95%	38151.75	64007.00	102158.75
VSolids (Dry) (%)	64.08%	64.08%	24447.64	41015.69	65463.33
Zinc(mg/L)	11.60	11.60	14.98	25.13	40.11

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12070	1133.64	1133.64	1463.56	2611.79	4075.35
Ammonia(mg/L)	0.09	0.09	0.12	0.22	0.34
Arsenic(mg/L)	0.01	0.01	0.02	0.03	0.05
Cadmium(mg/L)	0.75	0.75	0.96	1.72	2.69
Chromium(mg/L)	0.07	0.07	0.10	0.17	0.27
Cobalt(mg/L)	24.56	24.56	31.71	56.58	88.29
E.Coli(CFU/g dry)	16800.00	16800.00	21689.30	38705.52	60394.82
Lead(mg/L)	0.79	0.79	1.02	1.82	2.84
Magnesium(mg/L)	128.67	128.67	166.11	296.44	462.55
Manganese(mg/L)	4.00	4.00	5.17	9.22	14.38
Mercury(mg/L)	0.09	0.09	0.11	0.20	0.31
Molybdenum(mg/L)	0.17	0.17	0.23	0.40	0.63
Nickel(mg/L)	0.36	0.36	0.46	0.82	1.28
Nitrite(mg/L)	0.04	0.04	0.05	0.10	0.15
Nitrate(mg/L)	0.04	0.04	0.05	0.09	0.14
Potassium(mg/L)	156.22	156.22	201.69	359.92	561.61
Selenium(mg/L)	0.13	0.13	0.17	0.29	0.46
TKN(mg/L)	2859.72	2859.72	3691.99	6588.51	10280.50
TP(mg/L)	1137.36	1137.36	1468.37	2620.37	4088.73
Total Solids(%)	3.59%	3.59%	46369.49	82748.41	129117.90
VSolids (Dry) (%)	64.32%	64.32%	29825.89	1481919.68	1511745.57
Zinc(mg/L)	14.69	14.69	18.97	33.86	52.83

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12027	1133.64	1133.64	1051.35	2096.21	3147.56
Ammonia(mg/L)	0.09	0.09	0.09	0.17	0.26
Arsenic(mg/L)	0.01	0.01	0.01	0.02	0.04
Cadmium(mg/L)	0.75	0.75	0.69	1.38	2.07
Chromium(mg/L)	0.07	0.07	0.07	0.14	0.21
Copper(mg/L)	24.56	24.56	22.78	45.41	68.19
E.Coli(CFU/g dry)	16800.00	16800.00	15580.49	31064.88	46645.37
Lead(mg/L)	0.79	0.79	0.73	1.46	2.20
Magnesium(mg/L)	128.67	128.67	119.33	237.92	357.24
Manganese(mg/L)	4.00	4.00	3.71	7.40	11.11
Mercury(mg/L)	0.09	0.09	0.08	0.16	0.24
Molybdenum(mg/L)	0.17	0.17	0.16	0.32	0.48
Nickel(mg/L)	0.36	0.36	0.33	0.66	0.99
Nitrite(mg/L)	0.04	0.04	0.04	0.08	0.12
Nitrate(mg/L)	0.04	0.04	0.04	0.07	0.11
Potassium(mg/L)	156.22	156.22	144.88	288.87	433.75
Selenium(mg/L)	0.13	0.13	0.12	0.24	0.36
TKN(mg/L)	2859.72	2859.72	2652.13	5287.91	7940.05
TP(mg/L)	1137.36	1137.36	1054.80	2103.09	3157.89
Total Solids(%)	3.59%	3.59%	33309.48	66413.51	99722.98
VSolids (Dry) (%)	64.32%	64.32%	21425.40	42718.64	64144.04
Zinc(mg/L)	14.69	14.69	13.63	27.17	40.80

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12099	1133.64	1133.64	1659.43	963.24	2622.67
Ammonia(mg/L)	0.09	0.09	0.14	0.08	0.22
Arsenic(mg/L)	0.01	0.01	0.02	0.01	0.03
Cadmium(mg/L)	0.75	0.75	1.09	0.63	1.73
Chromium(mg/L)	0.07	0.07	0.11	0.06	0.17
Copper(mg/L)	24.56	24.56	35.95	20.87	56.82
E.Coli(CFU/g dry)	16800.00	16800.00	24592.01	14274.79	38866.80
Lead(mg/L)	0.79	0.79	1.16	0.67	1.83
Magnesium(mg/L)	128.67	128.67	188.34	109.33	297.67
Manganese(mg/L)	4.00	4.00	5.86	3.40	9.26
Mercury(mg/L)	0.09	0.09	0.13	0.07	0.20
Molybdenum(mg/L)	0.17	0.17	0.26	0.15	0.40
Nickel(mg/L)	0.36	0.36	0.52	0.30	0.82
Nitrite(mg/L)	0.04	0.04	0.06	0.04	0.10
Nitrate(mg/L)	0.04	0.04	0.06	0.03	0.09
Potassium(mg/L)	156.22	156.22	228.68	132.74	361.42
Selenium(mg/L)	0.13	0.13	0.19	0.11	0.30
TKN(mg/L)	2859.72	2859.72	4186.09	2429.88	6615.97
TP(mg/L)	1137.36	1137.36	1664.88	966.40	2631.28
Total Solids(%)	3.59%	3.59%	52575.18	30518.03	83093.21
VSolids (Dry) (%)	64.32%	64.32%	33817.52	546539.49	580357.01
Zinc(mg/L)	14.69	14.69	21.51	12.49	34.00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12098					
Ammonia(mg/L)	1133.64	1133.64	402.97	1066.89	1469.86
Arsenic(mg/L)	0.09	0.09	0.03	0.09	0.12
Cadmium(mg/L)	0.01	0.01	0.00	0.01	0.02
Chromium(mg/L)	0.75	0.75	0.27	0.70	0.97
Cobalt(mg/L)	0.07	0.07	0.03	0.07	0.10
Copper(mg/L)	24.56	24.56	8.73	23.11	31.84
E.Coli(CFU/g dry)	16800.00	16800.00	5971.90	15810.82	21782.71
Lead(mg/L)	0.79	0.79	0.28	0.74	1.03
Magnesium(mg/L)	128.67	128.67	45.74	121.09	166.83
Manganese(mg/L)	4.00	4.00	1.42	3.77	5.19
Mercury(mg/L)	0.09	0.09	0.03	0.08	0.11
Molybdenum(mg/L)	0.17	0.17	0.06	0.16	0.23
Nickel(mg/L)	0.36	0.36	0.13	0.34	0.46
Nitrite(mg/L)	0.04	0.04	0.01	0.04	0.05
Nitrate(mg/L)	0.04	0.04	0.01	0.04	0.05
Potassium(mg/L)	156.22	156.22	55.53	147.02	202.56
Selenium(mg/L)	0.13	0.13	0.05	0.12	0.17
TKN(mg/L)	2859.72	2859.72	1016.55	2691.34	3707.89
TP(mg/L)	1137.36	1137.36	404.30	1070.39	1474.69
Total Solids(%)	3.59%	3.59%	12767.30	33801.89	46569.19
VSolids (Dry) (%)	64.32%	64.32%	8212.21	21742.13	29954.34
Zinc(mg/L)	14.69	14.69	5.22	13.83	19.05

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5008					
Ammonia(mg/L)	1163.75	1163.75	774.77	0.00	774.77
Arsenic(mg/L)	4.41	4.41	2.94	0.00	2.94
Cadmium(mg/L)	0.14	0.14	0.09	0.00	0.09
Chromium(mg/L)	1.93	1.93	1.29	0.00	1.29
Cobalt(mg/L)	0.54	0.54	0.36	0.00	0.36
Copper(mg/L)	17.42	17.42	11.59	0.00	11.59
E.Coli(CFU/g dry)	18250.00	18250.00	12149.94	0.00	12149.94
Lead(mg/L)	1.76	1.76	1.17	0.00	1.17
Magnesium(mg/L)	529.88	529.88	352.76	0.00	352.76
Manganese(mg/L)	20.95	20.95	13.94	0.00	13.94
Mercury(mg/L)	0.08	0.08	0.05	0.00	0.05
Molybdenum(mg/L)	0.32	0.32	0.21	0.00	0.21
Nickel(mg/L)	1.43	1.43	0.95	0.00	0.95
Nitrite(mg/L)	0.05	0.05	0.03	0.00	0.03
Nitrate(mg/L)	0.04	0.04	0.03	0.00	0.03
Potassium(mg/L)	146.75	146.75	97.70	0.00	97.70
Selenium(mg/L)	0.30	0.30	0.20	0.00	0.20
TKN(mg/L)	2676.25	2676.25	1781.71	0.00	1781.71
TP(mg/L)	1031.00	1031.00	686.39	0.00	686.39
Total Solids(%)	3.04%	3.04%	20222.16	0.00	20222.16
VSolids (Dry) (%)	64.05%	64.05%	12952.29	0.00	12952.29
Zinc(mg/L)	10.48	10.48	6.97	0.00	6.97

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5024					
Ammonia(mg/L)	1163.75	1163.75	413.64	0.00	413.64
Arsenic(mg/L)	4.41	4.41	1.57	0.00	1.57
Cadmium(mg/L)	0.14	0.14	0.05	0.00	0.05
Chromium(mg/L)	1.93	1.93	0.69	0.00	0.69
Cobalt(mg/L)	0.54	0.54	0.19	0.00	0.19
Copper(mg/L)	17.42	17.42	6.19	0.00	6.19
E.Coli(CFU/g dry)	18250.00	18250.00	6486.78	0.00	6486.78
Lead(mg/L)	1.76	1.76	0.63	0.00	0.63
Magnesium(mg/L)	529.88	529.88	188.34	0.00	188.34
Manganese(mg/L)	20.95	20.95	7.44	0.00	7.44
Mercury(mg/L)	0.08	0.08	0.03	0.00	0.0267
Molybdenum(mg/L)	0.32	0.32	0.11	0.00	0.11
Nickel(mg/L)	1.43	1.43	0.51	0.00	0.51
Nitrite(mg/L)	0.05	0.05	0.02	0.00	0.02
Nitrate(mg/L)	0.04	0.04	0.01	0.00	0.01
Potassium(mg/L)	146.75	146.75	52.16	0.00	52.16
Selenium(mg/L)	0.30	0.30	0.11	0.00	0.11
TKN(mg/L)	2676.25	2676.25	951.25	0.00	951.25
TP(mg/L)	1031.00	1031.00	366.46	0.00	366.46
Total Solids(%)	0.03	3.04%	10796.49	0.00	10796.49
VSolids (Dry) (%)	0.64	64.05%	227659.32	0.00	227659.32
Zinc(mg/L)	10.48	10.48	3.72	0.00	3.72

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5048	1145.08	1145.08	356.60	0.00	356.60
Ammonia(mg/L)	2.37	2.37	0.74	0.00	0.74
Arsenic(mg/L)	0.15	0.15	0.05	0.00	0.05
Cadmium(mg/L)	1.81	1.81	0.56	0.00	0.56
Chromium(mg/L)	0.44	0.44	0.32	0.00	0.32
Cobalt(mg/L)	20.47	20.47	6.37	0.00	6.37
E.Coli(CFU/g dry)	9343.75	9343.75	2909.83	0.00	2909.83
Lead(mg/L)	1.28	1.28	0.40	0.00	0.40
Magnesium(mg/L)	327.97	327.97	102.14	0.00	102.14
Manganese(mg/L)	12.84	12.84	4.00	0.00	4.00
Mercury(mg/L)	0.07	0.07	0.02	0.00	0.02
Molybdenum(mg/L)	0.33	0.33	0.10	0.00	0.10
Nickel(mg/L)	1.52	1.52	0.47	0.00	0.47
Nitrite(mg/L)	0.05	0.05	0.02	0.00	0.02
Nitrate(mg/L)	0.04	0.04	0.01	0.00	0.01
Potassium(mg/L)	125.68	125.68	39.14	0.00	39.14
Selenium(mg/L)	0.31	0.31	0.10	0.00	0.10
TKN(mg/L)	2491.67	2491.67	775.95	0.00	775.95
TP(mg/L)	997.81	997.81	310.74	0.00	310.74
Total Solids(%)	3.09%	3.09%	9628.07	0.00	9628.07
VSolids (Dry) (%)	61.09%	61.09%	5881.35	0.00	5881.35
Zinc(mg/L)	13.32	13.32	4.15	0.00	4.15

