



FINAL

2020 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

August 13, 2021

Pinchin File: 283647



2020 Annual Environmental Reporting

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1.0 EXECUTIVE SUMMARY

Pinchin Ltd. (Pinchin) evaluated the 2020 National Pollutant Release Inventory (NPRI), Ontario Regulation 127/01 – Airborne Contaminant Discharge Monitoring and Reporting (O.Reg.127/01), 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 2020?	Reportable 2019?
Ammonia (total)	NA - 16	Yes	Yes
Phosphorus (total)	NA - 22	Yes	Yes
Lead (and its compounds) except tetraethyl lead	NA - 08	Yes	Yes
Mercury (and its compounds)	NA - 10	Yes	No
Volatile Organic Compounds	NA - M16	Yes	Yes

O.Reg.127/01 - Environmental Protection Act, R.S.O. 1990, c. E.19

On January 1, 2020, ON MECP revoked O.Reg.127/01. Consequently, there is no longer a requirement to report any substances to this program.

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 200 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 2020 and 2019 reportable substances is given in Appendix I.



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City of Barrie

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Summaries for the 2020 operating year are listed in Appendices II to IV.

Data and calculations are given in Appendices V to VI.

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Template: Master Report 2019 AER, ERC, March 2, 2020

APPENDIX I
Comparison of 2020 and 2019 Reportable Substances
(2 Pages)

Comparison of 2020 and 2019 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 "National Pollutant Release Inventory Guidance Manual for the Wastewater Sector", 1999 (A)
- 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

	2020	2019	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	42.0969	41.4887	tonnes	1%	Influent flow increased in 2020 (B,C)
Annual Release (Land)	106.7397	87.1534	tonnes	22%	Total land application increased in 2020
Annual Release (Water)	5.5250	11.6825	tonnes	-53%	Concentration of ammonia in effluent decreased in 2020 (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

	2020	2019	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0000	0.0000	tonnes	-	-
Annual Release (Land)	88.9311	67.1750	tonnes	32%	Concentration of phosphorus in biosolids and total land application increased in 2020.
Annual Release (Water)	0.5972	0.5685	tonnes	5%	Concentration of phosphorus in effluent increased in 2020 (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	-	-

Comparison of 2020 and 2019 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 "National Pollutant Release Inventory Guidance Manual for the Wastewater Sector", 1999 (A)
- 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

	2020	2019	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	20.0765	19.7927	tonnes	1%	Influent flow increased in 2020 (A,B,C)
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

	2020	2019	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0009	0.0009	kg	1%	-
Annual Release (Land)	91.498	53.3094	kg	72%	Concentration of lead in biosolids and total land application increased in 2020.
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

	2020	2019	Units	Change	Rationale for Change Greater than +/- 10%
NPRI					
Annual Release (Air)	0.0005	0.0005	kg	1%	Used more natural gas in 2020
Annual Release (Land)	6.222	4.4331	kg	40%	Total land application increased in 2020.
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 183 substances with MPO thresholds of 10 tonnes.
- Part 1B substances include 22 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 64 Volatile Organic Compounds (VOCs) that are triggered when Part 4-Total VOCs emissions are in excess of 10 tonnes and the annual emissions for an individual VOC is in excess of 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	0.0030	No	----	----	----	----	----	----	----	----	----	----	----	----
Acrolein	107-02-8	10	0.0018	No	----	----	----	----	----	----	----	----	----	----	----	----
Ammonia (total)	NA - 16	10	149	Yes	42.0969	E	106.7397	C	5.5250	C	0.0000	----	0.0000	----	0.0000	----
Benzene	71-43-2	10	0.1033	No	----	----	----	----	----	----	----	----	----	----	----	----
Carbon tetrachloride	56-23-5	10	0.0212	No	----	----	----	----	----	----	----	----	----	----	----	----
Chloroform	67-66-3	10	0.0395	No	----	----	----	----	----	----	----	----	----	----	----	----
Chromium (and its compounds)	NA - 04	10	0.0545	No	----	----	----	----	----	----	----	----	----	----	----	----
Copper (and its compounds)	NA - 06	10	2	No	----	----	----	----	----	----	----	----	----	----	----	----
Dichloromethane	75-09-2	10	0.0350	No	----	----	----	----	----	----	----	----	----	----	----	----
Ethylbenzene	100-41-4	10	0.0016	No	----	----	----	----	----	----	----	----	----	----	----	----
Formaldehyde	50-00-0	10	0.0073	No	----	----	----	----	----	----	----	----	----	----	----	----
Manganese (and its compounds)	NA - 09	10	0.3869	No	----	----	----	----	----	----	----	----	----	----	----	----
Naphthalene	91-20-3	10	0.0000	No	----	----	----	----	----	----	----	----	----	----	----	----
n-Hexane	110-54-3	10	0.0032	No	----	----	----	----	----	----	----	----	----	----	----	----
Nickel (and its compounds)	NA - 11	10	0.0294	No	----	----	----	----	----	----	----	----	----	----	----	----
Nitrate ion (in solution at a pH of 6.0 or greater)	NA - 17	10	0.0270	No	----	----	----	----	----	----	----	----	----	----	----	----
Phosphorus (total)	NA - 22	10	89	Yes	0.0000	E	88.9311	C	0.5972	C	0.0000	----	0.0000	----	0.0000	----
Styrene	100-42-5	10	0.0042	No	----	----	----	----	----	----	----	----	----	----	----	----
Toluene	108-88-3	10	0.0135	No	----	----	----	----	----	----	----	----	----	----	----	----
Trichloroethylene	79-01-6	10	0.0080	No	----	----	----	----	----	----	----	----	----	----	----	----
Vanadium (except when in an alloy) and its compounds	NA - 40	10	0.0000	No	----	----	----	----	----	----	----	----	----	----	----	----
Xylene (all isomers)	1330-20-7	10	0.0086	No	----	----	----	----	----	----	----	----	----	----	----	----
Zinc (and its compounds)	NA - 14	10	0.0001	No	----	----	----	----	----	----	----	----	----	----	----	----

NA - Not Applicable

C - Mass Balance

E - Published Emission Factors

*Includes emissions of by-products.

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

Substance	CAS #	MPO Threshold	Annual MPO*	Reportable?	Annual Release	Estimation Method	Annual Release	Estimation Method	Annual Release	Estimation Method	Annual Recycling	Estimation Method	Annual Disposal	Estimation Method	Annual Disposal	Estimation Method
		(kg/yr)	(kg/yr)	(Yes/No)	(Air) (kg/yr)		(Land) (kg/yr)		(Water) (kg/yr)		(Off Site) (kg/yr)		(On Site) (kg/yr)		(Off Site) (kg/yr)	
Arsenic (and its compounds)	NA - 02	50	9	No	---	---	---	---	---	---	---	---	---	---	---	---
Cadmium (and its compounds)	NA - 03	5	1	No	---	---	---	---	---	---	---	---	---	---	---	---
Cobalt (and its compounds)	NA - 05	50	5	No	---	---	---	---	---	---	---	---	---	---	---	---
Lead (and its compounds) except tetraethyl lead	NA - 08	50	91	Yes	0.0009	E	91.4982	C	0.0000	---	0.0000	---	0.0000	---	0.0000	---
Mercury (and its compounds)	NA - 10	5	6	Yes	0.0005	E	6.2222	C	0.0000	---	0.0000	---	0.0000	---	0.0000	---
Selenium (and its compounds)	NA - 12	100	8	No	---	---	---	---	---	---	---	---	---	---	---	---

NA - Not Applicable

C - Mass Balance

E - Published Emission Factors

*Includes emissions of by-products.

**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*	E	No
Acenaphthylene	208-96-8	5	0*	E	No
Anthracene	120-12-7	5	0*	E	No
Benzo(a)anthracene	56-55-3	5	0*	E	No
Chrysene	218-01-9	5	0*	E	No
Benzo(a)pyrene	50-32-8	5	0*	E	No
Benzo(b)fluoranthene	205-99-2	5	0*	E	No
Benzo(g,h,i)perylene	191-24-2	5	0*	E	No
Benzo(k)fluoranthene	207-08-9	5	0*	E	No
Dibenzo(a,h)anthracene	53-70-3	5	0*	E	No
7,12-Dimethylbenz(a)anthracene	57-97-6	5	0*	E	No
Fluoranthene	206-44-0	5	0*	E	No
Fluorene	86-73-7	5	0*	E	No
Indeno(1,2,3-c,d)pyrene	193-39-5	5	0*	E	No
3-Methylchloranthrene	56-49-5	5	0*	E	No
Phenanthrene	85-01-8	5	0*	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	0.1477	E	No
Oxides of Nitrogen	11104-93-1	20	0.2608	E	No
Sulphur Dioxide	7446-09-5	20	0.1491	E	No
Particulate Matter <=2.5 micrometers	NA - M10	0.3	0.0033	E	No
Particulate Matter <=10 micrometers	NA - M09	0.5	0.0033	E	No
Total Particulate Matter	NA - M08	20	0.0033	E	No
Volatile Organic Compounds	NA - M16	10	20.0765	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	0.1033	E	No
Formaldehyde	50-00-0	1	0.0073	E	No
n-Hexane	110-54-3	1	0.0032	E	No
Propane	74-98-6	1	0.0028	E	No
Styrene	100-42-5	1	0.0042	E	No
Toluene	108-88-3	1	0.0135	E	No
Butane (all isomers)	NA - 24	1	0.0037	E	No
Pentane (all isomers)	NA - 35	1	0.0046	E	No
Xylene (all isomers)	1330-20-7	1	0.0086	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	2.11E+05	1	E	211.0534	NA
Methane	74-82-8	NA	4.05E+00	25	E	0.1011	NA
Nitrous Oxide	10024-97-2	NA	3.87E+00	298	E	1.1531	NA
Total	NA	10,000	NA	NA	NA	212	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	2.11E+05	1	E	211.0534	NA
Methane	74-82-8	NA	4.05E+00	25	E	0.1011	NA
Nitrous Oxide	10024-97-2	NA	3.87E+00	298	E	1.1531	NA
Total	NA	10,000	NA	NA	NA	212	No

NA - Not Applicable

E - Published Emission Factors

APPENDIX V
Information Provided by City of Barrie Wastewater Treatment Facility
(4 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	55.1	25.32	0.252	5.10
February	49.2	28.61	0.033	5.70
March	54.9	26.37	0.147	4.70
April	51.4	25.97	0.282	5.50
May	50.8	21.38	0.063	4.80
June	50.3	22.11	0.040	4.80
July	47.7	22.89	0.047	4.90
August	51.5	22.30	0.168	4.70
September	49.0	23.51	0.042	4.60
October	47.3	23.00	0.040	4.60
November	47.8	21.21	0.046	5.10
December	50.2	24.60	0.043	4.70

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	55.1	0.57	16.57	72.9	0.09
February	49.2	0.49	20.11	88.5	0.03
March	54.9	0.61	17.75	78.1	0.03
April	51.4	0.20	18.84	82.9	0.02
May	50.8	0.23	18.23	80.2	0.05
June	50.3	0.11	16.19	71.2	0.03
July	47.7	0.12	16.85	74.1	0.03
August	51.5	0.41	14.42	63.4	0.02
September	49.0	0.07	16.45	72.4	0.02
October	47.3	0.21	16.82	74.0	0.02
November	47.8	0.40	17.09	75.2	0.02
December	50.2	0.10	16.33	71.9	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- P _{tot} (mg/L)
Jan	55,078	0.57	16.57	0.090
Feb	49,184	0.49	20.11	0.030
Mar	54,853	0.61	17.75	0.030
April	51,381	0.20	18.84	0.020
May	50,791	0.23	18.23	0.050
June	50,310	0.11	16.19	0.030
July	47,680	0.12	16.85	0.030
Aug	51,540	0.41	14.42	0.020
Sept	49,040	0.07	16.45	0.020
Oct	47,280	0.21	16.82	0.020
Nov	47,820	0.40	17.09	0.020
Dec	50,220	0.10	16.33	0.020

Biogas Production (m³)				
Date By Month	Avg Of Gas to Process	Waste Gas Readings	no. days	Total m³/mo
January	3,761	2186	31	184,357
February	3,935	1722	29	164,053
March	4,154	1626	31	179,180
April	4,376	1605	30	179,430
May	3,997	1762	31	178,529
June	3,601	2133	30	172,020
July	3,513	1806	31	164,889
August	3,383	1849	31	162,192
September	3,771	1551	30	159,660
October	3,859	1574	31	168,423
November	3,919	1491	30	162,300
December	4,062	1691	31	178,343

The total biogas consumption for 2020 (249 Bradford St.) was 2,053,376 cubic metres.

Biosolids Land Application - 2020						
Month	Site ID	NASM	m ³ from WwTF	m ³ from BSF	Site Total m ³	Date Spread
April	S2011	24020	1201.69	0	1201.69	April 16-17
	S2006	22957	0	4149.99	4149.99	April 16-20
	S2015	23586	534.26	0	534.26	April 20
	S11080	22866	1509.01	2714.91	4223.92	April 21-23
	S11081	22866	1782.44	2712.78	4495.22	April 24-28
Monthly Total m ³			5027.40	9577.68	14605.08	
May	S12046	22540	1333.99	2483.86	3817.85	May 4-6
	S12053	22944	1824.62	2087.33	3911.95	May 7-11
	S12026	24122	623.52	1430.41	2053.93	May 12
	S12077	23714	2494.43	3892.15	6386.58	May 13-22
	S12037	22927	1380.73	1663.81	3044.54	May 26,28
Monthly Total m ³			7657.29	11557.56	19214.85	
June	S11069	22504	534.8	533.22	1068.02	June 8
	S11082	22907	1157.83	3160.69	4318.52	June 9-12
	S11035	23454	667.88	0	667.88	June 18
	S11038	23453	668.04	177.76	845.8	June 19
	S12027	23847	1291.66	1571.34	2863	June 22-23
	S12083	23897	534.68	754.01	1288.69	June 25
	S12010	22939	668.28	1082.74	1751.02	June 26
	S5024	24086	578.97	0	578.97	June 29-30
Monthly Total m ³			6102.14	7279.76	13381.90	
July	S12101	24283	712.6	1481.77	2194.37	July 7,9
	S5048	23827	623.48	0	623.48	July 9
	S5039	22787	712.82	0	712.82	July 13
	S11022	23443	578.99	672.51	1251.5	July 29
	S5001	23313	311.81	0	311.81	July 31
July	S11055	23137	267.18	2952.19	3219.37	July 31-Aug 1
Monthly Total m ³			3206.88	5106.47	8313.35	
August	S11011	23138	1599.47	2727.36	4326.83	August 5,6,7,12
	S11008	23918	87.77	2986.82	3074.59	August 7,11
	S2013	23457	1777.21	0	1777.21	August 10-13
	S2012	23456	1373.33	0	1373.33	August 14,18,19
	S2026	23130	2316.86	0	2316.86	August 20,21,24,25
Monthly Total m ³			7154.64	5714.18	12868.82	
September	S12086	24181	2890.92	3623.77	6514.69	August 26,31 September 3,4,8,11,12
	S12009	22980	222.86	2366.67	2589.53	September 16-17
	S11075	24084	1113.02	1303.82	2416.84	September 17-18
	S2027	23219	3272.36	0	3272.36	September 21-29
	S2017	24144	1275.11	0	1275.11	September 30 October 1
Monthly Total m ³			8774.27	7294.26	16068.53	
October	S12093	24115	1459.09	1725.50	3184.59	October 5-6
	S12054	23423	1510.29	2917.50	4427.79	October 8,9,13
	S12057	23173	534.53	315.00	849.53	October 14
	S12061	23259	1203.03	2476.50	3679.53	October 15-16
	S11066	23871	2474.5	2037.50	4512.00	October 23,26-28
Monthly Total m ³			7181.44	9472.00	16653.44	
November	S12079	23711	1647.97	3104.00	4751.97	November 3-5
	S5041	22872	1290.61	89.00	1379.61	November 9-10
	S3018	24132	668.16	0	668.16	November 11-13
	S4016	22623	802.06	0	802.06	November 18-20
	S11044	24123	1380.56	1735.50	3116.06	November 20,21,24
	S11030	23455	935.24	1062.50	1997.74	November 27-28
Monthly Total m ³			6724.60	5991.00	12715.60	
Totals			51828.66	61992.91	113821.57	