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12116	1145.08	1145.08	1878.68	2508.92	4387.60
Ammonia(mg/L)	2.37	2.37	3.88	5.18	9.06
Arsenic(mg/L)	0.15	0.15	0.24	0.32	0.56
Cadmium(mg/L)	1.81	1.81	2.97	3.96	6.93
Chromium(mg/L)	0.44	0.44	0.72	0.96	1.67
Cobalt(mg/L)	20.47	20.47	33.58	44.85	78.43
E.Coli(CFU/g dry)	9343.75	9343.75	15329.82	20472.53	35802.35
Lead(mg/L)	1.28	1.28	2.10	2.81	4.91
Magnesium(mg/L)	327.97	327.97	538.08	718.59	1256.67
Manganese(mg/L)	12.84	12.84	21.06	28.12	49.18
Mercury(mg/L)	0.07	0.07	0.12	0.16	0.28
Molybdenum(mg/L)	0.33	0.33	0.55	0.73	1.28
Nickel(mg/L)	1.52	1.52	2.49	3.33	5.82
Nitrite(mg/L)	0.05	0.05	0.08	0.11	0.19
Nitrate(mg/L)	0.04	0.04	0.07	0.09	0.15
Potassium(mg/L)	125.68	125.68	206.19	275.36	481.56
Selenium(mg/L)	0.31	0.31	0.51	0.68	1.19
TKN(mg/L)	2491.67	2491.67	4087.95	5459.34	9547.29
TP(mg/L)	997.81	997.81	1637.06	2186.25	3823.31
Total Solids(%)	3.09%	3.09%	50723.43	67739.65	118463.08
VSolids (Dry) (%)	61.09%	61.09%	1002197.89	41379.05	1043576.94
Zinc(mg/L)	13.32	13.32	21.86	29.19	51.05

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12016	1145.08	1145.08	456.90	1171.79	1628.69
Ammonia(mg/L)	2.37	2.37	0.94	2.42	3.36
Arsenic(mg/L)	0.15	0.15	0.06	0.15	0.21
Cadmium(mg/L)	1.81	1.81	0.72	1.85	2.57
Chromium(mg/L)	0.44	0.44	0.17	0.45	0.62
Cobalt(mg/L)	20.47	20.47	8.17	20.94	29.11
E.Coli(CFU/g dry)	9343.75	9343.75	3728.25	9561.65	13289.90
Lead(mg/L)	1.28	1.28	0.51	1.31	1.82
Magnesium(mg/L)	327.97	327.97	130.86	335.62	466.48
Manganese(mg/L)	12.84	12.84	5.12	13.13	18.26
Mercury(mg/L)	0.07	0.07	0.03	0.07	0.10
Molybdenum(mg/L)	0.33	0.33	0.13	0.34	0.48
Nickel(mg/L)	1.52	1.52	0.61	1.55	2.16
Nitrite(mg/L)	0.05	0.05	0.02	0.05	0.07
Nitrate(mg/L)	0.04	0.04	0.02	0.04	0.06
Potassium(mg/L)	125.68	125.68	50.15	128.61	178.75
Selenium(mg/L)	0.31	0.31	0.12	0.32	0.44
TKN(mg/L)	2491.67	2491.67	994.20	2549.77	3543.97
TP(mg/L)	997.81	997.81	398.14	1021.08	1419.22
Total Solids(%)	3.09%	3.09%	12336.06	31637.64	43973.70
VSolids (Dry) (%)	61.09%	61.09%	7535.53	625099.29	632634.82
Zinc(mg/L)	13.32	13.32	5.32	13.63	18.95

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12015	1145.08	1145.08	815.67	998.95	1814.61
Ammonia(mg/L)	2.37	2.37	1.68	2.06	3.75
Arsenic(mg/L)	0.15	0.15	0.10	0.13	0.23
Cadmium(mg/L)	1.81	1.81	1.29	1.58	2.87
Chromium(mg/L)	0.44	0.44	0.31	0.38	0.69
Cobalt(mg/L)	20.47	20.47	14.58	17.86	32.43
Copper(mg/L)	9343.75	9343.75	6655.74	8151.30	14807.04
E.Coli(CFU/g dry)	1.28	1.28	0.91	1.12	2.03
Lead(mg/L)	327.97	327.97	233.62	286.11	519.73
Magnesium(mg/L)	12.84	12.84	9.14	11.20	20.34
Manganese(mg/L)	0.07	0.07	0.05	0.06	0.12
Mercury(mg/L)	0.33	0.33	0.24	0.29	0.53
Molybdenum(mg/L)	1.52	1.52	1.08	1.32	2.41
Nickel(mg/L)	0.05	0.05	0.04	0.04	0.08
Nitrite(mg/L)	0.04	0.04	0.03	0.03	0.06
Nitrate(mg/L)	125.68	125.68	89.52	109.64	199.16
Potassium(mg/L)	0.31	0.31	0.22	0.27	0.49
Selenium(mg/L)	2491.67	2491.67	1774.86	2173.68	3948.54
TKN(mg/L)	997.81	997.81	710.76	870.47	1581.23
TP(mg/L)	3.09%	3.09%	22022.56	26971.08	48993.64
Total Solids(%)	61.09%	61.09%	13452.57	16475.40	29927.97
VSolids (Dry) (%)	13.32	13.32	9.49	11.62	21.11
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11075	1145.08	1145.08	1172.86	1287.59	2460.45
Ammonia(mg/L)	2.37	2.37	2.42	2.66	5.08
Arsenic(mg/L)	0.15	0.15	0.15	0.16	0.31
Cadmium(mg/L)	1.81	1.81	1.85	2.03	3.89
Chromium(mg/L)	0.44	0.44	0.45	0.49	0.94
Cobalt(mg/L)	20.47	20.47	20.96	23.01	43.98
Copper(mg/L)	9343.75	9343.75	9570.43	10506.58	20077.01
E.Coli(CFU/g dry)	1.28	1.28	1.31	1.44	2.75
Lead(mg/L)	327.97	327.97	335.93	368.78	704.71
Magnesium(mg/L)	12.84	12.84	13.15	14.43	27.58
Manganese(mg/L)	0.07	0.07	0.07	0.08	0.16
Mercury(mg/L)	0.33	0.33	0.34	0.38	0.72
Molybdenum(mg/L)	1.52	1.52	1.56	1.71	3.26
Nickel(mg/L)	0.05	0.05	0.05	0.06	0.11
Nitrite(mg/L)	0.04	0.04	0.04	0.04	0.09
Nitrate(mg/L)	125.68	125.68	128.73	141.32	270.04
Potassium(mg/L)	0.31	0.31	0.32	0.35	0.67
Selenium(mg/L)	2491.67	2491.67	2552.11	2801.75	5353.87
TKN(mg/L)	997.81	997.81	1022.02	1121.99	2144.01
TP(mg/L)	3.09%	3.09%	31666.71	34764.25	66430.95
Total Solids(%)	61.09%	61.09%	19343.74	21235.88	40579.62
VSolids (Dry) (%)	13.32	13.32	13.65	14.98	28.63
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11078	1197.88	1197.88	2399.21	3076.97	5476.18
Ammonia(mg/L)	0.19	0.19	0.37	0.48	0.85
Arsenic(mg/L)	0.07	0.07	0.15	0.19	0.34
Cadmium(mg/L)	2.11	2.11	4.23	5.42	9.64
Chromium(mg/L)	0.20	0.20	0.40	0.52	0.92
Cobalt(mg/L)	36.69	36.69	73.48	94.23	167.71
Copper(mg/L)	6120.50	6120.50	12258.69	15721.67	27980.36
E.Coli(CFU/g dry)	1.83	1.83	3.67	4.71	8.38
Lead(mg/L)	229.25	229.25	459.16	588.87	1048.03
Magnesium(mg/L)	6.92	6.92	13.87	17.78	31.65
Manganese(mg/L)	0.10	0.10	0.20	0.25	0.45
Mercury(mg/L)	0.35	0.35	0.70	0.90	1.60
Molybdenum(mg/L)	1.26	1.26	2.51	3.22	5.74
Nickel(mg/L)	0.06	0.06	0.13	0.16	0.29
Nitrite(mg/L)	0.04	0.04	0.09	0.11	0.19
Nitrate(mg/L)	149.93	149.93	300.28	385.11	685.39
Potassium(mg/L)	0.45	0.45	0.90	1.16	2.06
Selenium(mg/L)	2766.88	2766.88	5541.75	7107.24	12648.99
TKN(mg/L)	1322.65	1322.65	2649.12	3397.48	6046.60
TP(mg/L)	4.97%	4.97%	99443.49	127535.46	226978.95
Total Solids(%)	60.54%	60.54%	60205.57	77213.15	137418.73
VSolids (Dry) (%)	22.91	22.91	45.89	58.85	104.74
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11098	1104.00	1104.00	737.14	2095.57	2832.71
Ammonia(mg/L)	0.27	0.27	0.18	0.51	0.69
Arsenic(mg/L)	0.11	0.11	0.08	0.22	0.29
Cadmium(mg/L)	1.47	1.47	0.98	2.79	3.77
Chromium(mg/L)	0.25	0.25	0.17	0.48	0.65
Cobalt(mg/L)	25.17	25.17	16.81	47.78	64.58
Copper(mg/L)	11341.00	11341.00	7572.39	21527.03	29099.42
E.Coli(CFU/g dry)	0.87	0.87	0.58	1.66	2.24
Lead(mg/L)	121.50	121.50	81.13	230.63	311.75
Magnesium(mg/L)	3.54	3.54	2.36	6.72	9.08
Manganese(mg/L)	0.08	0.08	0.05	0.15	0.21
Mercury(mg/L)	0.34	0.34	0.23	0.65	0.88
Molybdenum(mg/L)	1.23	1.23	0.82	2.34	3.16
Nickel(mg/L)	0.03	0.03	0.02	0.06	0.08
Nitrite(mg/L)	0.04	0.04	0.03	0.08	0.10
Nitrate(mg/L)	158.60	158.60	105.90	301.05	406.95
Potassium(mg/L)	0.49	0.49	0.33	0.94	1.27
Selenium(mg/L)	2602.00	2602.00	1737.36	4939.01	6676.37
TKN(mg/L)	996.50	996.50	665.36	1891.52	2556.88
TP(mg/L)	3.08%	0.03	20565.16	58463.33	79028.49
Total Solids(%)	64.81%	0.65	13328.28	37890.08	51218.36
VSolids (Dry) (%)	15.92	15.92	10.63	30.22	40.85
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5018	1291.75	1291.75	2299.59	0.00	2299.59
Ammonia(mg/L)	0.10	0.10	0.18	0.00	0.18
Arsenic(mg/L)	0.03	0.03	0.06	0.00	0.06
Cadmium(mg/L)	2.75	2.75	4.89	0.00	4.89
Chromium(mg/L)	0.15	0.15	0.27	0.00	0.27
Cobalt(mg/L)	48.20	48.20	85.81	0.00	85.81
Copper(mg/L)	900.00	900.00	1602.19	0.00	1602.19
E.Coli(CFU/g dry)	2.79	2.79	4.97	0.00	4.97
Lead(mg/L)	337.00	337.00	599.93	0.00	599.93
Magnesium(mg/L)	10.31	10.31	18.35	0.00	18.35
Manganese(mg/L)	0.12	0.12	0.21	0.00	0.21
Mercury(mg/L)	0.36	0.36	0.63	0.00	0.63
Molybdenum(mg/L)	1.28	1.28	2.28	0.00	2.28
Nickel(mg/L)	0.10	0.10	0.17	0.00	0.17
Nitrite(mg/L)	0.05	0.05	0.08	0.00	0.08
Nitrate(mg/L)	141.25	141.25	251.45	0.00	251.45
Potassium(mg/L)	0.41	0.41	0.73	0.00	0.73
Selenium(mg/L)	2931.75	2931.75	5219.13	0.00	5219.13
TKN(mg/L)	1648.80	1648.80	2935.21	0.00	2935.21
TP(mg/L)	6.85%	6.85%	121944.39	0.00	121944.39
Total Solids(%)	56.28%	56.28%	68624.20	0.00	68624.20
VSolids (Dry) (%)	29.90	29.90	53.23	0.00	53.23
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12094	1197.88	1197.88	0.00	3475.16	3475.16
Ammonia(mg/L)	0.19	0.19	0.00	0.54	0.54
Arsenic(mg/L)	0.07	0.07	0.00	0.21	0.21
Cadmium(mg/L)	2.11	2.11	0.00	6.12	6.12
Chromium(mg/L)	0.20	0.20	0.00	0.59	0.59
Cobalt(mg/L)	36.69	36.69	0.00	106.43	106.43
Copper(mg/L)	6120.50	6120.50	0.00	17756.18	17756.18
E.Coli(CFU/g dry)	1.83	1.83	0.00	5.32	5.32
Lead(mg/L)	229.25	229.25	0.00	665.08	665.08
Magnesium(mg/L)	6.92	6.92	0.00	20.08	20.08
Manganese(mg/L)	0.10	0.10	0.00	0.29	0.29
Mercury(mg/L)	0.35	0.35	0.00	1.02	1.02
Molybdenum(mg/L)	1.26	1.26	0.00	3.64	3.64
Nickel(mg/L)	0.06	0.06	0.00	0.19	0.19
Nitrite(mg/L)	0.04	0.04	0.00	0.12	0.12
Nitrate(mg/L)	149.93	149.93	0.00	434.95	434.95
Potassium(mg/L)	0.45	0.45	0.00	1.31	1.31
Selenium(mg/L)	2766.88	2766.88	0.00	8026.98	8026.98
TKN(mg/L)	1322.65	1322.65	0.00	3837.14	3837.14
TP(mg/L)	4.97%	4.97%	0.00	144039.62	144039.62
Total Solids(%)	60.54%	60.54%	0.00	87205.18	87205.18
VSolids (Dry) (%)	22.91	22.91	0.00	66.47	66.47
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5055	1197.88	1197.88	1226.91	415.83	1642.74
Ammonia(mg/L)	0.19	0.19	0.19	0.06	0.25
Arsenic(mg/L)	0.07	0.07	0.08	0.03	0.10
Cadmium(mg/L)	2.11	2.11	2.16	0.73	2.89
Chromium(mg/L)	0.20	0.20	0.21	0.07	0.28
Cobalt(mg/L)	36.69	36.69	37.57	12.73	50.31
E.Coli(CFU/g dry)	6120.50	6120.50	6268.86	2124.67	8393.53
Lead(mg/L)	1.83	1.83	1.88	0.64	2.51
Magnesium(mg/L)	229.25	229.25	234.81	79.58	314.39
Manganese(mg/L)	6.92	6.92	7.09	2.40	9.49
Mercury(mg/L)	0.10	0.10	0.10	0.03	0.14
Molybdenum(mg/L)	0.35	0.35	0.36	0.12	0.48
Nickel(mg/L)	1.26	1.26	1.29	0.44	1.72
Nitrite(mg/L)	0.06	0.06	0.07	0.02	0.09
Nitrate(mg/L)	0.04	0.04	0.04	0.01	0.06
Potassium(mg/L)	149.93	149.93	153.56	52.04	205.60
Selenium(mg/L)	0.45	0.45	0.46	0.16	0.62
TKN(mg/L)	2766.88	2766.88	2833.94	960.49	3794.44
TP(mg/L)	1322.65	1322.65	1354.71	459.14	1813.86
Total Solids(%)	4.97%	4.97%	50853.52	17235.50	68089.02
VSolids (Dry) (%)	60.54%	60.54%	30787.99	10434.80	41222.79
Zinc(mg/L)	22.91	22.91	23.47	7.95	31.42