Biosolids Site Locations - 2020				
Site	Lot	Conc	Township	County
S2011	2	7	Innisfil	Simcoe
S12006	2	14	Oro Medonte	Simcoe
S2015	4	3	Innisfil	Simcoe
S11080	8	3	Springwater	Simcoe
S11081	27	2	Springwater	Simcoe
S12046	11,12	8	Oro Medonte	Simcoe
S12053	25	5	Oro Medonte	Simcoe
S12026	15	7	Oro Medonte	Simcoe
S12077	24,25	3	Oro Medonte	Simcoe
S12037	24,25	7	Oro Medonte	Simcoe
S11069	8	3	Springwater	Simcoe
S11082	26	2	Springwater	Simcoe
S11035	23	1	Springwater	Simcoe
S11038	24	1	Springwater	Simcoe
S12027	8	3	Oro Medonte	Simcoe
S12083	8	4	Oro Medonte	Simcoe
S12010	17,18	6	Oro Medonte	Simcoe
S5024	23	8	Essa	Simcoe
S12101	6	12	Oro Medonte	Simcoe
S5048	5	10	Essa	Simcoe
S5039	26	3	Essa	Simcoe
S11022	1	8	Springwater	Simcoe
S5001	8,9	8	Essa	Simcoe
S11055	10	2	Springwater	Simcoe
S11011	3,4	8	Springwater	Simcoe
S11008	18,19	3	Springwater	Simcoe
S2013	20	7	Essa	Simcoe
S2012	19,20	8	Essa	Simcoe
S2026	24,25	13	Innisfil	Simcoe
S12086	21,22	3	Oro Medonte	Simcoe
S12009	16,17	5	Oro Medonte	Simcoe
S11075	6	1	Springwater	Simcoe
S2027	1,2	6	Innisfil	Simcoe
S2017	4	8	Innisfil	Simcoe
S12093	5	2	Oro Medonte	Simcoe
S12054	23,24	9	Oro Medonte	Simcoe
S12057	22,23	10	Oro Medonte	Simcoe
S12061	34	2	Oro Medonte	Simcoe
S11066	4	12	Springwater	Simcoe
S12079	23	7	Oro Medonte	Simcoe
S5041	31	1	Essa	Simcoe
S3018	1	11	West Gwillimbury	Simcoe
S4016	19,20	13	New Tecumseth	Simcoe
S11044	16	1	Springwater	Simcoe
S11030	19	3	Springwater	Simcoe

APPENDIX VI

Calculation Datasheets and Summary Tables

(26 Pages)

Biosolids Land Application - 2020					
Month	Site ID	m ³ from WwTF	m ³ from BSF	Site Total m ³	Date Spread
April	S2011	1201.69	0	1201.69	April 16-17
	S12006	0	4149.99	4149.99	April 16-20
	S2015	534.26	0	534.26	April 20
	S11080	1509.01	2714.91	4223.92	April 21-23
	S11081	1782.44	2712.78	4495.22	April 24-28
Monthly Total m ³		5027.40	9577.68	14605.08	
May	S12046	1333.99	2483.86	3817.85	May 4-6
	S12053	1824.62	2087.33	3911.95	May 7-11
	S12026	623.52	1430.41	2053.93	May 12
	S12077	2494.43	3892.15	6386.58	May 13-22
	S12037	1380.73	1663.81	3044.54	May 26,28
Monthly Total m ³		7657.29	11557.56	19214.85	
June	S11069	534.8	533.22	1068.02	June 8
	S11082	1157.83	3160.69	4318.52	June 9-12
	S11035	667.88	0	667.88	June 18
	S11038	668.04	177.76	845.8	June 19
	S12027	1291.66	1571.34	2863	June 22-23
	S12083	534.68	754.01	1288.69	June 25
	S12010	668.28	1082.74	1751.02	June 26
	S5024	578.97	0	578.97	June 29-30
Monthly Total m ³		6102.14	7279.76	13381.90	
July	S12101	712.6	1481.77	2194.37	July 7,9
	S5048	623.48	0	623.48	July 9
	S5039	712.82	0	712.82	July 13
	S11022	578.99	672.51	1251.5	July 29
	S5001	311.81	0	311.81	July 31
	S11055	267.18	2952.19	3219.37	July 31-Aug 1
Monthly Total m ³		3206.88	5106.47	8313.35	
August	S11011	1599.47	2727.36	4326.83	August 5,6,7,12
	S11008	87.77	2986.82	3074.59	August 7,11
	S2013	1777.21	0	1777.21	August 10-13
	S2012	1373.33	0	1373.33	August 14,18,19
	S2026	2316.86	0	2316.86	August 20,21,24,25
Monthly Total m ³		7154.64	5714.18	12868.82	
September	S12086	2890.92	3623.77	6514.69	August 26,31 September 3,4,8,1,12
	S12009	222.86	2366.67	2589.53	September 16-17
	S11075	1113.02	1303.82	2416.84	September 17-18
	S2027	3272.36	0	3272.36	September 21-29
	S2017	1275.11	0	1275.11	September 30 October 1
Monthly Total m ³		8774.27	7294.26	16068.53	
October	S12093	1459.09	1725.50	3184.59	October 5-6
	S12054	1510.29	2917.50	4427.79	October 8,9,13
	S12057	534.53	315.00	849.53	October 14
	S12061	1203.03	2476.50	3679.53	October 15-16
	S11066	2474.5	2037.50	4512.00	October 23,26-28
Monthly Total m ³		7181.44	9472.00	16653.44	
November	S12079	1647.97	3104.00	4751.97	November 3-5
	S5041	1290.61	89.00	1379.61	November 9-10
	S3018	668.16	0	668.16	November 11-13
	S4016	802.06	0	802.06	November 18-20
	S11044	1380.56	1735.50	3116.06	November 20,21,24
	S11030	935.24	1062.50	1997.74	November 27-28
Monthly Total m ³		6724.60	5991.00	12715.60	
Totals		51828.66	61992.91	113821.57	

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2011					
Ammonia(mg/L)	913.25	913.25	1.10E+03	0.00E+00	1.10E+03
Arsenic(mg/L)	0.06	0.06	7.45E-02	0.00E+00	7.45E-02
Cadmium(mg/L)	0.01	0.01	1.35E-02	0.00E+00	1.35E-02
Chromium(mg/L)	0.42	0.42	5.02E-01	0.00E+00	5.02E-01
Cobalt(mg/L)	0.04	0.04	3.26E-03	0.00E+00	3.26E-03
Copper(mg/L)	15.38	15.38	1.85E+01	0.00E+00	1.85E+01
E.Coli(CFU/g dry)	20337.50	20337.50	2.44E+04	0.00E+00	2.44E+04
Lead(mg/L)	0.69	0.69	8.25E-01	0.00E+00	8.25E-01
Magnesium(mg/L)	98.15	98.15	1.18E+02	0.00E+00	1.18E+02
Manganese(mg/L)	2.76	2.76	3.32E+00	0.00E+00	3.32E+00
Mercury(mg/L)	0.05	0.05	6.01E-02	0.00E+00	6.01E-02
Molybdenum(mg/L)	0.11	0.11	1.32E-01	0.00E+00	1.32E-01
Nickel(mg/L)	0.23	0.23	2.75E-01	0.00E+00	2.75E-01
Nitrite(mg/L)	0.06	0.06	6.77E-02	0.00E+00	6.77E-02
Nitrate(mg/L)	0.02	0.02	2.40E-02	0.00E+00	2.40E-02
pH(SU)	7.39	7.39	8.88E+00	0.00E+00	8.88E+00
Potassium(mg/L)	149.13	149.13	1.79E+02	0.00E+00	1.79E+02
Selenium(mg/L)	0.06	0.06	7.35E-02	0.00E+00	7.35E-02
TKN(mg/L)	1923.75	1923.75	2.31E+03	0.00E+00	2.31E+03
TP(mg/L)	628.63	628.63	7.55E+02	0.00E+00	7.55E+02
Total Solids(%)	2.25%	2.25%	2.70E+04	0.00E+00	2.70E+04
VSolids (Dry) (%)	63.99%	63.99%	1.73E+04	0.00E+00	1.73E+04
Zinc(mg/L)	8.39	8.39	1.01E+01	0.00E+00	1.01E+01

Sample Calculation:

Chromium Applied (Site S11080)= (WwTF volume applied (m3) X WwTF Avg concentrations (mg/L) + BSF volume (m3) X BSF Avg concentration (mg/L)) X 1 kg/10⁶ mg X 1000 L/m³
= (1509.01 m³ X 0.46 mg/L + 2714.91 m³ x 0.46 mg/L) x 1 kg/10⁶ mg X 1000 L/m³
= 1.96E+00 kg/yr

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12006					
Ammonia(mg/L)	1071.25	1071.25	0.00E+00	4.45E+03	4.45E+03
Arsenic(mg/L)	0.06	0.06	0.00E+00	2.67E-01	2.67E-01
Cadmium(mg/L)	0.02	0.02	0.00E+00	8.30E-02	8.30E-02
Chromium(mg/L)	0.43	0.43	0.00E+00	1.76E+00	1.76E+00
Cobalt(mg/L)	0.04	0.04	0.00E+00	1.13E-02	1.13E-02
Copper(mg/L)	21.13	21.13	0.00E+00	8.77E+01	8.77E+01
E.Coli(CFU/g dry)	300.00	300.00	0.00E+00	1.24E+03	1.24E+03
Lead(mg/L)	0.65	0.65	0.00E+00	2.69E+00	2.69E+00
Magnesium(mg/L)	97.85	97.85	0.00E+00	4.06E+02	4.06E+02
Manganese(mg/L)	3.78	3.78	0.00E+00	1.57E+01	1.57E+01
Mercury(mg/L)	0.05	0.05	0.00E+00	2.07E-01	2.07E-01
Molybdenum(mg/L)	0.13	0.13	0.00E+00	5.50E-01	5.50E-01
Nickel(mg/L)	0.27	0.27	0.00E+00	1.10E+00	1.10E+00
Nitrite(mg/L)	0.04	0.04	0.00E+00	1.48E-01	1.48E-01
Nitrate(mg/L)	0.02	0.02	0.00E+00	8.30E-02	8.30E-02
Potassium(mg/L)	136.75	136.75	0.00E+00	5.68E+02	5.68E+02
Selenium(mg/L)	0.06	0.06	0.00E+00	2.58E-01	2.58E-01
TKN(mg/L)	2042.50	2042.50	0.00E+00	8.48E+03	8.48E+03
TP(mg/L)	813.00	813.00	0.00E+00	3.37E+03	3.37E+03
Total Solids(%)	2.45%	2.45%	0.00E+00	1.02E+05	1.02E+05
VSolids (Dry) (%)	61.45%	61.45%	0.00E+00	6.25E+04	6.25E+04
Zinc(mg/L)	10.65	10.65	0.00E+00	0.00E+00	0.00E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2015					
Ammonia(mg/L)	932.25	932.25	4.98E+02	0.00E+00	4.98E+02
Arsenic(mg/L)	0.08	0.08	4.38E-02	0.00E+00	4.38E-02
Cadmium(mg/L)	0.01	0.01	5.68E-03	0.00E+00	5.68E-03
Chromium(mg/L)	0.44	0.44	2.36E-01	0.00E+00	2.36E-01
Cobalt(mg/L)	0.05	0.05	2.03E-03	0.00E+00	2.03E-03
Copper(mg/L)	16.25	16.25	8.68E+00	0.00E+00	8.68E+00
E.Coli(CFU/g dry)	17762.50	17762.50	9.49E+03	0.00E+00	9.49E+03
Lead(mg/L)	0.77	0.77	4.09E-01	0.00E+00	4.09E-01
Magnesium(mg/L)	98.64	98.64	5.27E+01	0.00E+00	5.27E+01
Manganese(mg/L)	2.86	2.86	1.53E+00	0.00E+00	1.53E+00
Mercury(mg/L)	0.05	0.05	2.67E-02	0.00E+00	2.67E-02
Molybdenum(mg/L)	0.12	0.12	6.14E-02	0.00E+00	6.14E-02
Nickel(mg/L)	0.23	0.23	1.22E-01	0.00E+00	1.22E-01
Nitrite(mg/L)	0.05	0.05	2.83E-02	0.00E+00	2.83E-02
Nitrate(mg/L)	0.02	0.02	1.07E-02	0.00E+00	1.07E-02
Potassium(mg/L)	153.75	153.75	8.21E+01	0.00E+00	8.21E+01
Selenium(mg/L)	0.06	0.06	3.09E-02	0.00E+00	3.09E-02
TKN(mg/L)	1995.00	1995.00	1.07E+03	0.00E+00	1.07E+03
TP(mg/L)	649.38	649.38	3.47E+02	0.00E+00	3.47E+02
Total Solids(%)	2.35%	2.35%	1.26E+04	0.00E+00	1.26E+04
VSolids (Dry) (%)	63.76%	63.76%	8.01E+03	0.00E+00	8.01E+03
Zinc(mg/L)	9.01	9.01	4.82E+00	0.00E+00	4.82E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11080					
Ammonia(mg/L)	971.92	971.92	1.47E+03	2.64E+03	4.11E+03
Arsenic(mg/L)	0.08	0.08	1.25E-01	2.25E-01	3.50E-01
Cadmium(mg/L)	0.01	0.01	2.07E-02	3.73E-02	5.81E-02
Chromium(mg/L)	0.46	0.46	6.99E-01	1.26E+00	1.96E+00
Cobalt(mg/L)	0.05	0.05	6.92E-02	1.24E-01	1.94E-01
Copper(mg/L)	18.48	18.48	2.79E+01	5.02E+01	7.80E+01
E.Coli(CFU/g dry)	11920.83	11920.83	1.80E+04	3.24E+04	5.04E+04
Lead(mg/L)	0.75	0.75	1.13E+00	2.03E+00	3.16E+00
Magnesium(mg/L)	102.45	102.45	1.55E+02	2.78E+02	4.33E+02
Manganese(mg/L)	3.32	3.32	5.00E+00	9.00E+00	1.40E+01
Mercury(mg/L)	0.05	0.05	7.55E-02	1.36E-01	2.11E-01
Molybdenum(mg/L)	0.13	0.13	1.89E-01	3.39E-01	5.28E-01
Nickel(mg/L)	0.23	0.23	3.51E-01	6.31E-01	9.82E-01
Nitrite(mg/L)	0.05	0.05	7.04E-02	1.27E-01	1.97E-01
Nitrate(mg/L)	0.02	0.02	3.02E-02	5.43E-02	8.45E-02
Potassium(mg/L)	149.50	149.50	2.26E+02	4.06E+02	6.31E+02
Selenium(mg/L)	0.06	0.06	8.90E-02	1.60E-01	2.49E-01
TKN(mg/L)	2054.17	2054.17	3.10E+03	5.58E+03	8.68E+03
TP(mg/L)	726.67	726.67	1.10E+03	1.97E+03	3.07E+03
Total Solids(%)	2.47%	2.47%	3.72E+04	6.70E+04	1.04E+05
VSolids (Dry) (%)	62.94%	62.94%	2.34E+04	1.71E+06	1.73E+06
Zinc(mg/L)	9.92	9.92	1.50E+01	2.69E+01	4.19E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11081					
Ammonia(mg/L)	971.92	971.92	1.73E+03	2.64E+03	4.37E+03
Arsenic(mg/L)	0.08	0.08	1.47E-01	2.24E-01	3.72E-01
Cadmium(mg/L)	0.01	0.01	2.45E-02	3.73E-02	6.18E-02
Chromium(mg/L)	0.46	0.46	8.26E-01	1.26E+00	2.08E+00
Cobalt(mg/L)	0.05	0.05	8.17E-02	1.24E-01	2.06E-01
Copper(mg/L)	18.48	18.48	3.29E+01	5.01E+01	8.30E+01
E.Coli(CFU/g dry)	11920.83	11920.83	2.12E+04	3.23E+04	5.36E+04
Lead(mg/L)	0.75	0.75	1.33E+00	2.03E+00	3.36E+00
Magnesium(mg/L)	102.45	102.45	1.83E+02	2.78E+02	4.61E+02
Manganese(mg/L)	3.32	3.32	5.91E+00	8.99E+00	1.49E+01
Mercury(mg/L)	0.05	0.05	8.91E-02	1.36E-01	2.25E-01
Molybdenum(mg/L)	0.13	0.13	2.23E-01	3.39E-01	5.62E-01
Nickel(mg/L)	0.23	0.23	4.14E-01	6.31E-01	1.05E+00
Nitrite(mg/L)	0.05	0.05	8.32E-02	1.27E-01	2.10E-01
Nitrate(mg/L)	0.02	0.02	3.56E-02	5.43E-02	8.99E-02
Potassium(mg/L)	149.50	149.50	2.66E+02	4.06E+02	6.72E+02
Selenium(mg/L)	0.06	0.06	1.05E-01	1.60E-01	2.65E-01
TKN(mg/L)	2054.17	2054.17	3.66E+03	5.57E+03	9.23E+03
TP(mg/L)	726.67	726.67	1.30E+03	1.97E+03	3.27E+03
Total Solids(%)	2.47%	2.47%	4.40E+04	6.69E+04	1.11E+05
VSolids (Dry) (%)	62.94%	62.94%	2.77E+04	4.21E+04	6.98E+04
Zinc(mg/L)	9.92	9.92	1.77E+01	2.69E+01	4.46E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12046					
Ammonia(mg/L)	961.64	961.64	1.28E+03	2.39E+03	3.67E+03
Arsenic(mg/L)	0.09	0.09	1.15E-01	2.14E-01	3.29E-01
Cadmium(mg/L)	0.02	0.02	2.02E-02	3.76E-02	5.78E-02
Chromium(mg/L)	0.54	0.54	7.23E-01	1.35E+00	2.07E+00
Cobalt(mg/L)	0.05	0.05	6.89E-02	1.28E-01	1.97E-01
Copper(mg/L)	21.09	21.09	2.81E+01	5.24E+01	8.05E+01
E.Coli(CFU/g dry)	8066.67	8066.67	1.08E+04	2.00E+04	3.08E+04
Lead(mg/L)	0.99	0.99	1.32E+00	2.45E+00	3.76E+00
Magnesium(mg/L)	112.17	112.17	1.50E+02	2.79E+02	4.28E+02
Manganese(mg/L)	3.71	3.71	4.95E+00	9.22E+00	1.42E+01
Mercury(mg/L)	0.05	0.05	6.67E-02	1.24E-01	1.91E-01
Molybdenum(mg/L)	0.14	0.14	1.82E-01	3.38E-01	5.20E-01
Nickel(mg/L)	0.27	0.27	3.63E-01	6.75E-01	1.04E+00
Nitrite(mg/L)	0.05	0.05	6.18E-02	1.15E-01	1.77E-01
Nitrate(mg/L)	0.02	0.02	2.82E-02	5.24E-02	8.06E-02
Potassium(mg/L)	155.33	155.33	2.07E+02	3.86E+02	5.93E+02
Selenium(mg/L)	0.05	0.05	6.91E-02	1.29E-01	1.98E-01
TKN(mg/L)	2185.83	2185.83	2.92E+03	5.43E+03	8.35E+03
TP(mg/L)	821.67	821.67	1.10E+03	2.04E+03	3.14E+03
Total Solids(%)	2.75%	2.75%	3.66E+04	6.82E+04	1.05E+05
VSolids (Dry) (%)	62.98%	62.98%	2.31E+04	4.30E+04	6.61E+04
Zinc(mg/L)	11.41	11.41	1.52E+01	2.83E+01	4.35E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12053					
Ammonia(mg/L)	968.00	968.00	1.77E+03	2.02E+03	3.79E+03
Arsenic(mg/L)	0.09	0.09	1.57E-01	1.80E-01	3.37E-01
Cadmium(mg/L)	0.02	0.02	2.74E-02	3.13E-02	5.87E-02
Chromium(mg/L)	0.55	0.55	1.00E+00	1.15E+00	2.15E+00
Cobalt(mg/L)	0.05	0.05	9.43E-02	1.08E-01	2.02E-01
Copper(mg/L)	21.55	21.55	3.93E+01	4.50E+01	8.43E+01
E.Coli(CFU/g dry)	7187.50	7187.50	1.31E+04	1.50E+04	2.81E+04
Lead(mg/L)	1.00	1.00	1.82E+00	2.08E+00	3.91E+00
Magnesium(mg/L)	114.08	114.08	2.08E+02	2.38E+02	4.46E+02
Manganese(mg/L)	3.77	3.77	6.89E+00	7.88E+00	1.48E+01
Mercury(mg/L)	0.05	0.05	9.12E-02	1.04E-01	1.96E-01
Molybdenum(mg/L)	0.14	0.14	2.51E-01	2.87E-01	5.38E-01
Nickel(mg/L)	0.28	0.28	5.05E-01	5.77E-01	1.08E+00
Nitrite(mg/L)	0.05	0.05	8.48E-02	9.71E-02	1.82E-01
Nitrate(mg/L)	0.02	0.02	3.95E-02	4.52E-02	8.48E-02
Potassium(mg/L)	156.58	156.58	2.86E+02	3.27E+02	6.13E+02
Selenium(mg/L)	0.05	0.05	9.52E-02	1.09E-01	2.04E-01
TKN(mg/L)	2212.50	2212.50	4.04E+03	4.62E+03	8.66E+03
TP(mg/L)	842.25	842.25	1.54E+03	1.76E+03	3.29E+03
Total Solids(%)	2.79%	2.79%	5.09E+04	5.83E+04	1.09E+05
VSolids (Dry) (%)	63.03%	63.03%	3.21E+04	3.67E+04	6.88E+04
Zinc(mg/L)	11.57	11.57	2.11E+01	2.41E+01	4.52E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12026					
Ammonia(mg/L)	987.00	987.00	6.15E+02	1.41E+03	2.03E+03
Arsenic(mg/L)	0.09	0.09	5.87E-02	1.35E-01	1.93E-01
Cadmium(mg/L)	0.01	0.01	8.05E-03	1.85E-02	2.65E-02
Chromium(mg/L)	0.58	0.58	3.62E-01	8.30E-01	1.19E+00
Cobalt(mg/L)	0.05	0.05	3.33E-02	7.63E-02	1.10E-01
Copper(mg/L)	22.78	22.78	1.42E+01	3.26E+01	4.68E+01
E.Coli(CFU/g dry)	7287.50	7287.50	4.54E+03	1.04E+04	1.50E+04
Lead(mg/L)	1.07	1.07	6.68E-01	1.53E+00	2.20E+00
Magnesium(mg/L)	118.07	118.07	7.36E+01	1.69E+02	2.43E+02
Manganese(mg/L)	4.04	4.04	2.52E+00	5.78E+00	8.30E+00
Mercury(mg/L)	0.05	0.05	3.12E-02	7.15E-02	1.03E-01
Molybdenum(mg/L)	0.15	0.15	9.20E-02	2.11E-01	3.03E-01
Nickel(mg/L)	0.29	0.29	1.79E-01	4.11E-01	5.91E-01
Nitrite(mg/L)	0.05	0.05	3.08E-02	7.06E-02	1.01E-01
Nitrate(mg/L)	0.02	0.02	1.35E-02	3.10E-02	4.45E-02
Potassium(mg/L)	157.83	157.83	9.84E+01	2.26E+02	3.24E+02
Selenium(mg/L)	0.05	0.05	3.03E-02	6.95E-02	9.98E-02
TKN(mg/L)	2304.17	2304.17	1.44E+03	3.30E+03	4.73E+03
TP(mg/L)	908.25	908.25	5.66E+02	1.30E+03	1.87E+03
Total Solids(%)	2.98%	2.98%	1.85E+04	4.26E+04	6.11E+04
VSolids (Dry) (%)	62.53%	62.53%	1.16E+04	2.66E+04	3.82E+04
Zinc(mg/L)	12.34	12.34	7.69E+00	1.77E+01	2.53E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12077					
Ammonia(mg/L)	999.25	999.25	2.49E+03	3.89E+03	6.38E+03
Arsenic(mg/L)	0.10	0.10	2.51E-01	3.92E-01	6.44E-01
Cadmium(mg/L)	0.01	0.01	3.45E-02	5.38E-02	8.83E-02
Chromium(mg/L)	0.63	0.63	1.57E+00	2.44E+00	4.01E+00
Cobalt(mg/L)	0.06	0.06	1.44E-01	2.24E-01	3.68E-01
Copper(mg/L)	24.87	24.87	6.20E+01	9.68E+01	1.59E+02
E.Coli(CFU/g dry)	5412.50	5412.50	1.35E+04	2.11E+04	3.46E+04
Lead(mg/L)	1.15	1.15	2.86E+00	4.46E+00	7.32E+00
Magnesium(mg/L)	124.45	124.45	3.10E+02	4.84E+02	7.95E+02
Manganese(mg/L)	4.43	4.43	1.10E+01	1.72E+01	2.83E+01
Mercury(mg/L)	0.09	0.09	2.24E-01	3.50E-01	5.75E-01
Molybdenum(mg/L)	0.16	0.16	3.97E-01	6.19E-01	1.02E+00
Nickel(mg/L)	0.31	0.31	7.82E-01	1.22E+00	2.00E+00
Nitrite(mg/L)	0.05	0.05	1.17E-01	1.83E-01	3.00E-01
Nitrate(mg/L)	0.02	0.02	5.57E-02	8.69E-02	1.43E-01
Potassium(mg/L)	156.37	156.37	3.90E+02	6.09E+02	9.99E+02
Selenium(mg/L)	0.06	0.06	1.42E-01	2.22E-01	3.64E-01
TKN(mg/L)	2396.83	2396.83	5.98E+03	9.33E+03	1.53E+04
TP(mg/L)	1000.55	1000.55	2.50E+03	3.89E+03	6.39E+03
Total Solids(%)	3.20%	3.20%	7.98E+04	1.25E+05	2.04E+05
VSolids (Dry) (%)	62.16%	62.16%	4.96E+04	7.74E+04	1.27E+05
Zinc(mg/L)	13.48	13.48	3.36E+01	5.25E+01	8.61E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12037					
Ammonia(mg/L)	956.67	956.67	1.32E+03	1.59E+03	2.91E+03
Arsenic(mg/L)	0.10	0.10	1.35E-01	1.63E-01	2.98E-01
Cadmium(mg/L)	0.01	0.01	1.50E-02	1.80E-02	3.30E-02
Chromium(mg/L)	0.52	0.52	7.24E-01	8.72E-01	1.60E+00
Cobalt(mg/L)	0.05	0.05	7.02E-02	8.46E-02	1.55E-01
Copper(mg/L)	21.57	21.57	2.98E+01	3.59E+01	6.57E+01
E.Coli(CFU/g dry)	6683.33	6683.33	9.23E+03	1.11E+04	2.03E+04
Lead(mg/L)	0.96	0.96	1.33E+00	1.60E+00	2.93E+00
Magnesium(mg/L)	111.08	111.08	1.53E+02	1.85E+02	3.38E+02