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S17010	1197.88	1197.88	106.62	1224.89	1331.51
Ammonia(mg/L)	0.19	0.19	0.02	0.19	0.21
Arsenic(mg/L)	0.07	0.07	0.01	0.08	0.08
Cadmium(mg/L)	2.11	2.11	0.19	2.16	2.34
Chromium(mg/L)	0.20	0.20	0.02	0.21	0.22
Cobalt(mg/L)	36.69	36.69	3.27	37.51	40.78
E.Coli(CFU/g dry)	6120.50	6120.50	544.79	6258.52	6803.30
Lead(mg/L)	1.83	1.83	0.16	1.87	2.04
Magnesium(mg/L)	229.25	229.25	20.41	234.42	254.83
Manganese(mg/L)	6.92	6.92	0.62	7.08	7.70
Mercury(mg/L)	0.10	0.10	0.01	0.10	0.11
Molybdenum(mg/L)	0.35	0.35	0.03	0.36	0.39
Nickel(mg/L)	1.26	1.26	0.11	1.28	1.40
Nitrite(mg/L)	0.06	0.06	0.01	0.07	0.07
Nitrate(mg/L)	0.04	0.04	0.00	0.04	0.05
Potassium(mg/L)	149.93	149.93	13.34	153.31	166.65
Selenium(mg/L)	0.45	0.45	0.04	0.46	0.50
TKN(mg/L)	2766.88	2766.88	246.28	2829.27	3075.55
TP(mg/L)	1322.65	1322.65	117.73	1352.48	1470.20
Total Solids(%)	4.97%	4.97%	4419.35	50769.61	55188.95
VSolids (Dry) (%)	60.54%	60.54%	2675.58	30737.19	33412.77
Zinc(mg/L)	22.91	22.91	2.04	23.43	25.47

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12048	1197.88	1197.88	1013.62	932.47	1946.09
Ammonia(mg/L)	0.19	0.19	0.16	0.14	0.30
Arsenic(mg/L)	0.07	0.07	0.06	0.06	0.12
Cadmium(mg/L)	2.11	2.11	1.79	1.64	3.43
Chromium(mg/L)	0.20	0.20	0.17	0.16	0.33
Cobalt(mg/L)	36.69	36.69	31.04	28.56	59.60
E.Coli(CFU/g dry)	6120.50	6120.50	5179.04	4764.44	9943.49
Lead(mg/L)	1.83	1.83	1.55	1.43	2.98
Magnesium(mg/L)	229.25	229.25	193.99	178.46	372.44
Manganese(mg/L)	6.92	6.92	5.86	5.39	11.25
Mercury(mg/L)	0.10	0.10	0.08	0.08	0.16
Molybdenum(mg/L)	0.35	0.35	0.30	0.27	0.57
Nickel(mg/L)	1.26	1.26	1.06	0.98	2.04
Nitrite(mg/L)	0.06	0.06	0.05	0.05	0.10
Nitrate(mg/L)	0.04	0.04	0.04	0.03	0.07
Potassium(mg/L)	149.93	149.93	126.86	116.71	243.57
Selenium(mg/L)	0.45	0.45	0.38	0.35	0.73
TKN(mg/L)	2766.88	2766.88	2341.27	2153.85	4495.12
TP(mg/L)	1322.65	1322.65	1119.20	1029.60	2148.80
Total Solids(%)	4.97%	4.97%	42012.84	38649.55	80662.38
VSolids (Dry) (%)	60.54%	60.54%	25435.62	23399.40	48835.02
Zinc(mg/L)	22.91	22.91	19.39	17.84	37.22

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12036a	1197.88	1197.88	480.22	611.28	1091.49
Ammonia(mg/L)	0.19	0.19	0.07	0.09	0.17
Arsenic(mg/L)	0.07	0.07	0.03	0.04	0.07
Cadmium(mg/L)	2.11	2.11	0.85	1.08	1.92
Chromium(mg/L)	0.20	0.20	0.08	0.10	0.18
Cobalt(mg/L)	36.69	36.69	14.71	18.72	33.43
Copper(mg/L)	6120.50	6120.50	2453.65	3123.29	5576.94
E.Coli(CFU/g dry)	1.83	1.83	0.74	0.94	1.67
Lead(mg/L)	229.25	229.25	91.90	116.99	208.89
Magnesium(mg/L)	6.92	6.92	2.78	3.53	6.31
Manganese(mg/L)	0.10	0.10	0.04	0.05	0.09
Mercury(mg/L)	0.35	0.35	0.14	0.18	0.32
Molybdenum(mg/L)	1.26	1.26	0.50	0.64	1.14
Nickel(mg/L)	0.06	0.06	0.03	0.03	0.06
Nitrite(mg/L)	0.04	0.04	0.02	0.02	0.04
Nitrate(mg/L)	149.93	149.93	60.10	76.51	136.61
Potassium(mg/L)	0.45	0.45	0.18	0.23	0.41
Selenium(mg/L)	2766.88	2766.88	1109.21	1411.94	2521.15
TKN(mg/L)	1322.65	1322.65	530.24	674.95	1205.19
TP(mg/L)	4.97%	4.97%	19904.19	25336.40	45240.58
Total Solids(%)	60.54%	60.54%	12050.49	308948.38	320998.87
VSolids (Dry) (%)	22.91	22.91	9.18	11.69	20.88
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12036b	565.78	565.78	552.18	415.10	967.28
Ammonia(mg/L)	0.37	0.37	0.36	0.27	0.63
Arsenic(mg/L)	0.02	0.02	0.01	0.01	0.03
Cadmium(mg/L)	0.49	0.49	0.48	0.36	0.84
Chromium(mg/L)	0.07	0.07	0.07	0.05	0.13
Cobalt(mg/L)	14.15	14.15	13.81	10.38	24.18
Copper(mg/L)	4868.75	4868.75	4751.75	3572.10	8323.86
E.Coli(CFU/g dry)	0.84	0.84	0.82	0.61	1.43
Lead(mg/L)	76.60	76.60	74.76	56.20	130.96
Magnesium(mg/L)	2.48	2.48	2.42	1.82	4.25
Manganese(mg/L)	0.10	0.10	0.10	0.07	0.17
Mercury(mg/L)	0.14	0.14	0.14	0.10	0.24
Molybdenum(mg/L)	0.32	0.32	0.31	0.23	0.54
Nickel(mg/L)	0.07	0.07	0.07	0.05	0.12
Nitrite(mg/L)	0.04	0.04	0.04	0.03	0.07
Nitrate(mg/L)	84.25	84.25	82.23	61.81	144.04
Potassium(mg/L)	0.38	0.38	0.37	0.28	0.66
Selenium(mg/L)	1294.75	1294.75	1263.64	949.93	2213.57
TKN(mg/L)	570.13	570.13	556.42	418.29	974.71
TP(mg/L)	1.68%	1.68%	16347.50	12289.14	28636.64
Total Solids(%)	53.86%	53.86%	8805.17	6619.24	15424.41
VSolids (Dry) (%)	10.49	10.49	10.24	7.69	17.93
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S17009	719.33	719.33	0.00	397.66	397.66
Ammonia(mg/L)	0.31	0.31	0.00	0.17	0.17
Arsenic(mg/L)	0.01	0.01	0.00	0.01	0.01
Cadmium(mg/L)	0.52	0.52	0.00	0.29	0.29
Chromium(mg/L)	0.06	0.06	0.00	0.03	0.03
Cobalt(mg/L)	18.85	18.85	0.00	10.42	10.42
Copper(mg/L)	8034.38	8034.38	0.00	4441.64	4441.64
E.Coli(CFU/g dry)	0.86	0.86	0.00	0.48	0.48
Lead(mg/L)	83.48	83.48	0.00	46.15	46.15
Magnesium(mg/L)	2.79	2.79	0.00	1.54	1.54
Manganese(mg/L)	0.10	0.10	0.00	0.06	0.06
Mercury(mg/L)	0.17	0.17	0.00	0.09	0.09
Molybdenum(mg/L)	0.28	0.28	0.00	0.16	0.16
Nickel(mg/L)	0.05	0.05	0.00	0.03	0.03
Nitrite(mg/L)	0.04	0.04	0.00	0.02	0.02
Nitrate(mg/L)	111.19	111.19	0.00	61.47	61.47
Potassium(mg/L)	0.38	0.38	0.00	0.21	0.21
Selenium(mg/L)	1731.75	1731.75	0.00	957.36	957.36
TKN(mg/L)	729.06	729.06	0.00	403.05	403.05
TP(mg/L)	2.23%	2.23%	0.00	12300.47	12300.47
Total Solids(%)	59.25%	59.25%	0.00	327551.78	327551.78
VSolids (Dry) (%)	12.47	12.47	0.00	6.89	6.89
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12054	719.33	719.33	607.25	739.18	1346.43
Ammonia(mg/L)	0.31	0.31	0.26	0.31	0.57
Arsenic(mg/L)	0.01	0.01	0.01	0.01	0.03
Cadmium(mg/L)	0.52	0.52	0.44	0.53	0.97
Chromium(mg/L)	0.06	0.06	0.05	0.06	0.11
Cobalt(mg/L)	18.85	18.85	15.92	19.37	35.29
Copper(mg/L)	8034.38	8034.38	6782.54	8256.12	15038.66
E.Coli(CFU/g dry)	0.86	0.86	0.73	0.89	1.62
Lead(mg/L)	83.48	83.48	70.47	85.79	156.26
Magnesium(mg/L)	2.79	2.79	2.36	2.87	5.23
Manganese(mg/L)	0.10	0.10	0.08	0.10	0.19
Mercury(mg/L)	0.17	0.17	0.14	0.17	0.32
Molybdenum(mg/L)	0.28	0.28	0.24	0.29	0.53
Nickel(mg/L)	0.05	0.05	0.04	0.05	0.09
Nitrite(mg/L)	0.04	0.04	0.03	0.04	0.07
Nitrate(mg/L)	111.19	111.19	93.86	114.26	208.12
Potassium(mg/L)	0.38	0.38	0.32	0.39	0.71
Selenium(mg/L)	1731.75	1731.75	1461.93	1779.55	3241.47
TKN(mg/L)	729.06	729.06	615.47	749.18	1364.65
TP(mg/L)	2.23%	2.23%	18783.23	22864.10	41647.33
Total Solids(%)	59.25%	59.25%	11129.06	608853.00	619982.06
VSolids (Dry) (%)	12.47	12.47	10.53	12.81	23.34
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11063	719.33	719.33	2851.25	1895.87	4747.13
Ammonia(mg/L)	0.31	0.31	1.21	0.81	2.02
Arsenic(mg/L)	0.01	0.01	0.05	0.04	0.09
Cadmium(mg/L)	0.52	0.52	2.05	1.37	3.42
Chromium(mg/L)	0.06	0.06	0.24	0.16	0.40
Cobalt(mg/L)	18.85	18.85	74.73	49.69	124.42
Copper(mg/L)	8034.38	8034.38	31846.58	21175.64	53022.22
E.Coli(CFU/g dry)	0.86	0.86	3.43	2.28	5.70
Lead(mg/L)	83.48	83.48	330.90	220.03	550.93
Magnesium(mg/L)	2.79	2.79	11.07	7.36	18.42
Manganese(mg/L)	0.10	0.10	0.40	0.26	0.66
Mercury(mg/L)	0.17	0.17	0.67	0.45	1.12
Molybdenum(mg/L)	0.28	0.28	1.11	0.74	1.86
Nickel(mg/L)	0.05	0.05	0.19	0.13	0.32
Nitrite(mg/L)	0.04	0.04	0.16	0.11	0.26
Nitrate(mg/L)	111.19	111.19	440.72	293.05	733.77
Potassium(mg/L)	0.38	0.38	1.50	1.00	2.50
Selenium(mg/L)	1731.75	1731.75	6864.29	4564.25	11428.55
TKN(mg/L)	729.06	729.06	2889.85	1921.54	4811.39
TP(mg/L)	2.23%	2.23%	88194.33	58642.77	146837.10
Total Solids(%)	59.25%	59.25%	52255.14	34745.84	87000.98
VSolids (Dry) (%)	12.47	12.47	49.42	32.86	82.29
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11072a	719.33	719.33	832.32	1064.22	1896.54
Ammonia(mg/L)	0.31	0.31	0.35	0.45	0.81
Arsenic(mg/L)	0.01	0.01	0.02	0.02	0.04
Cadmium(mg/L)	0.52	0.52	0.60	0.77	1.37
Chromium(mg/L)	0.06	0.06	0.07	0.09	0.16
Cobalt(mg/L)	18.85	18.85	21.82	27.89	49.71
Copper(mg/L)	8034.38	8034.38	9296.41	11886.62	21183.03
E.Coli(CFU/g dry)	0.86	0.86	1.00	1.28	2.28
Lead(mg/L)	83.48	83.48	96.59	123.51	220.10
Magnesium(mg/L)	2.79	2.79	3.23	4.13	7.36
Manganese(mg/L)	0.10	0.10	0.12	0.15	0.26
Mercury(mg/L)	0.17	0.17	0.20	0.25	0.45
Molybdenum(mg/L)	0.28	0.28	0.33	0.42	0.74
Nickel(mg/L)	0.05	0.05	0.06	0.07	0.13
Nitrite(mg/L)	0.04	0.04	0.05	0.06	0.11
Nitrate(mg/L)	111.19	111.19	128.65	164.50	293.15
Potassium(mg/L)	0.38	0.38	0.44	0.56	1.00
Selenium(mg/L)	1731.75	1731.75	2003.77	2562.07	4565.85
TKN(mg/L)	729.06	729.06	843.58	1078.63	1922.21
TP(mg/L)	2.23%	2.23%	25745.03	32918.21	58663.24
Total Solids(%)	59.25%	59.25%	15253.93	19504.04	34757.97
VSolids (Dry) (%)	12.47	12.47	14.43	18.45	32.87
Zinc(mg/L)					

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11072b					
Ammonia(mg/L)	964.25	964.25	772.96	1847.10	2620.06
Arsenic(mg/L)	1.37	1.37	1.10	2.63	3.73
Cadmium(mg/L)	0.01	0.01	0.01	0.02	0.03
Chromium(mg/L)	0.49	0.49	0.39	0.94	1.33
Cobalt(mg/L)	0.06	0.06	0.05	0.11	0.16
Copper(mg/L)	23.41	23.41	18.77	44.85	63.62
E.Coli(CFU/g dry)	24075.00	24075.00	19299.00	46117.59	65416.59
Lead(mg/L)	0.88	0.88	0.71	1.69	2.39
Magnesium(mg/L)	82.30	82.30	65.97	157.65	223.63
Manganese(mg/L)	2.87	2.87	2.30	5.49	7.79
Mercury(mg/L)	0.11	0.11	0.09	0.21	0.30
Molybdenum(mg/L)	0.21	0.21	0.17	0.40	0.57
Nickel(mg/L)	0.22	0.22	0.18	0.42	0.59
Nitrite(mg/L)	0.03	0.03	0.02	0.05	0.08
Nitrate(mg/L)	0.05	0.05	0.04	0.09	0.13
Potassium(mg/L)	131.25	131.25	105.21	251.42	356.63
Selenium(mg/L)	0.29	0.29	0.24	0.56	0.80
TKN(mg/L)	2300.00	2300.00	1843.73	4405.83	6249.56
TP(mg/L)	824.75	824.75	661.14	1579.87	2241.01
Total Solids(%)	2.66%	2.66%	21343.13	51002.32	72345.45
VSolids (Dry) (%)	66.55%	66.55%	14203.85	33942.04	48145.90
Zinc(mg/L)	13.31	13.31	10.67	25.50	36.17

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5044					
Ammonia(mg/L)	1051.17	1051.17	1208.07	0.00	1208.07
Arsenic(mg/L)	1.48	1.48	1.70	0.00	1.70
Cadmium(mg/L)	0.01	0.01	0.01	0.00	0.01
Chromium(mg/L)	0.53	0.53	0.60	0.00	0.60
Cobalt(mg/L)	0.06	0.06	0.07	0.00	0.07
Copper(mg/L)	22.81	22.81	26.21	0.00	26.21
E.Coli(CFU/g dry)	16166.67	16166.67	18579.87	0.00	18579.87
Lead(mg/L)	0.88	0.88	1.01	0.00	1.01
Magnesium(mg/L)	88.28	88.28	101.45	0.00	101.45
Manganese(mg/L)	3.04	3.04	3.49	0.00	3.49
Mercury(mg/L)	0.11	0.11	0.12	0.00	0.12
Molybdenum(mg/L)	0.21	0.21	0.24	0.00	0.24
Nickel(mg/L)	0.24	0.24	0.28	0.00	0.28
Nitrite(mg/L)	0.03	0.03	0.03	0.00	0.03
Nitrate(mg/L)	0.05	0.05	0.06	0.00	0.06
Potassium(mg/L)	139.75	139.75	160.61	0.00	160.61
Selenium(mg/L)	0.31	0.31	0.35	0.00	0.35
TKN(mg/L)	2301.67	2301.67	2645.24	0.00	2645.24
TP(mg/L)	849.58	849.58	976.40	0.00	976.40
Total Solids(%)	2.63%	2.63%	30264.11	0.00	30264.11
VSolids (Dry) (%)	64.53%	64.53%	19530.44	0.00	19530.44
Zinc(mg/L)	13.07	13.07	15.02	0.00	15.02

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11086					
Ammonia(mg/L)	964.25	964.25	1288.49	758.73	2047.22
Arsenic(mg/L)	1.37	1.37	1.84	1.08	2.92
Cadmium(mg/L)	0.01	0.01	0.02	0.01	0.03
Chromium(mg/L)	0.49	0.49	0.65	0.39	1.04
Cobalt(mg/L)	0.06	0.06	0.08	0.05	0.12
Copper(mg/L)	23.41	23.41	31.29	18.42	49.71
E.Coli(CFU/g dry)	24075.00	24075.00	32170.46	18943.65	51114.11
Lead(mg/L)	0.88	0.88	1.18	0.69	1.87
Magnesium(mg/L)	82.30	82.30	109.97	64.76	174.73
Manganese(mg/L)	2.87	2.87	3.83	2.26	6.09
Mercury(mg/L)	0.11	0.11	0.15	0.09	0.24
Molybdenum(mg/L)	0.21	0.21	0.28	0.17	0.45
Nickel(mg/L)	0.22	0.22	0.29	0.17	0.46
Nitrite(mg/L)	0.03	0.03	0.04	0.02	0.06
Nitrate(mg/L)	0.05	0.05	0.06	0.04	0.10
Potassium(mg/L)	131.25	131.25	175.38	103.28	278.66
Selenium(mg/L)	0.29	0.29	0.39	0.23	0.62
TKN(mg/L)	2300.00	2300.00	3073.40	1809.78	4883.18
TP(mg/L)	824.75	824.75	1102.08	648.96	1751.04
Total Solids(%)	2.66%	2.66%	35577.92	20950.15	56528.07
VSolids (Dry) (%)	66.55%	66.55%	23677.11	13942.32	37619.43
Zinc(mg/L)	13.31	13.31	17.79	10.48	28.26