Manganese(mg/L)	3.83	3.83	5.29E+00	6.38E+00	1.17E+01
Mercury(mg/L)	0.12	0.12	1.61E-01	1.94E-01	3.55E-01
Molybdenum(mg/L)	0.14	0.14	1.99E-01	2.40E-01	4.39E-01
Nickel(mg/L)	0.27	0.27	3.73E-01	4.49E-01	8.22E-01
Nitrite(mg/L)	0.05	0.05	6.82E-02	8.22E-02	1.50E-01
Nitrate(mg/L)	0.02	0.02	2.99E-02	3.60E-02	6.60E-02
Potassium(mg/L)	152.92	152.92	2.11E+02	2.54E+02	4.66E+02
Selenium(mg/L)	0.07	0.07	9.90E-02	1.19E-01	2.18E-01
TKN(mg/L)	2322.50	2322.50	3.21E+03	3.86E+03	7.07E+03
TP(mg/L)	919.92	919.92	1.27E+03	1.53E+03	2.80E+03
Total Solids(%)	2.93%	2.93%	4.05E+04	4.88E+04	8.93E+04
VSolids (Dry) (%)	62.41%	62.41%	2.53E+04	1.04E+06	1.06E+06
Zinc(mg/L)	12.10	12.10	1.67E+01	2.01E+01	3.68E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11069					
Ammonia(mg/L)	945.67	945.67	5.06E+02	5.04E+02	1.01E+03
Arsenic(mg/L)	0.10	0.10	5.27E-02	5.26E-02	1.05E-01
Cadmium(mg/L)	0.01	0.01	5.13E-03	5.11E-03	1.02E-02
Chromium(mg/L)	0.49	0.49	2.62E-01	2.62E-01	5.24E-01
Cobalt(mg/L)	0.05	0.05	2.67E-02	2.67E-02	5.34E-02
Copper(mg/L)	20.06	20.06	1.07E+01	1.07E+01	2.14E+01
E.Coli(CFU/g dry)	6412.50	6412.50	3.43E+03	3.42E+03	6.85E+03
Lead(mg/L)	0.96	0.96	5.11E-01	5.09E-01	1.02E+00
Magnesium(mg/L)	107.33	107.33	5.74E+01	5.72E+01	1.15E+02
Manganese(mg/L)	3.67	3.67	1.96E+00	1.96E+00	3.92E+00
Mercury(mg/L)	0.12	0.12	6.24E-02	6.22E-02	1.25E-01
Molybdenum(mg/L)	0.14	0.14	7.53E-02	7.51E-02	1.50E-01
Nickel(mg/L)	0.26	0.26	1.41E-01	1.40E-01	2.81E-01
Nitrite(mg/L)	0.05	0.05	2.75E-02	2.74E-02	5.48E-02
Nitrate(mg/L)	0.02	0.02	1.07E-02	1.07E-02	2.14E-02
Potassium(mg/L)	147.42	147.42	7.88E+01	7.86E+01	1.57E+02
Selenium(mg/L)	0.08	0.08	4.50E-02	4.48E-02	8.98E-02
TKN(mg/L)	2275.00	2275.00	1.22E+03	1.21E+03	2.43E+03
TP(mg/L)	893.17	893.17	4.78E+02	4.76E+02	9.54E+02
Total Solids(%)	2.82%	2.82%	1.51E+04	1.50E+04	3.01E+04
VSolids (Dry) (%)	61.96%	61.96%	9.33E+03	9.31E+03	1.86E+04
Zinc(mg/L)	11.61	11.61	6.21E+00	6.19E+00	1.24E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11082					
Ammonia(mg/L)	923.25	923.25	1.07E+03	2.92E+03	3.99E+03
Arsenic(mg/L)	0.10	0.10	1.11E-01	3.04E-01	4.15E-01
Cadmium(mg/L)	0.01	0.01	1.06E-02	2.90E-02	3.96E-02
Chromium(mg/L)	0.46	0.46	5.36E-01	1.46E+00	2.00E+00
Cobalt(mg/L)	0.05	0.05	5.69E-02	1.55E-01	2.12E-01
Copper(mg/L)	21.15	21.15	2.45E+01	6.68E+01	9.13E+01
E.Coli(CFU/g dry)	7325.00	7325.00	8.48E+03	2.32E+04	3.16E+04
Lead(mg/L)	1.01	1.01	1.17E+00	3.19E+00	4.35E+00
Magnesium(mg/L)	100.92	100.92	1.17E+02	3.19E+02	4.36E+02
Manganese(mg/L)	3.45	3.45	3.99E+00	1.09E+01	1.49E+01
Mercury(mg/L)	0.12	0.12	1.35E-01	3.69E-01	5.04E-01
Molybdenum(mg/L)	0.13	0.13	1.54E-01	4.21E-01	5.76E-01
Nickel(mg/L)	0.35	0.35	4.06E-01	1.11E+00	1.52E+00
Nitrite(mg/L)	0.12	0.12	1.37E-01	3.74E-01	5.11E-01
Nitrate(mg/L)	0.03	0.03	3.18E-02	8.69E-02	1.19E-01
Potassium(mg/L)	148.92	148.92	1.72E+02	4.71E+02	6.43E+02
Selenium(mg/L)	0.09	0.09	1.07E-01	2.93E-01	4.01E-01
TKN(mg/L)	2161.67	2161.67	2.50E+03	6.83E+03	9.34E+03
TP(mg/L)	847.33	847.33	9.81E+02	2.68E+03	3.66E+03
Total Solids(%)	2.63%	2.63%	3.05E+04	8.32E+04	1.14E+05
VSolids (Dry) (%)	61.98%	61.98%	1.89E+04	1.96E+06	1.98E+06
Zinc(mg/L)	12.43	12.43	1.44E+01	3.93E+01	5.37E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
S11035	WwTF	BSF	WwTF	BSF	TOTAL
Ammonia(mg/L)	898.38	898.38	6.00E+02	0.00E+00	6.00E+02
Arsenic(mg/L)	0.08	0.08	5.47E-02	0.00E+00	5.47E-02
Cadmium(mg/L)	0.01	0.01	4.17E-03	0.00E+00	4.17E-03
Chromium(mg/L)	0.37	0.37	2.50E-01	0.00E+00	2.50E-01
Cobalt(mg/L)	0.04	0.04	2.67E-02	0.00E+00	2.67E-02
Copper(mg/L)	14.71	14.71	9.83E+00	0.00E+00	9.83E+00
E.Coli(CFU/g dry)	12512.50	12512.50	8.36E+03	0.00E+00	8.36E+03
Lead(mg/L)	0.76	0.76	5.08E-01	0.00E+00	5.08E-01
Magnesium(mg/L)	89.15	89.15	5.95E+01	0.00E+00	5.95E+01
Manganese(mg/L)	2.74	2.74	1.83E+00	0.00E+00	1.83E+00
Mercury(mg/L)	0.05	0.05	3.34E-02	0.00E+00	3.34E-02
Molybdenum(mg/L)	0.11	0.11	7.18E-02	0.00E+00	7.18E-02
Nickel(mg/L)	0.19	0.19	1.24E-01	0.00E+00	1.24E-01
Nitrite(mg/L)	0.05	0.05	3.06E-02	0.00E+00	3.06E-02
Nitrate(mg/L)	0.02	0.02	1.34E-02	0.00E+00	1.34E-02
Potassium(mg/L)	142.63	142.63	9.53E+01	0.00E+00	9.53E+01
Selenium(mg/L)	0.08	0.08	5.67E-02	0.00E+00	5.67E-02
TKN(mg/L)	1928.75	1928.75	1.29E+03	0.00E+00	1.29E+03
TP(mg/L)	708.63	708.63	4.73E+02	0.00E+00	4.73E+02
Total Solids(%)	2.20%	2.20%	1.47E+04	0.00E+00	1.47E+04
VSolids (Dry) (%)	63.26%	63.26%	9.30E+03	0.00E+00	9.30E+03
Zinc(mg/L)	9.04	9.04	6.04E+00	0.00E+00	6.04E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
S11038	WwTF	BSF	WwTF	BSF	TOTAL
Ammonia(mg/L)	915.50	915.50	6.12E+02	1.63E+02	7.74E+02
Arsenic(mg/L)	0.09	0.09	5.90E-02	1.57E-02	7.46E-02
Cadmium(mg/L)	0.01	0.01	6.12E-03	1.63E-03	7.75E-03
Chromium(mg/L)	0.48	0.48	3.17E-01	8.44E-02	4.02E-01
Cobalt(mg/L)	0.05	0.05	3.17E-02	8.44E-03	4.02E-02
Copper(mg/L)	20.69	20.69	1.38E+01	3.68E+00	1.75E+01
E.Coli(CFU/g dry)	8545.83	8545.83	5.71E+03	1.52E+03	7.23E+03
Lead(mg/L)	1.05	1.05	6.99E-01	1.86E-01	8.85E-01
Magnesium(mg/L)	103.02	103.02	6.88E+01	1.83E+01	8.71E+01
Manganese(mg/L)	3.48	3.48	2.32E+00	6.18E-01	2.94E+00
Mercury(mg/L)	0.05	0.05	3.34E-02	8.89E-03	4.23E-02
Molybdenum(mg/L)	0.13	0.13	8.57E-02	2.28E-02	1.09E-01
Nickel(mg/L)	0.36	0.36	2.40E-01	6.38E-02	3.04E-01
Nitrite(mg/L)	0.12	0.12	8.18E-02	2.18E-02	1.04E-01
Nitrate(mg/L)	0.03	0.03	1.84E-02	4.89E-03	2.33E-02
Potassium(mg/L)	147.00	147.00	9.82E+01	2.61E+01	1.24E+02
Selenium(mg/L)	0.09	0.09	6.20E-02	1.65E-02	7.84E-02
TKN(mg/L)	2075.00	2075.00	1.39E+03	3.69E+02	1.76E+03
TP(mg/L)	844.08	844.08	5.64E+02	1.50E+02	7.14E+02
Total Solids(%)	2.53%	2.53%	1.69E+04	4.49E+03	2.14E+04
VSolids (Dry) (%)	62.03%	62.03%	1.05E+04	1.10E+05	1.21E+05
Zinc(mg/L)	12.28	12.28	8.20E+00	2.18E+00	1.04E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
S12027	WwTF	BSF	WwTF	BSF	TOTAL
Ammonia(mg/L)	895.50	895.50	1.16E+03	1.41E+03	2.56E+03
Arsenic(mg/L)	0.09	0.09	1.14E-01	1.39E-01	2.53E-01
Cadmium(mg/L)	0.01	0.01	1.10E-02	1.34E-02	2.45E-02
Chromium(mg/L)	0.48	0.48	6.25E-01	7.61E-01	1.39E+00
Cobalt(mg/L)	0.05	0.05	6.19E-02	7.53E-02	1.37E-01
Copper(mg/L)	20.43	20.43	2.64E+01	3.21E+01	5.85E+01
E.Coli(CFU/g dry)	8495.83	8495.83	1.10E+04	1.33E+04	2.43E+04
Lead(mg/L)	1.05	1.05	1.36E+00	1.65E+00	3.01E+00
Magnesium(mg/L)	103.85	103.85	1.34E+02	1.63E+02	2.97E+02
Manganese(mg/L)	3.50	3.50	4.51E+00	5.49E+00	1.00E+01
Mercury(mg/L)	0.05	0.05	6.46E-02	7.86E-02	1.43E-01
Molybdenum(mg/L)	0.13	0.13	1.65E-01	2.00E-01	3.65E-01
Nickel(mg/L)	0.36	0.36	4.67E-01	5.68E-01	1.04E+00
Nitrite(mg/L)	0.13	0.13	1.67E-01	2.03E-01	3.70E-01
Nitrate(mg/L)	0.03	0.03	3.55E-02	4.32E-02	7.87E-02
Potassium(mg/L)	145.50	145.50	1.88E+02	2.29E+02	4.17E+02
Selenium(mg/L)	0.09	0.09	1.20E-01	1.46E-01	2.66E-01
TKN(mg/L)	2040.42	2040.42	2.64E+03	3.21E+03	5.84E+03
TP(mg/L)	845.42	845.42	1.09E+03	1.33E+03	2.42E+03
Total Solids(%)	0.02	2.50%	3.22E+04	3.92E+04	7.15E+04
VSolids (Dry) (%)	0.62	61.80%	7.98E+05	2.42E+04	8.22E+05
Zinc(mg/L)	12.11	12.11	1.56E+01	1.90E+01	3.47E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
S12083	WwTF	BSF	WwTF	BSF	TOTAL
Ammonia(mg/L)	875.50	875.50	4.68E+02	6.60E+02	1.13E+03
Arsenic(mg/L)	0.09	0.09	4.72E-02	6.65E-02	1.14E-01
Cadmium(mg/L)	0.01	0.01	4.23E-03	5.97E-03	1.02E-02
Chromium(mg/L)	0.49	0.49	2.64E-01	3.72E-01	6.36E-01
Cobalt(mg/L)	0.05	0.05	2.28E-03	3.22E-03	5.50E-03
Copper(mg/L)	20.17	20.17	1.08E+01	1.52E+01	2.60E+01
E.Coli(CFU/g dry)	8445.83	8445.83	4.52E+03	6.37E+03	1.09E+04
Lead(mg/L)	1.05	1.05	5.64E-01	7.95E-01	1.36E+00
Magnesium(mg/L)	104.68	104.68	5.60E+01	7.89E+01	1.35E+02
Manganese(mg/L)	3.51	3.51	1.88E+00	2.65E+00	4.53E+00
Mercury(mg/L)	0.05	0.05	2.67E-02	3.77E-02	6.44E-02
Molybdenum(mg/L)	0.13	0.13	6.77E-02	9.55E-02	1.63E-01
Nickel(mg/L)	0.36	0.36	1.95E-01	2.75E-01	4.69E-01
Nitrite(mg/L)	0.14	0.14	7.28E-02	1.03E-01	1.75E-01
Nitrate(mg/L)	0.03	0.03	1.47E-02	2.07E-02	3.54E-02
Potassium(mg/L)	144.00	144.00	7.70E+01	1.09E+02	1.86E+02
Selenium(mg/L)	0.09	0.09	4.96E-02	6.99E-02	1.20E-01
TKN(mg/L)	2005.83	2005.83	1.07E+03	1.51E+03	2.58E+03
TP(mg/L)	846.75	846.75	4.53E+02	6.38E+02	1.09E+03
Total Solids(%)	2.47%	2.47%	1.32E+04	1.86E+04	3.18E+04
VSolids (Dry) (%)	61.57%	61.57%	8.12E+03	4.64E+05	4.72E+05
Zinc(mg/L)	11.93	11.93	6.38E+00	9.00E+00	1.54E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12010					
Ammonia(mg/L)	854.75	854.75	5.71E+02	9.25E+02	1.50E+03
Arsenic(mg/L)	0.08	0.08	5.50E-02	8.91E-02	1.44E-01
Cadmium(mg/L)	0.01	0.01	4.18E-03	6.77E-03	1.09E-02
Chromium(mg/L)	0.37	0.37	2.46E-01	3.98E-01	6.43E-01
Cobalt(mg/L)	0.04	0.04	2.67E-02	4.33E-02	7.00E-02
Copper(mg/L)	14.65	14.65	9.79E+00	1.59E+01	2.57E+01
E.Coli(CFU/g dry)	12400.00	12400.00	8.29E+03	1.34E+04	2.17E+04
Lead(mg/L)	0.70	0.70	4.66E-01	7.55E-01	1.22E+00
Magnesium(mg/L)	89.40	89.40	5.97E+01	9.68E+01	1.57E+02
Manganese(mg/L)	2.72	2.72	1.82E+00	2.94E+00	4.76E+00
Mercury(mg/L)	0.05	0.05	3.34E-02	5.41E-02	8.76E-02
Molybdenum(mg/L)	0.11	0.11	7.02E-02	1.14E-01	1.84E-01
Nickel(mg/L)	0.19	0.19	1.24E-01	2.00E-01	3.24E-01
Nitrite(mg/L)	0.08	0.08	5.35E-02	8.66E-02	1.40E-01
Nitrate(mg/L)	0.02	0.02	1.34E-02	2.17E-02	3.50E-02
Potassium(mg/L)	141.25	141.25	9.44E+01	1.53E+02	2.47E+02
Selenium(mg/L)	0.09	0.09	5.88E-02	9.53E-02	1.54E-01
TKN(mg/L)	1885.00	1885.00	1.26E+03	2.04E+03	3.30E+03
TP(mg/L)	724.00	724.00	4.84E+02	7.84E+02	1.27E+03
Total Solids(%)	2.15%	2.15%	1.44E+04	2.33E+04	3.76E+04
VSolids (Dry) (%)	63.58%	63.58%	4.25E+05	1.48E+04	4.40E+05
Zinc(mg/L)	9.21	9.21	6.15E+00	9.97E+00	1.61E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5024					
Ammonia(mg/L)	863.63	863.63	5.00E+02	0.00E+00	5.00E+02
Arsenic(mg/L)	0.08	0.08	4.74E-02	0.00E+00	4.74E-02
Cadmium(mg/L)	0.01	0.01	3.26E-03	0.00E+00	3.26E-03
Chromium(mg/L)	0.37	0.37	2.14E-01	0.00E+00	2.14E-01
Cobalt(mg/L)	0.04	0.04	2.32E-02	0.00E+00	2.32E-02
Copper(mg/L)	14.61	14.61	8.46E+00	0.00E+00	8.46E+00
E.Coli(CFU/g dry)	12425.00	12425.00	7.19E+03	0.00E+00	7.19E+03
Lead(mg/L)	0.76	0.76	4.39E-01	0.00E+00	4.39E-01
Magnesium(mg/L)	89.76	89.76	5.20E+01	0.00E+00	5.20E+01
Manganese(mg/L)	2.74	2.74	1.58E+00	0.00E+00	1.58E+00
Mercury(mg/L)	0.05	0.05	2.89E-02	0.00E+00	2.89E-02
Molybdenum(mg/L)	0.11	0.11	6.15E-02	0.00E+00	6.15E-02
Nickel(mg/L)	0.19	0.19	1.09E-01	0.00E+00	1.09E-01
Nitrite(mg/L)	0.07	0.07	4.25E-02	0.00E+00	4.25E-02
Nitrate(mg/L)	0.02	0.02	1.16E-02	0.00E+00	1.16E-02
Potassium(mg/L)	141.00	141.00	8.16E+01	0.00E+00	8.16E+01
Selenium(mg/L)	0.08	0.08	4.91E-02	0.00E+00	4.91E-02
TKN(mg/L)	1891.25	1891.25	1.09E+03	0.00E+00	1.09E+03