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S4011					
Ammonia(mg/L)	964.25	964.25	1150.86	0.00	1150.86
Arsenic(mg/L)	1.37	1.37	1.64	0.00	1.64
Cadmium(mg/L)	0.01	0.01	0.01	0.00	0.01
Chromium(mg/L)	0.49	0.49	0.58	0.00	0.58
Cobalt(mg/L)	0.06	0.06	0.07	0.00	0.07
Copper(mg/L)	23.41	23.41	27.94	0.00	27.94
E.Coli(CFU/g dry)	24075.00	24075.00	28734.23	0.00	28734.23
Lead(mg/L)	0.88	0.88	1.05	0.00	1.05
Magnesium(mg/L)	82.30	82.30	98.23	0.00	98.23
Manganese(mg/L)	2.87	2.87	3.42	0.00	3.42
Mercury(mg/L)	0.11	0.11	0.13	0.00	0.13
Molybdenum(mg/L)	0.21	0.21	0.25	0.00	0.25
Nickel(mg/L)	0.22	0.22	0.26	0.00	0.26
Nitrite(mg/L)	0.03	0.03	0.03	0.00	0.03
Nitrate(mg/L)	0.05	0.05	0.06	0.00	0.06
Potassium(mg/L)	131.25	131.25	156.65	0.00	156.65
Selenium(mg/L)	0.29	0.29	0.35	0.00	0.35
TKN(mg/L)	2300.00	2300.00	2745.12	0.00	2745.12
TP(mg/L)	824.75	824.75	984.36	0.00	984.36
Total Solids(%)	2.66%	2.66%	31777.74	0.00	31777.74
VSolids (Dry) (%)	66.55%	66.55%	21148.08	0.00	21148.08
Zinc(mg/L)	13.31	13.31	15.89	0.00	15.89

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S4006					
Ammonia(mg/L)	964.25	964.25	1675.13	0.00	1675.13
Arsenic(mg/L)	1.37	1.37	2.39	0.00	2.39
Cadmium(mg/L)	0.01	0.01	0.02	0.00	0.02
Chromium(mg/L)	0.49	0.49	0.85	0.00	0.85
Cobalt(mg/L)	0.06	0.06	0.10	0.00	0.10
Copper(mg/L)	23.41	23.41	40.67	0.00	40.67
E.Coli(CFU/g dry)	24075.00	24075.00	41824.05	0.00	41824.05
Lead(mg/L)	0.88	0.88	1.53	0.00	1.53
Magnesium(mg/L)	82.30	82.30	142.97	0.00	142.97
Manganese(mg/L)	2.87	2.87	4.98	0.00	4.98
Mercury(mg/L)	0.11	0.11	0.19	0.00	0.19
Molybdenum(mg/L)	0.21	0.21	0.36	0.00	0.36
Nickel(mg/L)	0.22	0.22	0.38	0.00	0.38
Nitrite(mg/L)	0.03	0.03	0.05	0.00	0.05
Nitrate(mg/L)	0.05	0.05	0.08	0.00	0.08
Potassium(mg/L)	131.25	131.25	228.01	0.00	228.01
Selenium(mg/L)	0.29	0.29	0.51	0.00	0.51
TKN(mg/L)	2300.00	2300.00	3995.65	0.00	3995.65
TP(mg/L)	824.75	824.75	1432.79	0.00	1432.79
Total Solids(%)	2.66%	2.66%	46254.02	0.00	46254.02
VSolids (Dry) (%)	66.55%	66.55%	30782.05	0.00	30782.05
Zinc(mg/L)	13.31	13.31	23.13	0.00	23.13

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S4030					
Ammonia(mg/L)	1121.83	1121.83	1742.12	0.00	1742.12
Arsenic(mg/L)	0.20	0.20	0.31	0.00	0.31
Cadmium(mg/L)	0.01	0.01	0.02	0.00	0.02
Chromium(mg/L)	0.53	0.53	0.83	0.00	0.83
Cobalt(mg/L)	0.05	0.05	0.08	0.00	0.08
Copper(mg/L)	26.11	26.11	40.54	0.00	40.54
E.Coli(CFU/g dry)	11639.17	11639.17	18074.69	0.00	18074.69
Lead(mg/L)	0.99	0.99	1.54	0.00	1.54
Magnesium(mg/L)	87.11	87.11	135.28	0.00	135.28
Manganese(mg/L)	3.04	3.04	4.72	0.00	4.72
Mercury(mg/L)	0.10	0.10	0.15	0.00	0.15
Molybdenum(mg/L)	0.17	0.17	0.27	0.00	0.27
Nickel(mg/L)	0.31	0.31	0.48	0.00	0.48
Nitrite(mg/L)	0.02	0.02	0.03	0.00	0.03
Nitrate(mg/L)	0.04	0.04	0.06	0.00	0.06
Potassium(mg/L)	137.75	137.75	213.91	0.00	213.91
Selenium(mg/L)	0.19	0.19	0.30	0.00	0.30
TKN(mg/L)	2433.00	2433.00	3778.25	0.00	3778.25
TP(mg/L)	871.23	871.23	1352.96	0.00	1352.96
Total Solids(%)	2.68%	2.68%	41540.61	0.00	41540.61
VSolids (Dry) (%)	64.51%	64.51%	26799.23	0.00	26799.23
Zinc(mg/L)	14.88	14.88	23.10	0.00	23.10

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12017					
Ammonia(mg/L)	1121.83	1121.83	1148.31	5069.34	6217.65
Arsenic(mg/L)	0.20	0.20	0.20	0.90	1.10
Cadmium(mg/L)	0.01	0.01	0.01	0.06	0.07
Chromium(mg/L)	0.53	0.53	0.55	2.41	2.96
Cobalt(mg/L)	0.05	0.05	0.05	0.23	0.28
Copper(mg/L)	26.11	26.11	26.72	117.98	144.70
E.Coli(CFU/g dry)	11639.17	11639.17	11913.85	52595.07	64508.92
Lead(mg/L)	0.99	0.99	1.02	4.48	5.50
Magnesium(mg/L)	87.11	87.11	89.17	393.64	482.81
Manganese(mg/L)	3.04	3.04	3.11	13.73	16.84
Mercury(mg/L)	0.10	0.10	0.10	0.43	0.53
Molybdenum(mg/L)	0.17	0.17	0.18	0.78	0.96
Nickel(mg/L)	0.31	0.31	0.32	1.40	1.71
Nitrite(mg/L)	0.02	0.02	0.02	0.10	0.12
Nitrate(mg/L)	0.04	0.04	0.04	0.18	0.22
pH(SU)	7.51	7.51	7.69	33.94	41.62
Potassium(mg/L)	137.75	137.75	141.00	622.46	763.47
Selenium(mg/L)	0.19	0.19	0.20	0.86	1.06
TKN(mg/L)	2433.00	2433.00	2490.42	10994.24	13484.66
TP(mg/L)	871.23	871.23	891.79	3936.93	4828.72
Total Solids(%)	2.68%	2.68%	27381.30	120877.90	148259.20
VSolids (Dry) (%)	64.51%	64.51%	17664.59	2915228.51	2932893.10
Zinc(mg/L)	14.88	14.88	15.23	67.23	82.46

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11078					
Ammonia(mg/L)	1197.88	1197.88	2399.21	3076.97	5476.18
Arsenic(mg/L)	0.19	0.19	0.37	0.48	0.85
Cadmium(mg/L)	0.07	0.07	0.15	0.19	0.34
Chromium(mg/L)	2.11	2.11	4.23	5.42	9.64
Cobalt(mg/L)	0.20	0.20	0.40	0.52	0.92
Copper(mg/L)	36.69	36.69	73.48	94.23	167.71
E.Coli(CFU/g dry)	6120.50	6120.50	12258.69	15721.67	27980.36
Lead(mg/L)	1.83	1.83	3.67	4.71	8.38
Magnesium(mg/L)	229.25	229.25	459.16	588.87	1048.03
Manganese(mg/L)	6.92	6.92	13.87	17.78	31.65
Mercury(mg/L)	0.10	0.10	0.20	0.25	0.45
Molybdenum(mg/L)	0.35	0.35	0.70	0.90	1.60
Nickel(mg/L)	1.26	1.26	2.51	3.22	5.74
Nitrite(mg/L)	0.06	0.06	0.13	0.16	0.29
Nitrate(mg/L)	0.04	0.04	0.09	0.11	0.19
pH(SU)	7.60	7.60	15.23	19.53	34.76
Potassium(mg/L)	149.93	149.93	300.28	385.11	685.39
Selenium(mg/L)	0.45	0.45	0.90	1.16	2.06
TKN(mg/L)	2766.88	2766.88	5541.75	7107.24	12648.99
TP(mg/L)	1322.65	1322.65	2649.12	3397.48	6046.60
Total Solids(%)	4.97%	4.97%	99443.49	127535.46	226978.95
VSolids (Dry) (%)	60.54%	60.54%	60205.57	1555149.14	1615354.72
Zinc(mg/L)	22.91	22.91	45.89	58.85	104.74

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11099					
Ammonia(mg/L)	1074.00	1074.00	573.88	431.07	1004.95
Arsenic(mg/L)	0.22	0.22	0.12	0.09	0.21
Cadmium(mg/L)	0.01	0.01	0.01	0.01	0.01
Chromium(mg/L)	0.53	0.53	0.28	0.21	0.49
Cobalt(mg/L)	0.05	0.05	0.03	0.02	0.05
Copper(mg/L)	24.30	24.30	12.98	9.75	22.74
E.Coli(CFU/g dry)	17240.00	17240.00	9212.02	6919.62	16131.64
Lead(mg/L)	0.82	0.82	0.44	0.33	0.76
Magnesium(mg/L)	85.48	85.48	45.68	34.31	79.98
Manganese(mg/L)	2.90	2.90	1.55	1.16	2.71
Mercury(mg/L)	0.10	0.10	0.05	0.04	0.09
Molybdenum(mg/L)	0.17	0.17	0.09	0.07	0.16
Nickel(mg/L)	0.25	0.25	0.13	0.10	0.23
Nitrite(mg/L)	0.02	0.02	0.01	0.01	0.02
Nitrate(mg/L)	0.04	0.04	0.02	0.02	0.04
pH(SU)	7.38	7.38	3.94	2.96	6.90
Potassium(mg/L)	137.00	137.00	73.20	54.99	128.19
Selenium(mg/L)	0.21	0.21	0.11	0.08	0.20
TKN(mg/L)	2442.00	2442.00	1304.86	980.15	2285.00
TP(mg/L)	855.60	855.60	457.18	343.41	800.59
Total Solids(%)	2.75%	2.75%	14694.35	11037.68	25732.03
VSolids (Dry) (%)	66.32%	66.32%	9745.29	266188.58	275933.88
Zinc(mg/L)	13.98	13.98	7.47	5.61	13.08