TP(mg/L)	715.13	715.13	4.14E+02	0.00E+00	4.14E+02
Total Solids(%)	2.16%	2.16%	1.25E+04	0.00E+00	1.25E+04
VSolids (Dry) (%)	63.14%	63.14%	7.90E+03	0.00E+00	7.90E+03
Zinc(mg/L)	9.05	9.05	5.24E+00	0.00E+00	5.24E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12101					
Ammonia(mg/L)	869.08	869.08	6.19E+02	1.29E+03	1.91E+03
Arsenic(mg/L)	0.07	0.07	5.11E-02	1.06E-01	1.57E-01
Cadmium(mg/L)	0.01	0.01	5.05E-03	1.05E-02	1.55E-02
Chromium(mg/L)	0.46	0.46	3.29E-01	6.84E-01	1.01E+00
Cobalt(mg/L)	0.05	0.05	3.21E-02	6.67E-02	9.87E-02
Copper(mg/L)	16.64	16.64	1.19E+01	2.47E+01	3.65E+01
E.Coli(CFU/g dry)	8075.00	8075.00	5.75E+03	1.20E+04	1.77E+04
Lead(mg/L)	0.85	0.85	6.08E-01	1.26E+00	1.87E+00
Magnesium(mg/L)	95.71	95.71	6.82E+01	1.42E+02	2.10E+02
Manganese(mg/L)	3.10	3.10	2.21E+00	4.59E+00	6.80E+00
Mercury(mg/L)	0.05	0.05	3.56E-02	7.41E-02	1.10E-01
Molybdenum(mg/L)	0.11	0.11	8.14E-02	1.69E-01	2.51E-01
Nickel(mg/L)	0.24	0.24	1.74E-01	3.62E-01	5.36E-01
Nitrite(mg/L)	0.07	0.07	5.17E-02	1.08E-01	1.59E-01
Nitrate(mg/L)	0.02	0.02	1.43E-02	2.96E-02	4.39E-02
Potassium(mg/L)	135.67	135.67	9.67E+01	2.01E+02	2.98E+02
Selenium(mg/L)	0.08	0.08	5.76E-02	1.20E-01	1.77E-01
TKN(mg/L)	1895.00	1895.00	1.35E+03	2.81E+03	4.16E+03
TP(mg/L)	775.58	775.58	5.53E+02	1.15E+03	1.70E+03
Total Solids(%)	2.33%	2.33%	1.66E+04	3.45E+04	5.10E+04
VSolids (Dry) (%)	62.06%	62.06%	1.03E+04	2.14E+04	3.17E+04
Zinc(mg/L)	10.02	10.02	7.14E+00	1.49E+01	2.20E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5048					
Ammonia(mg/L)	863.88	863.88	5.39E+02	0.00E+00	5.39E+02
Arsenic(mg/L)	0.07	0.07	4.29E-02	0.00E+00	4.29E-02
Cadmium(mg/L)	0.01	0.01	3.90E-03	0.00E+00	3.90E-03
Chromium(mg/L)	0.39	0.39	2.42E-01	0.00E+00	2.42E-01
Cobalt(mg/L)	0.04	0.04	2.57E-02	0.00E+00	2.57E-02
Copper(mg/L)	15.82	15.82	9.86E+00	0.00E+00	9.86E+00
E.Coli(CFU/g dry)	11762.50	11762.50	7.33E+03	0.00E+00	7.33E+03
Lead(mg/L)	0.73	0.73	4.57E-01	0.00E+00	4.57E-01
Magnesium(mg/L)	89.34	89.34	5.57E+01	0.00E+00	5.57E+01
Manganese(mg/L)	2.77	2.77	1.73E+00	0.00E+00	1.73E+00
Mercury(mg/L)	0.05	0.05	3.12E-02	0.00E+00	3.12E-02
Molybdenum(mg/L)	0.11	0.11	6.70E-02	0.00E+00	6.70E-02
Nickel(mg/L)	0.20	0.20	1.25E-01	0.00E+00	1.25E-01
Nitrite(mg/L)	0.08	0.08	5.10E-02	0.00E+00	5.10E-02
Nitrate(mg/L)	0.02	0.02	1.25E-02	0.00E+00	1.25E-02
Potassium(mg/L)	137.38	137.38	8.57E+01	0.00E+00	8.57E+01
Selenium(mg/L)	0.08	0.08	5.07E-02	0.00E+00	5.07E-02
TKN(mg/L)	1912.50	1912.50	1.19E+03	0.00E+00	1.19E+03
TP(mg/L)	737.88	737.88	4.60E+02	0.00E+00	4.60E+02
Total Solids(%)	2.30%	2.30%	1.43E+04	0.00E+00	1.43E+04
VSolids (Dry) (%)	63.76%	63.76%	9.14E+03	0.00E+00	9.14E+03
Zinc(mg/L)	9.36	9.36	5.83E+00	0.00E+00	5.83E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5039					
Ammonia(mg/L)	863.88	863.88	6.16E+02	0.00E+00	6.16E+02
Arsenic(mg/L)	0.07	0.07	4.91E-02	0.00E+00	4.91E-02
Cadmium(mg/L)	0.01	0.01	4.46E-03	0.00E+00	4.46E-03
Chromium(mg/L)	0.39	0.39	2.77E-01	0.00E+00	2.77E-01
Cobalt(mg/L)	0.04	0.04	2.94E-02	0.00E+00	2.94E-02
Copper(mg/L)	15.82	15.82	1.13E+01	0.00E+00	1.13E+01
E.Coli(CFU/g dry)	11762.50	11762.50	8.38E+03	0.00E+00	8.38E+03
Lead(mg/L)	0.73	0.73	5.23E-01	0.00E+00	5.23E-01
Magnesium(mg/L)	89.34	89.34	6.37E+01	0.00E+00	6.37E+01
Manganese(mg/L)	2.77	2.77	1.98E+00	0.00E+00	1.98E+00
Mercury(mg/L)	0.05	0.05	3.56E-02	0.00E+00	3.56E-02
Molybdenum(mg/L)	0.11	0.11	7.66E-02	0.00E+00	7.66E-02
Nickel(mg/L)	0.20	0.20	1.43E-01	0.00E+00	1.43E-01
Nitrite(mg/L)	0.08	0.08	5.83E-02	0.00E+00	5.83E-02
Nitrate(mg/L)	0.02	0.02	1.43E-02	0.00E+00	1.43E-02
Potassium(mg/L)	137.38	137.38	9.79E+01	0.00E+00	9.79E+01
Selenium(mg/L)	0.08	0.08	5.80E-02	0.00E+00	5.80E-02
TKN(mg/L)	1912.50	1912.50	1.36E+03	0.00E+00	1.36E+03
TP(mg/L)	737.88	737.88	5.26E+02	0.00E+00	5.26E+02
Total Solids(%)	2.30%	2.30%	1.64E+04	0.00E+00	1.64E+04
VSolids (Dry) (%)	63.76%	63.76%	1.05E+04	0.00E+00	1.05E+04
Zinc(mg/L)	9.36	9.36	6.67E+00	0.00E+00	6.67E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11022					
Ammonia(mg/L)	934.75	934.75	5.41E+02	6.29E+02	1.17E+03
Arsenic(mg/L)	0.06	0.06	3.75E-02	4.35E-02	8.10E-02
Cadmium(mg/L)	0.01	0.01	5.57E-03	6.47E-03	1.20E-02
Chromium(mg/L)	0.45	0.45	2.60E-01	3.02E-01	5.62E-01
Cobalt(mg/L)	0.05	0.05	2.65E-02	3.08E-02	5.74E-02
Copper(mg/L)	17.71	17.71	1.03E+01	1.19E+01	2.22E+01
E.Coli(CFU/g dry)	9095.83	9095.83	5.27E+03	6.12E+03	1.14E+04
Lead(mg/L)	0.81	0.81	4.68E-01	5.44E-01	1.01E+00
Magnesium(mg/L)	89.56	89.56	5.19E+01	6.02E+01	1.12E+02
Manganese(mg/L)	2.94	2.94	1.70E+00	1.98E+00	3.68E+00
Mercury(mg/L)	0.04	0.04	2.47E-02	2.87E-02	5.34E-02
Molybdenum(mg/L)	0.12	0.12	7.03E-02	8.17E-02	1.52E-01
Nickel(mg/L)	0.24	0.24	1.40E-01	1.63E-01	3.02E-01
Nitrite(mg/L)	0.07	0.07	3.86E-02	4.48E-02	8.33E-02
Nitrate(mg/L)	0.02	0.02	1.16E-02	1.35E-02	2.50E-02
Potassium(mg/L)	141.25	141.25	8.18E+01	9.50E+01	1.77E+02
Selenium(mg/L)	0.08	0.08	4.38E-02	5.09E-02	9.47E-02
TKN(mg/L)	2007.50	2007.50	1.16E+03	1.35E+03	2.51E+03
TP(mg/L)	750.00	750.00	4.34E+02	5.04E+02	9.39E+02
Total Solids(%)	2.31%	0.02	1.34E+04	1.55E+04	2.89E+04
VSolids (Dry) (%)	61.37%	0.61	8.20E+03	9.53E+03	1.77E+04
Zinc(mg/L)	11.29	11.29	6.54E+00	7.59E+00	1.41E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5001					
Ammonia(mg/L)	898.13	898.13	2.80E+02	0.00E+00	2.80E+02
Arsenic(mg/L)	0.05	0.05	1.63E-02	0.00E+00	1.63E-02
Cadmium(mg/L)	0.01	0.01	2.36E-03	0.00E+00	2.36E-03
Chromium(mg/L)	0.36	0.36	1.13E-01	0.00E+00	1.13E-01
Cobalt(mg/L)	0.04	0.04	1.29E-02	0.00E+00	1.29E-02
Copper(mg/L)	14.63	14.63	4.56E+00	0.00E+00	4.56E+00
E.Coli(CFU/g dry)	13437.50	13437.50	4.19E+03	0.00E+00	4.19E+03
Lead(mg/L)	0.53	0.53	1.64E-01	0.00E+00	1.64E-01
Magnesium(mg/L)	77.29	77.29	2.41E+01	0.00E+00	2.41E+01
Manganese(mg/L)	2.27	2.27	7.09E-01	0.00E+00	7.09E-01
Mercury(mg/L)	0.04	0.04	1.22E-02	0.00E+00	1.22E-02
Molybdenum(mg/L)	0.10	0.10	3.19E-02	0.00E+00	3.19E-02
Nickel(mg/L)	0.18	0.18	5.69E-02	0.00E+00	5.69E-02
Nitrite(mg/L)	0.06	0.06	1.80E-02	0.00E+00	1.80E-02
Nitrate(mg/L)	0.02	0.02	6.24E-03	0.00E+00	6.24E-03
Potassium(mg/L)	131.75	131.75	4.11E+01	0.00E+00	4.11E+01
Selenium(mg/L)	0.06	0.06	2.01E-02	0.00E+00	2.01E-02
TKN(mg/L)	1886.25	1886.25	5.88E+02	0.00E+00	5.88E+02
TP(mg/L)	619.00	619.00	1.93E+02	0.00E+00	1.93E+02
Total Solids(%)	2.05%	2.05%	6.39E+03	0.00E+00	6.39E+03
VSolids (Dry) (%)	62.53%	62.53%	4.00E+03	0.00E+00	4.00E+03
Zinc(mg/L)	9.33	9.33	2.91E+00	0.00E+00	2.91E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11055					
Ammonia(mg/L)	971.38	971.38	2.60E+02	2.87E+03	3.13E+03
Arsenic(mg/L)	0.08	0.08	2.06E-02	2.28E-01	2.48E-01
Cadmium(mg/L)	0.01	0.01	3.12E-03	3.45E-02	3.76E-02
Chromium(mg/L)	0.53	0.53	1.43E-01	1.58E+00	1.72E+00
Cobalt(mg/L)	0.05	0.05	1.35E-02	1.49E-01	1.62E-01
Copper(mg/L)	20.79	20.79	5.56E+00	6.14E+01	6.69E+01
E.Coli(CFU/g dry)	4754.17	4754.17	1.27E+03	1.40E+04	1.53E+04
Lead(mg/L)	1.09	1.09	2.91E-01	3.22E+00	3.51E+00
Magnesium(mg/L)	101.83	101.83	2.72E+01	3.01E+02	3.28E+02
Manganese(mg/L)	3.61	3.61	9.65E-01	1.07E+01	1.16E+01
Mercury(mg/L)	0.05	0.05	1.24E-02	1.37E-01	1.49E-01
Molybdenum(mg/L)	0.14	0.14	3.76E-02	4.16E-01	4.53E-01
Nickel(mg/L)	0.30	0.30	8.04E-02	8.88E-01	9.68E-01
Nitrite(mg/L)	0.08	0.08	2.01E-02	2.22E-01	2.42E-01
Nitrate(mg/L)	0.02	0.02	5.34E-03	5.90E-02	6.44E-02
Potassium(mg/L)	150.75	150.75	4.03E+01	4.45E+02	4.85E+02
Selenium(mg/L)	0.09	0.09	2.32E-02	2.56E-01	2.80E-01
TKN(mg/L)	2128.75	2128.75	5.69E+02	6.28E+03	6.85E+03
TP(mg/L)	881.00	881.00	2.35E+02	2.60E+03	2.84E+03
Total Solids(%)	2.57%	2.57%	6.86E+03	7.58E+04	8.26E+04
VSolids (Dry) (%)	60.21%	60.21%	4.13E+03	4.56E+04	4.98E+04
Zinc(mg/L)	13.24	13.24	3.54E+00	3.91E+01	4.26E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11011					
Ammonia(mg/L)	933.50	933.50	1.49E+03	2.55E+03	4.04E+03
Arsenic(mg/L)	0.07	0.07	1.10E-01	1.88E-01	2.98E-01
Cadmium(mg/L)	0.01	0.01	1.61E-02	2.74E-02	4.34E-02
Chromium(mg/L)	0.50	0.50	7.92E-01	1.35E+00	2.14E+00
Cobalt(mg/L)	0.05	0.05	7.60E-02	1.30E-01	2.06E-01
Copper(mg/L)	18.76	18.76	3.00E+01	5.12E+01	8.12E+01
E.Coli(CFU/g dry)	7900.00	7900.00	1.26E+04	2.15E+04	3.42E+04
Lead(mg/L)	0.90	0.90	1.44E+00	2.45E+00	3.89E+00
Magnesium(mg/L)	92.38	92.38	1.48E+02	2.52E+02	4.00E+02
Manganese(mg/L)	3.15	3.15	5.03E+00	8.58E+00	1.36E+01
Mercury(mg/L)	0.04	0.04	6.83E-02	1.16E-01	1.85E-01
Molybdenum(mg/L)	0.13	0.13	2.06E-01	3.52E-01	5.58E-01
Nickel(mg/L)	0.25	0.25	3.96E-01	6.75E-01	1.07E+00
Nitrite(mg/L)	0.05	0.05	8.20E-02	1.40E-01	2.22E-01
Nitrate(mg/L)	0.02	0.02	3.20E-02	5.45E-02	8.65E-02
Potassium(mg/L)	137.00	137.00	2.19E+02	3.74E+02	5.93E+02
Selenium(mg/L)	0.08	0.08	1.34E-01	2.29E-01	3.64E-01
TKN(mg/L)	2044.17	2044.17	3.27E+03	5.58E+03	8.84E+03
TP(mg/L)	814.75	814.75	1.30E+03	2.22E+03	3.53E+03
Total Solids(%)	2.42%	2.42%	3.87E+04	6.59E+04	1.05E+05
VSolids (Dry) (%)	60.99%	60.99%	2.36E+04	4.02E+04	6.38E+04
Zinc(mg/L)	11.86	11.86	1.90E+01	3.23E+01	5.13E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11008					
Ammonia(mg/L)	988.50	988.50	8.68E+01	2.95E+03	3.04E+03
Arsenic(mg/L)	0.09	0.09	7.71E-03	2.62E-01	2.70E-01
Cadmium(mg/L)	0.01	0.01	1.17E-03	3.99E-02	4.10E-02
Chromium(mg/L)	0.59	0.59	5.21E-02	1.77E+00	1.82E+00
Cobalt(mg/L)	0.05	0.05	4.61E-03	1.57E-01	1.61E-01
Copper(mg/L)	21.89	21.89	1.92E+00	6.54E+01	6.73E+01
E.Coli(CFU/g dry)	2900.00	2900.00	2.55E+02	8.66E+03	8.92E+03
Lead(mg/L)	1.22	1.22	1.07E-01	3.63E+00	3.74E+00
Magnesium(mg/L)	105.96	105.96	9.30E+00	3.16E+02	3.26E+02
Manganese(mg/L)	3.95	3.95	3.46E-01	1.18E+01	1.21E+01
Mercury(mg/L)	0.05	0.05	4.18E-03	1.42E-01	1.46E-01
Molybdenum(mg/L)	0.15	0.15	1.33E-02	4.52E-01	4.65E-01
Nickel(mg/L)	0.28	0.28	2.45E-02	8.34E-01	8.58E-01
Nitrite(mg/L)	0.04	0.04	3.53E-03	1.20E-01	1.24E-01
Nitrate(mg/L)	0.05	0.05	4.68E-03	1.59E-01	1.64E-01
Potassium(mg/L)	148.17	148.17	1.30E+01	4.43E+02	4.56E+02
Selenium(mg/L)	0.10	0.10	8.52E-03	2.90E-01	2.98E-01
TKN(mg/L)	2198.06	2198.06	1.93E+02	6.57E+03	6.76E+03
TP(mg/L)	978.08	978.08	8.58E+01	2.92E+03	3.01E+03
Total Solids(%)	2.76%	2.76%	2.42E+03	8.23E+04	8.47E+04
VSolids (Dry) (%)	59.60%	59.60%	1.44E+03	4.91E+04	5.05E+04
Zinc(mg/L)	13.76	13.76	1.21E+00	4.11E+01	4.23E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2013					
Ammonia(mg/L)	898.63	898.63	1.60E+03	0.00E+00	1.60E+03
Arsenic(mg/L)	0.06	0.06	1.10E-01	0.00E+00	1.10E-01
Cadmium(mg/L)	0.01	0.01	1.34E-02	0.00E+00	1.34E-02
Chromium(mg/L)	0.46	0.46	8.13E-01	0.00E+00	8.13E-01
Cobalt(mg/L)	0.04	0.04	7.89E-02	0.00E+00	7.89E-02