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S50410					
Ammonia(mg/L)	1121.83	1121.83	199.76	0.00	199.76
Arsenic(mg/L)	0.20	0.20	0.04	0.00	0.04
Cadmium(mg/L)	0.01	0.01	0.00	0.00	0.00
Chromium(mg/L)	0.53	0.53	0.10	0.00	0.10
Cobalt(mg/L)	0.05	0.05	0.01	0.00	0.01
Copper(mg/L)	26.11	26.11	4.65	0.00	4.65
E.Coli(CFU/g dry)	11639.17	11639.17	2072.59	0.00	2072.59
Lead(mg/L)	0.99	0.99	0.18	0.00	0.18
Magnesium(mg/L)	87.11	87.11	15.51	0.00	15.51
Manganese(mg/L)	3.04	3.04	0.54	0.00	0.54
Mercury(mg/L)	0.10	0.10	0.02	0.00	0.02
Molybdenum(mg/L)	0.17	0.17	0.03	0.00	0.03
Nickel(mg/L)	0.31	0.31	0.06	0.00	0.06
Nitrite(mg/L)	0.02	0.02	0.00	0.00	0.00
Nitrate(mg/L)	0.04	0.04	0.01	0.00	0.01
pH(SU)	7.51	7.51	1.34	0.00	1.34
Potassium(mg/L)	137.75	137.75	24.53	0.00	24.53
Selenium(mg/L)	0.19	0.19	0.03	0.00	0.03
TKN(mg/L)	2433.00	2433.00	433.24	0.00	433.24
TP(mg/L)	871.23	871.23	155.14	0.00	155.14
Total Solids(%)	2.68%	2.68%	4763.37	0.00	4763.37
VSolids (Dry) (%)	64.51%	64.51%	3073.01	0.00	3073.01
Zinc(mg/L)	14.88	14.88	2.65	0.00	2.65

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11002					
Ammonia(mg/L)	1121.83	1121.83	449.38	300.43	749.81
Arsenic(mg/L)	0.20	0.20	0.08	0.05	0.13
Cadmium(mg/L)	0.01	0.01	0.01	0.00	0.01
Chromium(mg/L)	0.53	0.53	0.21	0.14	0.36
Cobalt(mg/L)	0.05	0.05	0.02	0.01	0.03
Copper(mg/L)	26.11	26.11	10.46	6.99	17.45
E.Coli(CFU/g dry)	11639.17	11639.17	4662.42	3116.97	7779.39
Lead(mg/L)	0.99	0.99	0.40	0.27	0.66
Magnesium(mg/L)	87.11	87.11	34.90	23.33	58.22
Manganese(mg/L)	3.04	3.04	1.22	0.81	2.03
Mercury(mg/L)	0.10	0.10	0.04	0.03	0.06
Molybdenum(mg/L)	0.17	0.17	0.07	0.05	0.12
Nickel(mg/L)	0.31	0.31	0.12	0.08	0.21
Nitrite(mg/L)	0.02	0.02	0.01	0.01	0.01
Nitrate(mg/L)	0.04	0.04	0.02	0.01	0.03
pH(SU)	7.51	7.51	3.01	2.01	5.02
Potassium(mg/L)	137.75	137.75	55.18	36.89	92.07
Selenium(mg/L)	0.19	0.19	0.08	0.05	0.13
TKN(mg/L)	2433.00	2433.00	974.61	651.56	1626.17
TP(mg/L)	871.23	871.23	349.00	233.32	582.31
Total Solids(%)	2.68%	2.68%	10715.52	7163.65	17879.17
VSolids (Dry) (%)	64.51%	64.51%	6912.94	4621.51	11534.45
Zinc(mg/L)	14.88	14.88	5.96	3.98	9.94

Total Land Releases (kg)		
Ammonia(mg/L)	NA - 16	104,180.26
Arsenic(mg/L)	7440-38-2	52.86
Cadmium(mg/L)	7440-43-9	4.01
Chromium(mg/L)	7440-47-3	101.43
Cobalt(mg/L)	7440-48-4	12.89
Copper(mg/L)	7440-50-8	2,401.42
E.Coli(CFU/g dry)	NA - 01	973,133.55
Lead(mg/L)	7439-92-1	104.95
Magnesium(mg/L)	7439-95-4	15,035.17
Manganese(mg/L)	7439-96-5	493.41
Mercury(mg/L)	7439-97-6	8.86
Molybdenum(mg/L)	7439-98-7	22.02
Nickel(mg/L)	7440-02-0	61.74
Nitrite(mg/L)	NA - 17	4.31
Nitrate(mg/L)	NA - 02	4.00
Potassium(mg/L)	NA - 11	14,089.05
Selenium(mg/L)	7782-49-2	27.43
TKN(mg/L)	7727-37-9	239,546.64
TP(mg/L)	NA - 19	96,325.58
Total Solids(%)	NA - 03	3,159,494.45
VSolids (Dry) (%)	NA - 04	11,914,603.66
Zinc(mg/L)	7440-66-6	1,429.99

* E.coli Is in CFU/g dry units

BioGas Combustion Emissions

Total Annual Bio Gas Burned 2,031,180 m³
71,731,122 ft³
Heat capacity of Digester Gas 690 BTU/ft³

Contaminant	CAS #	Emission Factor	Units	Emissions (kg/yr)
Acetaldehyde	75-07-0	1.30E-04	lb/MMBTU	2.92E+00
Acrolein	107-02-8	7.80E-05	lb/MMBTU	1.75E+00
Benzene	71-43-2	3.50E-03	lb/MMBTU	7.86E+01
Dichloromethane	75-09-2	1.37E-04	lb/MMBTU	3.07E+00
Formaldehyde	50-00-0	2.94E-04	lb/MMBTU	6.59E+00
Xylene	1330-20-7	3.68E-05	lb/MMBTU	8.26E-01
Styrene	100-42-5	7.64E-05	lb/MMBTU	1.72E+00
Sulfur oxides (SO _x)	7446-09-5	4.50E+00	lb/MMscf	1.46E+02
Toluene	108-88-3	1.09E-04	lb/MMBTU	2.45E+00
1,1,1-Trichloroethane	71-55-6	1.25E-04	lb/MMBTU	2.80E+00
Volatile organic compounds (VOC)	NA - M16	3.00E+00	lb/MMscf	9.76E+01

Emission factors from US EPA WebFIRE (<http://cfpub.epa.gov/webfire/>), Accessed May 1, 2016

Sample calculations

$$\begin{aligned}
 \text{Acetaldehyde emissions} &= \text{Total amount of gas burned (m}^3\text{)} \times 35.31 \text{ ft/m}^3 \times 690 \text{ BTU/ft}^3 \times \text{Emission Factor (lb/MMBTU)} \times 0.4536 \text{ kg/lb} \\
 &= 2,031,180 \text{ m}^3 \times 35.31467 \text{ ft/m}^3 \times 690 \text{ BTU/ft}^3 \times 1.30\text{E-}04 \text{ lb/MMBTU} \times 0.4536 \text{ kg/lb} \\
 &= 2.92\text{E+}00 \text{ kg/yr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Sulfur oxides emissions} &= \text{Total amount of gas burned (m}^3\text{)} \times 35.31 \text{ ft/m}^3 \times \text{Emission Factor (lb/MMscf)} \times 0.4536 \text{ kg/lb} \\
 &= 2,031,180 \text{ m}^3 \times 35.31467 \text{ ft/m}^3 \times 4.50\text{E+}00 \text{ lb/MMscf} \times 0.4536 \text{ kg/lb} \\
 &= 1.46\text{E+}02 \text{ kg/yr}
 \end{aligned}$$

Influent Contaminant Concentrations

Month	Influent Flow (10 ³ m ³ /Day)	Days	Influent Flow (10 ³ m ³ /month)	Average Contaminant Concentrations			Total Contaminant in Influent		
				Ammonia	Nitrate-Nitrogen	Phosphorous	Ammonia	Nitrate*	Phosphorous
				mg/L	mg/L	mg/L	kg/month	kg/month	kg/month
Jan	49.5	31	1,536	2.52E+01	4.00E-02	4.54E+00	3.87E+04	2.73E+02	6.97E+03
Feb	49.4	28	1,383	2.79E+01	4.00E-02	5.06E+00	3.86E+04	2.46E+02	7.00E+03
Mar	51.6	31	1,600	2.91E+01	4.00E-02	5.07E+00	4.66E+04	2.84E+02	8.12E+03
Apr	53.4	30	1,602	2.59E+01	4.00E-02	4.70E+00	4.15E+04	2.85E+02	7.53E+03
May	50.3	31	1,558	2.66E+01	4.00E-02	4.79E+00	4.15E+04	2.77E+02	7.46E+03
Jun	51.2	30	1,535	2.24E+01	4.00E-02	3.19E+00	3.44E+04	2.73E+02	4.89E+03
Jul	46.6	31	1,446	2.22E+01	4.00E-02	5.16E+00	3.22E+04	2.57E+02	7.46E+03
Aug	47.5	31	1,471	2.44E+01	4.00E-02	4.84E+00	3.58E+04	2.61E+02	7.12E+03
Sep	47.1	30	1,413	2.07E+01	4.00E-02	4.47E+00	2.93E+04	2.51E+02	6.31E+03
Oct	46.0	31	1,425	2.62E+01	4.00E-02	5.43E+00	3.73E+04	2.53E+02	7.74E+03
Nov	45.1	30	1,353	2.69E+01	4.00E-02	5.09E+00	3.64E+04	2.40E+02	6.89E+03
Dec	47.7	31	1,479	2.82E+01	4.00E-02	4.77E+00	4.17E+04	2.63E+02	7.06E+03
Total	585	365	17,801	---	---	---	kg/year 4.54E+05	kg/year 3.16E+03	kg/year 8.46E+04

* nitrate-nitrogen is converted to nitrate-ion by multiplying by 4.44 as nitrate is 22.5% of the total weight of nitrate-nitrogen

Sample Calculation

$$\begin{aligned}
 \text{January Ammonia} &= \text{Influent flow (10}^3 \text{ m}^3\text{/day)} \times 1000 \text{ L/m}^3 \times 31 \text{ Days} \times \text{Contaminant Concentration (mg/L)} \times 1 \text{ kg}/10^6 \text{ mg} \\
 &= 49.5 \times 103 \text{ m}^3\text{/day} \times 1000 \text{ L/m}^3 \times 31 \text{ Days} \times 2.52\text{E}+01 \text{ mg/L} \times 1 \text{ kg}/106 \text{ mg} \div 1,000,000 \text{ mg/kg} \\
 &= 3.87\text{E}+04 \text{ kg/month}
 \end{aligned}$$

Average Annual Releases to Lake Simcoe in Effluent

Month	Average Daily Flow (1,000 m ³ /d)	Contaminant Concentrations (mg/L)			# days	Emission (kg/mth)		
		Ammonia-N	Nitrate	Total-P		Total Ammonia	Nitrate - Ion	Total-P
January	49.5	5.04E-01	1.51E+01	2.00E-02	31	7.73E+02	1.03E+05	3.07E+01
February	49.4	7.08E-01	1.57E+01	2.33E-02	28	9.79E+02	9.67E+04	3.23E+01
March	51.6	8.21E-01	1.62E+01	4.71E-02	31	1.31E+03	1.15E+05	7.54E+01
April	53.4	1.94E-01	1.51E+01	2.00E-02	30	3.10E+02	1.07E+05	3.20E+01
May	50.3	4.95E-01	1.63E+01	2.10E-02	31	7.72E+02	1.13E+05	3.27E+01
June	51.2	1.35E-01	1.43E+01	2.77E-02	30	2.08E+02	9.78E+04	4.25E+01
July	46.6	6.62E-02	1.55E+01	2.03E-02	31	9.58E+01	9.96E+04	2.94E+01
August	47.5	7.72E-02	1.50E+01	2.19E-02	31	1.14E+02	9.82E+04	3.23E+01
September	47.1	1.24E-01	1.61E+01	2.27E-02	30	1.76E+02	1.01E+05	3.20E+01
October	46.0	1.51E-01	1.58E+01	2.00E-02	31	2.15E+02	9.97E+04	2.85E+01
November	45.1	1.14E+00	1.64E+01	2.12E-02	30	1.55E+03	9.84E+04	2.86E+01
December	47.7	4.68E-01	1.66E+01	2.03E-02	31	6.93E+02	1.09E+05	3.01E+01
ANNUAL TOTALS:					365	7.19E+03	1.24E+06	4.26E+02
						kg/year	kg/year	kg/year