Copper(mg/L)	16.50	16.50	2.93E+01	0.00E+00	2.93E+01
E.Coli(CFU/g dry)	12137.50	12137.50	2.16E+04	0.00E+00	2.16E+04
Lead(mg/L)	0.66	0.66	1.18E+00	0.00E+00	1.18E+00
Magnesium(mg/L)	82.05	82.05	1.46E+02	0.00E+00	1.46E+02
Manganese(mg/L)	2.68	2.68	4.76E+00	0.00E+00	4.76E+00
Mercury(mg/L)	0.04	0.04	6.94E-02	0.00E+00	6.94E-02
Molybdenum(mg/L)	0.11	0.11	2.03E-01	0.00E+00	2.03E-01
Nickel(mg/L)	0.22	0.22	3.90E-01	0.00E+00	3.90E-01
Nitrite(mg/L)	0.04	0.04	6.93E-02	0.00E+00	6.93E-02
Nitrate(mg/L)	0.02	0.02	4.11E-02	0.00E+00	4.11E-02
Potassium(mg/L)	128.81	128.81	2.29E+02	0.00E+00	2.29E+02
Selenium(mg/L)	0.08	0.08	1.41E-01	0.00E+00	1.41E-01
TKN(mg/L)	1953.13	1953.13	3.47E+03	0.00E+00	3.47E+03
TP(mg/L)	713.38	713.38	1.27E+03	0.00E+00	1.27E+03
Total Solids(%)	2.23%	2.23%	3.97E+04	0.00E+00	3.97E+04
VSolids (Dry) (%)	62.24%	62.24%	2.47E+04	0.00E+00	2.47E+04
Zinc(mg/L)	10.98	10.98	1.95E+01	0.00E+00	1.95E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2012					
Ammonia(mg/L)	905.83	905.83	1.24E+03	0.00E+00	1.24E+03
Arsenic(mg/L)	0.07	0.07	9.34E-02	0.00E+00	9.34E-02
Cadmium(mg/L)	0.01	0.01	1.10E-02	0.00E+00	1.10E-02
Chromium(mg/L)	0.51	0.51	7.05E-01	0.00E+00	7.05E-01
Cobalt(mg/L)	0.05	0.05	6.41E-02	0.00E+00	6.41E-02
Copper(mg/L)	17.49	17.49	2.40E+01	0.00E+00	2.40E+01
E.Coli(CFU/g dry)	12016.67	12016.67	1.65E+04	0.00E+00	1.65E+04
Lead(mg/L)	0.72	0.72	9.87E-01	0.00E+00	9.87E-01
Magnesium(mg/L)	85.13	85.13	1.17E+02	0.00E+00	1.17E+02
Manganese(mg/L)	3.02	3.02	4.15E+00	0.00E+00	4.15E+00
Mercury(mg/L)	0.04	0.04	5.36E-02	0.00E+00	5.36E-02
Molybdenum(mg/L)	0.12	0.12	1.63E-01	0.00E+00	1.63E-01
Nickel(mg/L)	0.24	0.24	3.30E-01	0.00E+00	3.30E-01
Nitrite(mg/L)	0.04	0.04	5.18E-02	0.00E+00	5.18E-02
Nitrate(mg/L)	0.03	0.03	3.60E-02	0.00E+00	3.60E-02
Potassium(mg/L)	130.75	130.75	1.80E+02	0.00E+00	1.80E+02
Selenium(mg/L)	0.09	0.09	1.18E-01	0.00E+00	1.18E-01
TKN(mg/L)	1985.83	1985.83	2.73E+03	0.00E+00	2.73E+03
TP(mg/L)	751.67	751.67	1.03E+03	0.00E+00	1.03E+03
Total Solids(%)	2.32%	2.32%	3.19E+04	0.00E+00	3.19E+04
VSolids (Dry) (%)	62.27%	62.27%	1.98E+04	0.00E+00	1.98E+04
Zinc(mg/L)	11.79	11.79	1.62E+01	0.00E+00	1.62E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2026					
Ammonia(mg/L)	919.88	919.88	2.13E+03	0.00E+00	2.13E+03
Arsenic(mg/L)	0.07	0.07	1.69E-01	0.00E+00	1.69E-01
Cadmium(mg/L)	0.01	0.01	2.00E-02	0.00E+00	2.00E-02
Chromium(mg/L)	0.57	0.57	1.33E+00	0.00E+00	1.33E+00
Cobalt(mg/L)	0.05	0.05	1.15E-01	0.00E+00	1.15E-01
Copper(mg/L)	18.88	18.88	4.37E+01	0.00E+00	4.37E+01
E.Coli(CFU/g dry)	10671.88	10671.88	2.47E+04	0.00E+00	2.47E+04
Lead(mg/L)	0.80	0.80	1.86E+00	0.00E+00	1.86E+00
Magnesium(mg/L)	89.82	89.82	2.08E+02	0.00E+00	2.08E+02
Manganese(mg/L)	3.49	3.49	8.08E+00	0.00E+00	8.08E+00
Mercury(mg/L)	0.04	0.04	9.68E-02	0.00E+00	9.68E-02
Molybdenum(mg/L)	0.12	0.12	2.89E-01	0.00E+00	2.89E-01
Nickel(mg/L)	0.26	0.26	6.06E-01	0.00E+00	6.06E-01
Nitrite(mg/L)	0.04	0.04	8.36E-02	0.00E+00	8.36E-02
Nitrate(mg/L)	0.03	0.03	6.08E-02	0.00E+00	6.08E-02
Potassium(mg/L)	134.66	134.66	3.12E+02	0.00E+00	3.12E+02
Selenium(mg/L)	0.09	0.09	2.12E-01	0.00E+00	2.12E-01
TKN(mg/L)	2033.13	2033.13	4.71E+03	0.00E+00	4.71E+03
TP(mg/L)	808.09	808.09	1.87E+03	0.00E+00	1.87E+03
Total Solids(%)	2.44%	2.44%	5.65E+04	0.00E+00	5.65E+04
VSolids (Dry) (%)	62.02%	62.02%	3.51E+04	0.00E+00	3.51E+04
Zinc(mg/L)	12.23	12.23	2.83E+01	0.00E+00	2.83E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12086					
Ammonia(mg/L)	948.42	948.42	2.74E+03	3.44E+03	6.18E+03
Arsenic(mg/L)	0.08	0.08	2.18E-01	2.73E-01	4.90E-01
Cadmium(mg/L)	0.01	0.01	2.63E-02	3.30E-02	5.93E-02
Chromium(mg/L)	0.55	0.55	1.59E+00	1.99E+00	3.57E+00
Cobalt(mg/L)	0.05	0.05	1.49E-01	1.86E-01	3.35E-01
Copper(mg/L)	19.56	19.56	5.65E+01	7.09E+01	1.27E+02
E.Coli(CFU/g dry)	7952.08	7952.08	2.30E+04	2.88E+04	5.18E+04
Lead(mg/L)	0.86	0.86	2.50E+00	3.13E+00	5.62E+00
Magnesium(mg/L)	93.40	93.40	2.70E+02	3.38E+02	6.08E+02
Manganese(mg/L)	3.80	3.80	1.10E+01	1.38E+01	2.47E+01
Mercury(mg/L)	0.05	0.05	1.45E-01	1.81E-01	3.26E-01
Molybdenum(mg/L)	0.13	0.13	3.71E-01	4.65E-01	8.36E-01
Nickel(mg/L)	0.35	0.35	1.01E+00	1.27E+00	2.29E+00
Nitrite(mg/L)	0.05	0.05	1.35E-01	1.69E-01	3.04E-01
Nitrate(mg/L)	0.11	0.11	3.24E-01	4.07E-01	7.31E-01
Potassium(mg/L)	146.96	146.96	4.25E+02	5.33E+02	9.57E+02
Selenium(mg/L)	0.09	0.09	2.60E-01	3.26E-01	5.86E-01
TKN(mg/L)	2034.31	2034.31	5.88E+03	7.37E+03	1.33E+04
TP(mg/L)	804.88	804.88	2.33E+03	2.92E+03	5.24E+03
Total Solids(%)	2.44%	2.44%	7.04E+04	8.83E+04	1.59E+05
VSolids (Dry) (%)	56.78%	56.78%	4.00E+04	2.06E+06	2.10E+06
Zinc(mg/L)	13.16	13.16	3.81E+01	4.77E+01	8.57E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12009					
Ammonia(mg/L)	954.38	954.38	2.13E+02	2.26E+03	2.47E+03
Arsenic(mg/L)	0.07	0.07	1.56E-02	1.66E-01	1.81E-01
Cadmium(mg/L)	0.01	0.01	2.04E-03	2.17E-02	2.37E-02
Chromium(mg/L)	0.47	0.47	1.05E-01	1.11E+00	1.21E+00
Cobalt(mg/L)	0.05	0.05	1.09E-02	1.15E-01	1.26E-01
Copper(mg/L)	17.78	17.78	3.96E+00	4.21E+01	4.60E+01
E.Coli(CFU/g dry)	4675.00	4675.00	1.04E+03	1.11E+04	1.21E+04
Lead(mg/L)	0.75	0.75	1.68E-01	1.78E+00	1.95E+00
Magnesium(mg/L)	87.43	87.43	1.95E+01	2.07E+02	2.26E+02
Manganese(mg/L)	3.35	3.35	7.46E-01	7.92E+00	8.67E+00
Mercury(mg/L)	0.05	0.05	1.11E-02	1.18E-01	1.29E-01
Molybdenum(mg/L)	0.12	0.12	2.69E-02	2.86E-01	3.13E-01
Nickel(mg/L)	0.27	0.27	5.95E-02	6.32E-01	6.92E-01
Nitrite(mg/L)	0.07	0.07	1.49E-02	1.58E-01	1.73E-01
Nitrate(mg/L)	0.18	0.18	4.05E-02	4.30E-01	4.70E-01
Potassium(mg/L)	141.21	141.21	3.15E+01	3.34E+02	3.66E+02
Selenium(mg/L)	0.07	0.07	1.50E-02	1.60E-01	1.75E-01
TKN(mg/L)	1861.25	1861.25	4.15E+02	4.40E+03	4.82E+03
TP(mg/L)	745.33	745.33	1.66E+02	1.76E+03	1.93E+03
Total Solids(%)	2.19%	2.19%	4.88E+03	5.19E+04	5.68E+04
VSolids (Dry) (%)	56.80%	56.80%	2.77E+03	1.34E+06	1.35E+06
Zinc(mg/L)	11.88	11.88	2.65E+00	2.81E+01	3.08E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11075					
Ammonia(mg/L)	927.75	927.75	1.03E+03	1.21E+03	2.24E+03
Arsenic(mg/L)	0.07	0.07	7.39E-02	8.66E-02	1.61E-01
Cadmium(mg/L)	0.01	0.01	9.28E-03	1.09E-02	2.01E-02
Chromium(mg/L)	0.48	0.48	5.32E-01	6.24E-01	1.16E+00
Cobalt(mg/L)	0.05	0.05	5.29E-02	6.19E-02	1.15E-01
Copper(mg/L)	17.68	17.68	1.97E+01	2.30E+01	4.27E+01
E.Coli(CFU/g dry)	9062.50	9062.50	1.01E+04	1.18E+04	2.19E+04
Lead(mg/L)	0.70	0.70	7.80E-01	9.14E-01	1.69E+00
Magnesium(mg/L)	85.60	85.60	9.53E+01	1.12E+02	2.07E+02
Manganese(mg/L)	3.50	3.50	3.89E+00	4.56E+00	8.45E+00
Mercury(mg/L)	0.05	0.05	5.57E-02	6.52E-02	1.21E-01
Molybdenum(mg/L)	0.12	0.12	1.30E-01	1.52E-01	2.82E-01
Nickel(mg/L)	0.25	0.25	2.75E-01	3.22E-01	5.96E-01
Nitrite(mg/L)	0.05	0.05	5.62E-02	6.58E-02	1.22E-01
Nitrate(mg/L)	0.10	0.10	1.12E-01	1.31E-01	2.44E-01
Potassium(mg/L)	136.42	136.42	1.52E+02	1.78E+02	3.30E+02
Selenium(mg/L)	0.07	0.07	7.30E-02	8.55E-02	1.59E-01
TKN(mg/L)	1877.50	1877.50	2.09E+03	2.45E+03	4.54E+03
TP(mg/L)	717.92	717.92	7.99E+02	9.36E+02	1.74E+03
Total Solids(%)	2.21%	2.21%	2.46E+04	2.88E+04	5.34E+04
VSolids (Dry) (%)	55.79%	55.79%	1.37E+04	1.61E+04	2.98E+04
Zinc(mg/L)	11.31	11.31	1.26E+01	1.47E+01	2.73E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2027					
Ammonia(mg/L)	872.96	872.96	2.86E+03	0.00E+00	2.86E+03
Arsenic(mg/L)	0.06	0.06	2.00E-01	0.00E+00	2.00E-01
Cadmium(mg/L)	0.01	0.01	2.60E-02	0.00E+00	2.60E-02
Chromium(mg/L)	0.44	0.44	1.44E+00	0.00E+00	1.44E+00
Cobalt(mg/L)	0.05	0.05	1.48E-01	0.00E+00	1.48E-01
Copper(mg/L)	16.67	16.67	5.45E+01	0.00E+00	5.45E+01
E.Coli(CFU/g dry)	16933.93	16933.93	5.54E+04	0.00E+00	5.54E+04
Lead(mg/L)	0.61	0.61	1.99E+00	0.00E+00	1.99E+00
Magnesium(mg/L)	79.09	79.09	2.59E+02	0.00E+00	2.59E+02
Manganese(mg/L)	3.46	3.46	1.13E+01	0.00E+00	1.13E+01
Mercury(mg/L)	0.05	0.05	1.58E-01	0.00E+00	1.58E-01
Molybdenum(mg/L)	0.11	0.11	3.46E-01	0.00E+00	3.46E-01
Nickel(mg/L)	0.22	0.22	7.31E-01	0.00E+00	7.31E-01
Nitrite(mg/L)	0.04	0.04	1.27E-01	0.00E+00	1.27E-01
Nitrate(mg/L)	0.02	0.02	6.78E-02	0.00E+00	6.78E-02
Potassium(mg/L)	127.23	127.23	4.16E+02	0.00E+00	4.16E+02
Selenium(mg/L)	0.06	0.06	1.93E-01	0.00E+00	1.93E-01
TKN(mg/L)	1833.04	1833.04	6.00E+03	0.00E+00	6.00E+03
TP(mg/L)	653.45	653.45	2.14E+03	0.00E+00	2.14E+03
Total Solids(%)	2.12%	2.12%	6.94E+04	0.00E+00	6.94E+04
VSolids (Dry) (%)	54.87%	54.87%	3.81E+04	0.00E+00	3.81E+04
Zinc(mg/L)	10.20	10.20	3.34E+01	0.00E+00	3.34E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S2017					
Ammonia(mg/L)	853.38	853.38	1.09E+03	0.00E+00	1.09E+03
Arsenic(mg/L)	0.05	0.05	6.79E-02	0.00E+00	6.79E-02
Cadmium(mg/L)	0.01	0.01	8.81E-03	0.00E+00	8.81E-03
Chromium(mg/L)	0.37	0.37	4.77E-01	0.00E+00	4.77E-01
Cobalt(mg/L)	0.05	0.05	5.74E-02	0.00E+00	5.74E-02
Copper(mg/L)	14.69	14.69	1.87E+01	0.00E+00	1.87E+01
E.Coli(CFU/g dry)	18837.50	18837.50	2.40E+04	0.00E+00	2.40E+04
Lead(mg/L)	0.50	0.50	6.37E-01	0.00E+00	6.37E-01
Magnesium(mg/L)	73.56	73.56	9.38E+01	0.00E+00	9.38E+01
Manganese(mg/L)	3.10	3.10	3.95E+00	0.00E+00	3.95E+00
Mercury(mg/L)	0.04	0.04	4.96E-02	0.00E+00	4.96E-02
Molybdenum(mg/L)	0.09	0.09	1.17E-01	0.00E+00	1.17E-01
Nickel(mg/L)	0.20	0.20	2.55E-01	0.00E+00	2.55E-01
Nitrite(mg/L)	0.07	0.07	9.13E-02	0.00E+00	9.13E-02
Nitrate(mg/L)	0.03	0.03	3.19E-02	0.00E+00	3.19E-02
Potassium(mg/L)	122.00	122.00	1.56E+02	0.00E+00	1.56E+02
Selenium(mg/L)	0.05	0.05	6.22E-02	0.00E+00	6.22E-02
TKN(mg/L)	1722.50	1722.50	2.20E+03	0.00E+00	2.20E+03
TP(mg/L)	584.38	584.38	7.45E+02	0.00E+00	7.45E+02
Total Solids(%)	1.91%	1.91%	2.44E+04	0.00E+00	2.44E+04
VSolids (Dry) (%)	62.46%	62.46%	1.52E+04	0.00E+00	1.52E+04
Zinc(mg/L)	8.86	8.86	1.13E+01	0.00E+00	1.13E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12093					
Ammonia(mg/L)	904.17	904.17	1.32E+03	1.56E+03	2.88E+03
Arsenic(mg/L)	0.05	0.05	7.75E-02	9.16E-02	1.69E-01
Cadmium(mg/L)	0.01	0.01	1.15E-02	1.36E-02	2.50E-02
Chromium(mg/L)	0.39	0.39	5.70E-01	6.74E-01	1.24E+00
Cobalt(mg/L)	0.04	0.04	6.44E-02	7.62E-02	1.41E-01
Copper(mg/L)	15.11	15.11	2.20E+01	2.61E+01	4.81E+01
E.Coli(CFU/g dry)	12662.50	12662.50	1.85E+04	2.18E+04	4.03E+04
Lead(mg/L)	0.53	0.53	7.79E-01	9.21E-01	1.70E+00
Magnesium(mg/L)	77.53	77.53	1.13E+02	1.34E+02	2.47E+02
Manganese(mg/L)	3.07	3.07	4.48E+00	5.30E+00	9.78E+00
Mercury(mg/L)	0.04	0.04	5.77E-02	6.83E-02	1.26E-01
Molybdenum(mg/L)	0.10	0.10	1.43E-01	1.69E-01	3.12E-01
Nickel(mg/L)	0.23	0.23	3.31E-01	3.91E-01	7.22E-01
Nitrite(mg/L)	0.11	0.11	1.64E-01	1.94E-01	3.58E-01
Nitrate(mg/L)	1.64	1.64	2.39E+00	2.82E+00	5.21E+00
Potassium(mg/L)	126.58	126.58	1.85E+02	2.18E+02	4.03E+02
Selenium(mg/L)	0.05	0.05	7.09E-02	8.38E-02	1.55E-01
TKN(mg/L)	1733.33	1733.33	2.53E+03	2.99E+03	5.52E+03
TP(mg/L)	625.08	625.08	9.12E+02	1.08E+03	1.99E+03
Total Solids(%)	1.93%	1.93%	2.81E+04	3.32E+04	6.13E+04
VSolids (Dry) (%)	60.83%	60.83%	1.71E+04	2.02E+04	3.73E+04
Zinc(mg/L)	9.67	9.67	1.41E+01	1.67E+01	3.08E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12054					
Ammonia(mg/L)	917.22	917.22	1.39E+03	2.68E+03	4.06E+03
Arsenic(mg/L)	0.05	0.05	8.13E-02	1.57E-01	2.38E-01
Cadmium(mg/L)	0.01	0.01	1.08E-02	2.09E-02	3.17E-02
Chromium(mg/L)	0.38	0.38	5.80E-01	1.12E+00	1.70E+00
Cobalt(mg/L)	0.04	0.04	6.54E-02	1.26E-01	1.92E-01
Copper(mg/L)	15.06	15.06	2.27E+01	4.39E+01	6.67E+01
E.Coli(CFU/g dry)	14698.61	14698.61	2.22E+04	4.29E+04	6.51E+04
Lead(mg/L)	0.52	0.52	7.91E-01	1.53E+00	2.32E+00
Magnesium(mg/L)	75.00	75.00	1.13E+02	2.19E+02	3.32E+02
Manganese(mg/L)	2.90	2.90	4.37E+00	8.45E+00	1.28E+01
Mercury(mg/L)	0.04	0.04	5.97E-02	1.15E-01	1.75E-01
Molybdenum(mg/L)	0.10	0.10	1.47E-01	2.85E-01	4.32E-01
Nickel(mg/L)	0.22	0.22	3.25E-01	6.28E-01	9.53E-01
Nitrite(mg/L)	0.11	0.11	1.67E-01	3.23E-01	4.90E-01
Nitrate(mg/L)	1.63	1.63	2.47E+00	4.76E+00	7.23E+00
Potassium(mg/L)	125.58	125.58	1.90E+02	3.66E+02	5.56E+02
Selenium(mg/L)	0.05	0.05	7.29E-02	1.41E-01	2.14E-01
TKN(mg/L)	1746.67	1746.67	2.64E+03	5.10E+03	7.73E+03
TP(mg/L)	622.14	622.14	9.40E+02	1.82E+03	2.75E+03
Total Solids(%)	1.93%	1.93%	2.91E+04	5.62E+04	8.54E+04
VSolids (Dry) (%)	61.34%	61.34%	1.79E+04	3.45E+04	5.24E+04
Zinc(mg/L)	9.19	9.19	1.39E+01	2.68E+01	4.07E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12057					
Ammonia(mg/L)	916.67	916.67	4.90E+02	2.89E+02	7.79E+02
Arsenic(mg/L)	0.06	0.06	3.20E-02	1.88E-02	5.08E-02
Cadmium(mg/L)	0.01	0.01	4.42E-03	2.61E-03	7.03E-03
Chromium(mg/L)	0.42	0.42	2.26E-01	1.33E-01	3.60E-01
Cobalt(mg/L)	0.05	0.05	2.41E-02	1.42E-02	3.82E-02
Copper(mg/L)	16.36	16.36	8.74E+00	5.15E+00	1.39E+01
E.Coli(CFU/g dry)	13995.83	13995.83	7.48E+03	4.41E+03	1.19E+04
Lead(mg/L)	0.56	0.56	3.00E-01	1.77E-01	4.76E-01
Magnesium(mg/L)	77.63	77.63	4.15E+01	2.45E+01	6.59E+01
Manganese(mg/L)	3.02	3.02	1.61E+00	9.51E-01	2.56E+00
Mercury(mg/L)	0.04	0.04	2.11E-02	1.25E-02	3.36E-02
Molybdenum(mg/L)	0.11	0.11	5.63E-02	3.32E-02	8.95E-02
Nickel(mg/L)	0.22	0.22	1.19E-01	7.01E-02	1.89E-01
Nitrite(mg/L)	0.11	0.11	5.87E-02	3.46E-02	9.33E-02
Nitrate(mg/L)	1.63	1.63	8.73E-01	5.14E-01	1.39E+00
Potassium(mg/L)	126.58	126.58	6.77E+01	3.99E+01	1.08E+02
Selenium(mg/L)	0.05	0.05	2.71E-02	1.60E-02	4.31E-02
TKN(mg/L)	1836.67	1836.67	9.82E+02	5.79E+02	1.56E+03
TP(mg/L)	669.42	669.42	3.58E+02	2.11E+02	5.69E+02
Total Solids(%)	2.08%	2.08%	1.11E+04	6.56E+03	1.77E+04
VSolids (Dry) (%)	61.35%	61.35%	8.83E+03	4.03E+03	1.09E+04
Zinc(mg/L)	9.68	9.68	5.17E+00	3.05E+00	8.22E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12061					
Ammonia(mg/L)	916.67	916.67	1.10E+03	2.27E+03	3.37E+03
Arsenic(mg/L)	0.06	0.06	7.20E-02	1.48E-01	2.20E-01
Cadmium(mg/L)	0.01	0.01	9.96E-03	2.05E-02	3.04E-02
Chromium(mg/L)	0.42	0.42	5.09E-01	1.05E+00	1.56E+00
Cobalt(mg/L)	0.05	0.05	5.41E-02	1.11E-01	1.66E-01
Copper(mg/L)	16.36	16.36	1.97E+01	4.05E+01	6.02E+01
E.Coli(CFU/g dry)	13995.83	13995.83	1.68E+04	3.47E+04	5.15E+04
Lead(mg/L)	0.56	0.56	6.74E-01	1.39E+00	2.06E+00
Magnesium(mg/L)	77.63	77.63	9.34E+01	1.92E+02	2.86E+02
Manganese(mg/L)	3.02	3.02	3.63E+00	7.47E+00	1.11E+01
Mercury(mg/L)	0.04	0.04	4.76E-02	9.80E-02	1.46E-01
Molybdenum(mg/L)	0.11	0.11	1.27E-01	2.61E-01	3.88E-01
Nickel(mg/L)	0.22	0.22	2.68E-01	5.51E-01	8.19E-01
Nitrite(mg/L)	0.11	0.11	1.32E-01	2.72E-01	4.04E-01
Nitrate(mg/L)	1.63	1.63	1.96E+00	4.04E+00	6.01E+00
Potassium(mg/L)	126.58	126.58	1.52E+02	3.13E+02	4.66E+02
Selenium(mg/L)	0.05	0.05	6.11E-02	1.26E-01	1.87E-01
TKN(mg/L)	1836.67	1836.67	2.21E+03	4.55E+03	6.76E+03
TP(mg/L)	669.42	669.42	8.05E+02	1.66E+03	2.46E+03
Total Solids(%)	2.08%	2.08%	2.51E+04	5.16E+04	7.67E+04
VSolids (Dry) (%)	61.35%	61.35%	1.54E+04	3.17E+04	4.70E+04
Zinc(mg/L)	9.68	9.68	1.16E+01	2.40E+01	3.56E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11066					
Ammonia(mg/L)	924.79	924.79	2.29E+03	1.88E+03	4.17E+03
Arsenic(mg/L)	0.07	0.07	1.67E-01	1.38E-01	3.05E-01
Cadmium(mg/L)	0.01	0.01	1.80E-02	1.48E-02	3.28E-02
Chromium(mg/L)	0.43	0.43	1.08E+00	8.85E-01	1.96E+00
Cobalt(mg/L)	0.04	0.04	1.08E-01	8.91E-02	1.97E-01
Copper(mg/L)	17.25	17.25	4.27E+01	3.52E+01	7.78E+01
E.Coli(CFU/g dry)	12560.42	12560.42	3.11E+04	2.56E+04	5.67E+04
Lead(mg/L)	0.61	0.61	1.50E+00	1.24E+00	2.74E+00
Magnesium(mg/L)	78.50	78.50	1.94E+02	1.60E+02	3.54E+02
Manganese(mg/L)	3.03	3.03	7.51E+00	6.18E+00	1.37E+01
Mercury(mg/L)	0.04	0.04	1.11E-01	9.12E-02	2.02E-01
Molybdenum(mg/L)	0.11	0.11	2.77E-01	2.28E-01	5.05E-01
Nickel(mg/L)	0.21	0.21	5.18E-01	4.26E-01	9.44E-01
Nitrite(mg/L)	0.07	0.07	1.78E-01	1.46E-01	3.24E-01
Nitrate(mg/L)	0.83	0.83	2.04E+00	1.68E+00	3.72E+00
Potassium(mg/L)	127.29	127.29	3.15E+02	2.59E+02	5.74E+02
Selenium(mg/L)	0.05	0.05	1.22E-01	1.00E-01	2.22E-01
TKN(mg/L)	1898.33	1898.33	4.70E+03	3.87E+03	8.57E+03
TP(mg/L)	709.71	709.71	1.76E+03	1.45E+03	3.20E+03
Total Solids(%)	2.20%	2.20%	5.43E+04	4.47E+04	9.91E+04
VSolids (Dry) (%)	59.18%	59.18%	3.22E+04	2.65E+04	5.86E+04
Zinc(mg/L)	9.90	9.90	2.45E+01	2.02E+01	4.47E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S12079					
Ammonia(mg/L)	905.17	905.17	1.49E+03	2.81E+03	4.30E+03
Arsenic(mg/L)	0.07	0.07	1.12E-01	2.10E-01	3.22E-01
Cadmium(mg/L)	0.01	0.01	1.17E-02	2.20E-02	3.37E-02
Chromium(mg/L)	0.44	0.44	7.21E-01	1.36E+00	2.08E+00
Cobalt(mg/L)	0.04	0.04	7.00E-02	1.32E-01	2.02E-01
Copper(mg/L)	18.19	18.19	3.00E+01	5.65E+01	8.64E+01
E.Coli(CFU/g dry)	11925.00	11925.00	1.97E+04	3.70E+04	5.67E+04
Lead(mg/L)	0.64	0.64	1.05E+00	1.97E+00	3.02E+00
Magnesium(mg/L)	79.94	79.94	1.32E+02	2.48E+02	3.80E+02
Manganese(mg/L)	3.08	3.08	5.08E+00	9.57E+00	1.46E+01
Mercury(mg/L)	0.05	0.05	8.24E-02	1.55E-01	2.38E-01
Molybdenum(mg/L)	0.12	0.12	1.92E-01	3.62E-01	5.54E-01
Nickel(mg/L)	0.20	0.20	3.32E-01	6.26E-01	9.58E-01
Nitrite(mg/L)	0.04	0.04	6.23E-02	1.17E-01	1.80E-01
Nitrate(mg/L)	0.02	0.02	3.30E-02	6.21E-02	9.50E-02
pH(SU)	7.31	7.31	1.20E+01	2.27E+01	3.47E+01
Potassium(mg/L)	126.42	126.42	2.08E+02	3.92E+02	6.01E+02
Selenium(mg/L)	0.05	0.05	8.29E-02	1.56E-01	2.39E-01
TKN(mg/L)	1946.67	1946.67	3.21E+03	6.04E+03	9.25E+03
TP(mg/L)	739.67	739.67	1.22E+03	2.30E+03	3.51E+03
Total Solids(%)	2.28%	2.28%	3.75E+04	7.06E+04	1.08E+05
VSolids (Dry) (%)	59.73%	59.73%	2.24E+04	1.85E+06	1.88E+06
Zinc(mg/L)	10.21	10.21	1.68E+01	3.17E+01	4.85E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S5041					
Ammonia(mg/L)	888.40	888.40	1.15E+03	7.91E+01	1.23E+03
Arsenic(mg/L)	0.07	0.07	8.91E-02	6.14E-03	9.53E-02
Cadmium(mg/L)	0.01	0.01	8.60E-03	5.93E-04	9.20E-03
Chromium(mg/L)	0.43	0.43	5.53E-01	3.82E-02	5.92E-01
Cobalt(mg/L)	0.04	0.04	5.40E-02	3.73E-03	5.78E-02
Copper(mg/L)	18.22	18.22	2.35E+01	1.62E+00	2.51E+01
E.Coli(CFU/g dry)	15766.67	15766.67	2.03E+04	1.40E+03	2.18E+04
Lead(mg/L)	0.63	0.63	8.08E-01	5.57E-02	8.63E-01
Magnesium(mg/L)	79.37	79.37	1.02E+02	7.06E+00	1.10E+02
Manganese(mg/L)	3.04	3.04	3.92E+00	2.71E-01	4.19E+00
Mercury(mg/L)	0.05	0.05	6.45E-02	4.45E-03	6.90E-02
Molybdenum(mg/L)	0.12	0.12	1.50E-01	1.03E-02	1.60E-01
Nickel(mg/L)	0.20	0.20	2.56E-01	1.77E-02	2.74E-01
Nitrite(mg/L)	0.04	0.04	4.71E-02	3.25E-03	5.04E-02
Nitrate(mg/L)	0.02	0.02	2.58E-02	1.78E-03	2.76E-02
pH(SU)	7.34	7.34	9.47E+00	6.53E-01	1.01E+01
Potassium(mg/L)	125.77	125.77	1.62E+02	1.12E+01	1.74E+02
Selenium(mg/L)	0.05	0.05	7.02E-02	4.84E-03	7.50E-02
TKN(mg/L)	1956.88	1956.88	2.53E+03	1.74E+02	2.70E+03
TP(mg/L)	733.71	733.71	9.47E+02	6.53E+01	1.01E+03
Total Solids(%)	2.30%	2.30%	2.97E+04	2.05E+03	3.17E+04
VSolids (Dry) (%)	59.80%	59.80%	1.77E+04	5.32E+04	7.10E+04
Zinc(mg/L)	10.20	10.20	1.32E+01	9.08E-01	1.41E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S3018					
Ammonia(mg/L)	868.50	868.50	5.80E+02	0.00E+00	5.80E+02
Arsenic(mg/L)	0.07	0.07	4.53E-02	0.00E+00	4.53E-02
Cadmium(mg/L)	0.01	0.01	3.76E-03	0.00E+00	3.76E-03
Chromium(mg/L)	0.39	0.39	2.61E-01	0.00E+00	2.61E-01
Cobalt(mg/L)	0.04	0.04	2.67E-02	0.00E+00	2.67E-02
Copper(mg/L)	17.54	17.54	1.17E+01	0.00E+00	1.17E+01
E.Coli(CFU/g dry)	20537.50	20537.50	1.37E+04	0.00E+00	1.37E+04
Lead(mg/L)	0.59	0.59	3.92E-01	0.00E+00	3.92E-01
Magnesium(mg/L)	77.29	77.29	5.16E+01	0.00E+00	5.16E+01
Manganese(mg/L)	2.87	2.87	1.92E+00	0.00E+00	1.92E+00
Mercury(mg/L)	0.05	0.05	3.34E-02	0.00E+00	3.34E-02
Molybdenum(mg/L)	0.11	0.11	7.52E-02	0.00E+00	7.52E-02
Nickel(mg/L)	0.19	0.19	1.25E-01	0.00E+00	1.25E-01
Nitrite(mg/L)	0.04	0.04	2.36E-02	0.00E+00	2.36E-02
Nitrate(mg/L)	0.02	0.02	1.34E-02	0.00E+00	1.34E-02
pH(SU)	7.36	7.36	4.92E+00	0.00E+00	4.92E+00
Potassium(mg/L)	124.88	124.88	8.34E+01	0.00E+00	8.34E+01
Selenium(mg/L)	0.06	0.06	3.98E-02	0.00E+00	3.98E-02
TKN(mg/L)	1933.75	1933.75	1.29E+03	0.00E+00	1.29E+03
TP(mg/L)	701.88	701.88	4.69E+02	0.00E+00	4.69E+02
Total Solids(%)	2.24%	2.24%	1.50E+04	0.00E+00	1.50E+04
VSolids (Dry) (%)	59.98%	59.98%	8.97E+03	0.00E+00	8.97E+03
Zinc(mg/L)	9.78	9.78	6.54E+00	0.00E+00	6.54E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S4016					
Ammonia(mg/L)	880.00	880.00	7.06E+02	0.00E+00	7.06E+02
Arsenic(mg/L)	0.08	0.08	6.05E-02	0.00E+00	6.05E-02
Cadmium(mg/L)	0.01	0.01	5.01E-03	0.00E+00	5.01E-03
Chromium(mg/L)	0.40	0.40	3.17E-01	0.00E+00	3.17E-01
Cobalt(mg/L)	0.04	0.04	3.11E-02	0.00E+00	3.11E-02
Copper(mg/L)	17.68	17.68	1.42E+01	0.00E+00	1.42E+01
E.Coli(CFU/g dry)	19762.50	19762.50	1.59E+04	0.00E+00	1.59E+04
Lead(mg/L)	0.56	0.56	4.45E-01	0.00E+00	4.45E-01
Magnesium(mg/L)	77.85	77.85	6.24E+01	0.00E+00	6.24E+01
Manganese(mg/L)	2.87	2.87	2.30E+00	0.00E+00	2.30E+00
Mercury(mg/L)	0.05	0.05	4.01E-02	0.00E+00	4.01E-02
Molybdenum(mg/L)	0.11	0.11	9.12E-02	0.00E+00	9.12E-02
Nickel(mg/L)	0.19	0.19	1.55E-01	0.00E+00	1.55E-01
Nitrite(mg/L)	0.04	0.04	2.90E-02	0.00E+00	2.90E-02
Nitrate(mg/L)	0.02	0.02	1.60E-02	0.00E+00	1.60E-02
pH(SU)	7.31	7.31	5.86E+00	0.00E+00	5.86E+00
Potassium(mg/L)	123.50	123.50	9.91E+01	0.00E+00	9.91E+01
Selenium(mg/L)	0.06	0.06	5.18E-02	0.00E+00	5.18E-02
TKN(mg/L)	1980.00	1980.00	1.59E+03	0.00E+00	1.59E+03
TP(mg/L)	704.38	704.38	5.65E+02	0.00E+00	5.65E+02
Total Solids(%)	2.26%	2.26%	1.81E+04	0.00E+00	1.81E+04
VSolids (Dry) (%)	64.46%	64.46%	1.17E+04	0.00E+00	1.17E+04
Zinc(mg/L)	9.65	9.65	7.74E+00	0.00E+00	7.74E+00