Month	Emission (kg/day)		
	Total Ammonia	Nitrate - Ion*	Total-P
January	24.9	3323.3	0.99
February	35.0	3452.7	1.15
March	42.4	3706.4	2.43
April	10.3	3580.1	1.07
May	24.9	3632.2	1.05
June	6.9	3259.7	1.42
July	3.1	3213.1	0.95
August	3.7	3166.2	1.04
September	5.9	3374.2	1.07
October	6.9	3216.3	0.92
November	51.5	3280.2	0.95
December	22.3	3513.9	0.97

* nitrate-nitrogen is converted to nitrate-ion by multiplying by 4.44 as nitrate is 22.5% of the total weight of nitrate-nitrogen

Sample Calculation

$$\begin{aligned}
 \text{January Nitrate} &= \text{Contaminant Conc. (mg/L)} \times 4.4 \text{ mg NO}_3/\text{mg N in NO}_3 \times \text{Daily Flow (1000 m}^3/\text{d)} \times 1000 \text{ L/m}^3 / 1000000 \text{ mg/kg} \times \text{d/month} \\
 &= 15.1 \text{ mg/L} \times 4.44 \text{ mg NO}_3/\text{mg N in NO}_3 \times 49.5 \times 10^3 \text{ m}^3/\text{d} \times 1,000 \text{ L/m}^3 / 1,000,000 \text{ mg/kg} \times 31 \text{ d/month} \\
 &= 1.03\text{E}+05 \text{ kg/month}
 \end{aligned}$$

Air Emissions from Treatment Processes

Total Annual Influent Flow: 17,800,904 m³
 Total Annual Ammonia in sewage: 453,959 kg
 Total Annual Nitrates in sewage: 3,161 kg
 (see Influent Contaminant Concentrations for Nitrogen calculation)

Process	Substance	CAS #	Emission Factor ¹	Emission Rate (kg/yr)
Plant-wide	Total VOCs ³	NA - M16	1.07	1.90E+04
	Ammonia (Total) ³	NA - 16	2.2	3.92E+04
	Nitrogen oxides ²	11104-93-1	0.011	4.12E+03
Headworks Screening	Benzene	71-43-2	0.780	1.39E+01
	Carbon tetrachloride	56-23-5	0.049	8.72E-01
	Chloroform	67-66-3	0.014	2.49E-01
	Dichloromethane	75-09-2	0.049	8.72E-01
	Ethylbenzene	100-41-4	0.086	1.53E+00
	Toluene	108-88-3	0.080	1.42E+00
	Trichloroethylene	79-01-6	0.046	8.19E-01
	Xylene	1330-20-7	0.086	1.53E+00
Aerated Grit Chamber	Benzene	71-43-2	0.43	7.65E+00
	Chloroform	67-66-3	0.073	1.30E+00
	Dichloromethane	75-09-2	0.15	2.67E+00
	p-Dioxane	54841-74-6	0.0018	3.20E-02
	Formaldehyde	50-00-0	0.000216	3.84E-03
	Styrene	100-42-5	0.00066	1.17E-02
	Toluene	108-88-3	0.32	5.70E+00
	Trichloroethylene	79-01-6	0.034	6.05E-01
	Xylene	1330-20-7	0.1	1.78E+00
Primary Settling Tank	Benzene	71-43-2	0.065	1.16E+00
	Carbon tetrachloride	56-23-5	1.1	1.96E+01
	Chloroform	67-66-3	1.8	3.20E+01
	Dichloromethane	75-09-2	1.5	2.67E+01
	Formaldehyde	50-00-0	0.026	4.63E-01
	Styrene	100-42-5	0.13	2.31E+00
	Toluene	108-88-3	0.19	3.38E+00
	Trichloroethylene	79-01-6	0.35	6.23E+00
	Vinylidene chloride	75-35-4	0.016	2.85E-01
	Xylene	1330-20-7	0.23	4.09E+00
Oxygen Activated Sludge	Benzene	71-43-2	0.000456	8.12E-03
	Carbon tetrachloride	56-23-5	0.000852	1.52E-02
	Chloroform	67-66-3	0.00998	1.78E-01
	Dichloromethane	75-09-2	0.00864	1.54E-01
	Formaldehyde	50-00-0	0.0000348	6.19E-04
	Styrene	100-42-5	0.000588	1.05E-02
	Toluene	108-88-3	0.00104	1.85E-02
	Trichloroethylene	79-01-6	0.00163	2.90E-02
	Vinylidene chloride	75-35-4	0.000372	6.62E-03
	Xylene	1330-20-7	0.0014	2.49E-02
Secondary Clarifier	Benzene	71-43-2	0.017	3.03E-01
	Carbon tetrachloride	56-23-5	0.0009	1.60E-02
	Chloroform	67-66-3	0.00948	1.69E-01
	Dichloromethane	75-09-2	0.011	1.96E-01
	p-Dioxane	54841-74-6	0.00288	5.13E-02
	Formaldehyde	50-00-0	0.00018	3.20E-03
	Styrene	100-42-5	0.00292	5.20E-02
	Toluene	108-88-3	0.002211	3.94E-02

Air Emissions from Treatment Processes

Process	Substance	CAS #	Emission Factor ¹	Emission Rate
Tertiary Filters	Benzene	71-43-2	0.00048	8.54E-03
	Chloroform	67-66-3	0.013	2.31E-01
	Dichloromethane	75-09-2	0.00331	5.89E-02
	Toluene	108-88-3	0.00125	2.23E-02
	Trichloroethylene	79-01-6	0.00101	1.80E-02
	Xylene	1330-20-7	0.000696	1.24E-02
Anaerobic Digesters	Benzene	71-43-2	0.00048	8.54E-03
	Chloroform	67-66-3	0.013	2.31E-01
	Dichloromethane	75-09-2	0.00331	5.89E-02
	Toluene	108-88-3	0.00125	2.23E-02
	Trichloroethylene	79-01-6	0.00101	1.80E-02
	Xylene	1330-20-7	0.000696	1.24E-02

¹ unless otherwise indicated, emission factors are provided in kg/10⁶ m³ influent

² kg/kg nitrate in influent

³ kg/1000 m³ influent

Emission Factors taken from "Reporting Guidance for the Wastewater Sector to the National Pollutant Release Inventory, (CEPA, 1999)", Dated March 2019

Sample Calculations

$$\begin{aligned}
 \text{Plant-wide VOC Emissions} &= \text{Annual Influent Flow (m}^3\text{)} \times \text{Emission Factor (kg/1000 m}^3\text{ influent)} \\
 &= 17,800,904 \text{ m}^3 \times 1.07 \text{ kg/1000 m}^3\text{ influent} \\
 &= 17,800,904 \text{ m}^3 \times 1.07 \text{ kg/1,000 m}^3\text{ influent} \\
 &= 1.90\text{E}+04 \text{ kg/yr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Plant-wide nitrogen oxides emissions} &= \text{Nitrogen (from ammonia and nitrates) in sewage} \times \text{Emission Factor} \\
 &= [453,959 \text{ kg ammonia} \times (14 \text{ g/mol N} + 17 \text{ g/mol ammonia}) + 3,161 \text{ kg} \\
 &\quad \text{Nitrates} \times (14 \text{ g/mol N} + 62 \text{ g/mol Nitrate ion})] \times 0.011 \text{ kg N}_2\text{O-N/kg sewage-N} \\
 &= 4.12\text{E}+03 \text{ kg/yr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Benzene emission from headworks screening} &= \text{Annual influent flow (m}^3\text{)} \times \text{Emission Factor (kg/10}^6\text{ m}^3\text{ influent)} \\
 &= 17,800,904 \text{ m}^3 \times 0.78 \text{ kg/1000000 m}^3\text{ influent} \\
 &= 17,800,904 \text{ m}^3 \times 0.78 \text{ kg/1,000,000 m}^3\text{ influent} \\
 &= 1.39\text{E}+01 \text{ kg/yr}
 \end{aligned}$$

Process Emissions Summary

Contaminant	CAS #	Emission Rate
Ethylbenzene	100-41-4	1.53E+00
Styrene	100-42-5	2.39E+00
Toluene	108-88-3	1.06E+01
Xylene	1330-20-7	7.45E+00
Formaldehyde	50-00-0	4.70E-01
p-Dioxane	54841-74-6	8.33E-02
Carbon tetrachloride	56-23-5	2.05E+01
Chloroform	67-66-3	3.44E+01
Benzene	71-43-2	2.30E+01
Dichloromethane	75-09-2	3.07E+01
Vinylidene chloride	75-35-4	2.91E-01
Trichloroethylene	79-01-6	7.72E+00
Ammonia	NA - 16	3.92E+04
Total VOCs	NA - M16	1.90E+04
Nitrogen oxides	11104-93-1	4.12E+03

Natural Gas Emissions

Consumption : 116,830 m³
4,125,845 ft³

Substance	CAS #	Emission Factor (lb/1000000 ft ³)	Emission Rate (kg/yr)	VOC?
Sulphur Dioxide	7446-09-5	0.6	1.12E+00	
Nitrogen Oxides	11104-93-1	100	1.87E+02	
Carbon Monoxide	630-08-0	84	1.57E+02	
Nitrous Oxide	10024-97-2	2.2	4.12E+00	
Total Particulate Matter	NA - M08	-	3.56E+00	
Particulate Matter <=10 micrometers	NA - M09	-	3.56E+00	
Particulate Matter <=2.5 micrometers	NA - M10	1.9	3.56E+00	
Carbon Dioxide	124-38-9	120,000	2.25E+05	
TOC	NA	11	2.06E+01	
Lead	7439-92-1	0.0005	9.36E-04	
Methane	74-82-8	2.3	4.30E+00	
VOC	NA - M16	5.5	1.03E+01	Y
Speciated Organic Compounds				
2-Methylnaphthalene	91-57-6	0.000024	4.49E-05	Y
3-Methylchloranthrene	56-49-5	< 0.0000018	3.37E-06	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	2.99E-05	Y
Acenaphthene	83-32-9	< 0.0000018	3.37E-06	Y
Acenaphthylene	208-96-8	< 0.0000018	3.37E-06	Y
Anthracene	120-12-7	< 0.0000024	4.49E-06	Y
Benz(a)anthracene	56-55-3	< 0.0000018	3.37E-06	Y
Benzene	71-43-2	0.0021	3.93E-03	Y
Benzo(a)pyrene	50-32-8	< 0.0000012	2.25E-06	Y
Benzo(b)fluoranthene	205-99-2	< 0.0000018	3.37E-06	Y
Benzo(g,h,i)perylene	191-24-2	< 0.0000012	2.25E-06	Y
Benzo(k)fluoranthene	207-08-9	< 0.0000018	3.37E-06	Y
Butane	106-97-8	2.1	3.93E+00	Y
Benzo(a)phenanthrene	218-01-9	< 0.0000018	3.37E-06	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.0000012	2.25E-06	Y
Dichlorobenzene	25321-22-6	0.0012	2.25E-03	Y
Ethane	74-84-0	3.1	5.80E+00	
Fluoranthene	206-44-0	0.000003	5.61E-06	Y
Fluorene	86-73-7	0.0000028	5.24E-06	Y
Formaldehyde	50-00-0	0.075	1.40E-01	Y
Hexane	110-54-3	1.8	3.37E+00	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.0000018	3.37E-06	Y
Naphthalene	91-20-3	0.00061	1.14E-03	Y
Pentane	109-66-0	2.6	4.87E+00	Y
Phenanthrene	85-01-8	0.000017	3.18E-05	Y
Propane	74-98-6	1.6	2.99E+00	Y
Pyrene	129-00-0	0.00005	9.36E-05	Y
Toluene	108-88-3	0.0034	6.36E-03	Y

Natural Gas Emissions

Substance	CAS #	Emission Factor (lb/1000000 ft ³)	Emission Rate (kg/yr)	VOC?
Metals				
Arsenic	7440-38-2	0.0002	3.74E-04	
Barium	7440-39-3	0.0044	8.23E-03	
Beryllium	7440-41-7	< 0.000012	2.25E-05	
Cadmium	7440-43-9	0.0011	2.06E-03	
Chromium	7440-47-3	0.0014	2.62E-03	
Cobalt	7440-48-4	0.000084	1.57E-04	
Copper	7440-50-8	0.00085	1.59E-03	
Manganese	7439-96-5	0.00038	7.11E-04	
Mercury	7439-97-6	0.00026	4.87E-04	
Molybdenum	7439-98-7	0.0011	2.06E-03	
Nickel	7440-02-0	0.0021	3.93E-03	
Selenium	7782-49-2	0.000024	4.49E-05	
Vanadium	7440-62-2	0.0023	4.30E-03	
Zinc	7440-66-6	0.029	5.43E-02	

Sample Calculation

$$\begin{aligned}
 \text{NOx Emission Rate} &= \text{Consumption} \times \text{Emission Factor} \\
 &= 4,125,845 \text{ ft}^3/\text{yr} \times 100 \text{ lb}/10^6 \text{ ft}^3 \times 0.4536 \text{ kg}/\text{lb} \\
 &= 187.1 \text{ kg}/\text{yr}
 \end{aligned}$$

Reference

Emission Factors from USEPA AP-42, "Compilation of Air Pollution Emission Factors", Section 1.4, 1998
 For Boilers < 100MMBtu/hour

2022 Facility Wide NPRI / O.Reg.127/01 / GHG Substance Summary Table

Substance	CAS #	MPO (kg/yr)	Use (kg/yr)	Annual Release (Air) (kg/yr)	Annual Release (Land) (kg/yr)	Annual Release (Water) (kg/yr)	Reporting Section
Nitrous Oxide	10024-97-2	4.12E+00	-	4.12E+00	0.00E+00	0.00E+00	GHG
Ethylbenzene	100-41-4	1.53E+00	-	1.53E+00	0.00E+00	0.00E+00	1A
Styrene	100-42-5	4.10E+00	-	4.10E+00	0.00E+00	0.00E+00	1A, 5
Butane	106-97-8	3.93E+00	-	3.93E+00	0.00E+00	0.00E+00	5
Acrolein	107-02-8	1.75E+00	-	1.75E+00	0.00E+00	0.00E+00	1A
Toluene	108-88-3	1.31E+01	-	1.31E+01	0.00E+00	0.00E+00	1A, 5
Pentane	109-66-0	4.87E+00	-	4.87E+00	0.00E+00	0.00E+00	5
Hexane	110-54-3	3.37E+00	-	3.37E+00	0.00E+00	0.00E+00	1A, 5
Nitrogen Oxides	11104-93-1	4.31E+03	-	4.31E+03	0.00E+00	0.00E+00	4
Anthracene	120-12-7	4.49E-06	-	4.49E-06	0.00E+00	0.00E+00	2
Carbon Dioxide	124-38-9	2.25E+05	-	2.25E+05	0.00E+00	0.00E+00	GHG
Pyrene	129-00-0	9.36E-05	-	9.36E-05	0.00E+00	0.00E+00	2
Xylene	1330-20-7	8.28E+00	-	8.28E+00	0.00E+00	0.00E+00	1A, 5
Benzo(g,h,i)perylene	191-24-2	2.25E-06	-	2.25E-06	0.00E+00	0.00E+00	2
Indeno(1,2,3-cd)pyrene	193-39-5	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Benzo(b)fluoranthene	205-99-2	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Fluoranthene	206-44-0	5.61E-06	-	5.61E-06	0.00E+00	0.00E+00	2
Benzo(k)fluoranthene	207-08-9	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Acenaphthylene	208-96-8	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Benzo(a)phenanthrene	218-01-9	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Dichlorobenzene	25321-22-6	2.25E-03	-	2.25E-03	0.00E+00	0.00E+00	-
Formaldehyde	50-00-0	7.20E+00	-	7.20E+00	0.00E+00	0.00E+00	1A, 5
Benzo(a)pyrene	50-32-8	2.25E-06	-	2.25E-06	0.00E+00	0.00E+00	2
Dibenzo(a,h)anthracene	53-70-3	2.25E-06	-	2.25E-06	0.00E+00	0.00E+00	2
p-Dioxane	54841-74-6	8.33E-02	-	8.33E-02	0.00E+00	0.00E+00	-
Carbon tetrachloride	56-23-5	2.05E+01	-	2.05E+01	0.00E+00	0.00E+00	1A
3-Methylchloranthrene	56-49-5	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Benz(a)anthracene	56-55-3	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
7,12-Dimethylbenz(a)anthracene	57-97-6	2.99E-05	-	2.99E-05	0.00E+00	0.00E+00	2
Carbon Monoxide	630-08-0	1.57E+02	-	1.57E+02	0.00E+00	0.00E+00	4
Chloroform	67-66-3	3.44E+01	-	3.44E+01	0.00E+00	0.00E+00	1A
Benzene	71-43-2	1.02E+02	-	1.02E+02	0.00E+00	0.00E+00	1A, 5
1,1,1-Trichloroethane	71-55-6	2.80E+00	-	2.80E+00	0.00E+00	0.00E+00	-
Lead	7439-92-1	1.05E+02	1.05E+02	9.36E-04	1.05E+02	0.00E+00	1B
Magnesium	7439-95-4	1.50E+04	1.50E+04	0.00E+00	1.50E+04	0.00E+00	-
Manganese	7439-96-5	4.93E+02	4.93E+02	7.11E-04	4.93E+02	0.00E+00	1A
Mercury	7439-97-6	8.86E+00	8.86E+00	4.87E-04	8.86E+00	0.00E+00	1B
Molybdenum	7439-98-7	2.20E+01	2.20E+01	2.06E-03	2.20E+01	0.00E+00	-
Nickel	7440-02-0	6.17E+01	6.17E+01	3.93E-03	6.17E+01	0.00E+00	1A
Arsenic	7440-38-2	5.29E+01	5.29E+01	3.74E-04	5.29E+01	0.00E+00	1B
Barium	7440-39-3	8.23E-03	-	8.23E-03	0.00E+00	0.00E+00	-
Beryllium	7440-41-7	2.25E-05	-	2.25E-05	0.00E+00	0.00E+00	-
Cadmium	7440-43-9	4.01E+00	4.01E+00	2.06E-03	4.01E+00	0.00E+00	1B
Chromium	7440-47-3	1.01E+02	1.01E+02	2.62E-03	1.01E+02	0.00E+00	1A
Cobalt	7440-48-4	1.29E+01	1.29E+01	1.57E-04	1.29E+01	0.00E+00	1B
Copper	7440-50-8	2.40E+03	2.40E+03	1.59E-03	2.40E+03	0.00E+00	1A
Vanadium	7440-62-2	4.30E-03	-	4.30E-03	0.00E+00	0.00E+00	1A
Zinc	7440-66-6	5.43E-02	-	5.43E-02	0.00E+00	0.00E+00	1A
Sulfur oxides (SOx)	7446-09-5	1.48E+02	-	1.48E+02	0.00E+00	0.00E+00	4
Methane	74-82-8	4.30E+00	-	4.30E+00	0.00E+00	0.00E+00	GHG
Ethane	74-84-0	5.80E+00	-	5.80E+00	0.00E+00	0.00E+00	-
Propane	74-98-6	2.99E+00	-	2.99E+00	0.00E+00	0.00E+00	5
Acetaldehyde	75-07-0	2.92E+00	-	2.92E+00	0.00E+00	0.00E+00	1A
Dichloromethane	75-09-2	3.38E+01	-	3.38E+01	0.00E+00	0.00E+00	1A
Vinylidene chloride	75-35-4	2.91E-01	-	2.91E-01	0.00E+00	0.00E+00	-
TKN	7727-37-9	2.40E+05	2.40E+05	0.00E+00	2.40E+05	0.00E+00	-
Selenium	7782-49-2	2.74E+01	2.74E+01	4.49E-05	2.74E+01	0.00E+00	1B

2022 Facility Wide NPRI / O.Reg.127/01 / GHG Substance Summary Table

Substance	CAS #	MPO (kg/yr)	Use (kg/yr)	Annual Release (Air) (kg/yr)	Annual Release (Land) (kg/yr)	Annual Release (Water) (kg/yr)	Reporting Section
Trichloroethylene	79-01-6	7.72E+00	-	7.72E+00	0.00E+00	0.00E+00	1A
Acenaphthene	83-32-9	3.37E-06	-	3.37E-06	0.00E+00	0.00E+00	2
Phenanthrene	85-01-8	3.18E-05	-	3.18E-05	0.00E+00	0.00E+00	2
Fluorene	86-73-7	5.24E-06	-	5.24E-06	0.00E+00	0.00E+00	2
Naphthalene	91-20-3	1.14E-03	-	1.14E-03	0.00E+00	0.00E+00	1A
2-Methylnaphthalene	91-57-6	4.49E-05	-	4.49E-05	0.00E+00	0.00E+00	-
TOC	NA	2.06E+01	-	2.06E+01	0.00E+00	0.00E+00	-
E.Coli (cts/g)	NA - 01	9.73E+05	9.73E+05	0.00E+00	9.73E+05	0.00E+00	-
Nitrate	NA - 02	4.00E+00	4.00E+00	0.00E+00	4.00E+00	1.24E+06	1A
TS (%)	NA - 03	3.16E+06	3.16E+06	0.00E+00	3.16E+06	0.00E+00	-
TVS (%)	NA - 04	1.19E+07	1.19E+07	0.00E+00	1.19E+07	0.00E+00	-
Arsenic	NA - 05	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	1B
Cobalt	NA - 07	0.00E+00	-	0.00E+00	0.00E+00	0.00E+00	1B
Potassium	NA - 11	1.41E+04	1.41E+04	0.00E+00	1.41E+04	0.00E+00	-
Molybdenum	NA - 13	7.29E+02	7.29E+02	0.00E+00	7.29E+02	0.00E+00	-
Ammonia	NA - 16	1.43E+05	1.04E+05	3.92E+04	1.04E+05	7.19E+03	1A
Nitrite	NA - 17	4.31E+00	4.31E+00	0.00E+00	4.31E+00	0.00E+00	-
Phosphorus	NA - 19	9.63E+04	9.63E+04	0.00E+00	9.63E+04	4.26E+02	1A
Total Particulate Matter	NA - M08	3.56E+00	-	3.56E+00	0.00E+00	0.00E+00	4
Particulate Matter <=10 micrometers	NA - M09	3.56E+00	-	3.56E+00	0.00E+00	0.00E+00	4
Particulate Matter <=2.5 micrometers	NA - M10	3.56E+00	-	3.56E+00	0.00E+00	0.00E+00	4
Total VOCs	NA - M16	1.92E+04	-	1.94E+04	0.00E+00	0.00E+00	4

NOTE 1: VOCs are assumed to be 100% emitted to atmosphere, unless otherwise indicated