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11044					
Ammonia(mg/L)	930.39	930.39	1.28E+03	1.61E+03	2.90E+03
Arsenic(mg/L)	0.08	0.08	1.05E-01	1.32E-01	2.36E-01
Cadmium(mg/L)	0.01	0.01	1.17E-02	1.47E-02	2.64E-02
Chromium(mg/L)	0.45	0.45	6.16E-01	7.74E-01	1.39E+00
Cobalt(mg/L)	0.04	0.04	6.06E-02	7.62E-02	1.37E-01
Copper(mg/L)	19.17	19.17	2.65E+01	3.33E+01	5.97E+01
E.Coli(CFU/g dry)	13270.83	13270.83	1.83E+04	2.30E+04	4.14E+04
Lead(mg/L)	0.60	0.60	8.29E-01	1.04E+00	1.87E+00
Magnesium(mg/L)	85.77	85.77	1.18E+02	1.49E+02	2.67E+02
Manganese(mg/L)	3.25	3.25	4.48E+00	5.63E+00	1.01E+01
Mercury(mg/L)	0.05	0.05	6.90E-02	8.68E-02	1.56E-01
Molybdenum(mg/L)	0.13	0.13	1.78E-01	2.23E-01	4.01E-01
Nickel(mg/L)	0.22	0.22	2.98E-01	3.75E-01	6.73E-01
Nitrite(mg/L)	0.04	0.04	5.28E-02	6.63E-02	1.19E-01
Nitrate(mg/L)	0.02	0.02	2.76E-02	3.47E-02	6.23E-02
pH(SU)	7.21	7.21	9.95E+00	1.25E+01	2.25E+01
Potassium(mg/L)	123.86	123.86	1.71E+02	2.15E+02	3.86E+02
Selenium(mg/L)	0.07	0.07	9.38E-02	1.18E-01	2.12E-01
TKN(mg/L)	2016.39	2016.39	2.78E+03	3.50E+03	6.28E+03
TP(mg/L)	777.92	777.92	1.07E+03	1.35E+03	2.42E+03
Total Solids(%)	2.42%	2.42%	3.34E+04	4.19E+04	7.53E+04
VSolids (Dry)	63.05%	63.05%	2.10E+04	2.64E+04	4.75E+04
Zinc(mg/L)	10.37	10.37	1.43E+01	1.80E+01	3.23E+01

Site ID	Average Contaminant Concentration (mg/L)		Contaminants Applied (kg)		
	WwTF	BSF	WwTF	BSF	TOTAL
S11030					
Ammonia(mg/L)	941.50	941.50	8.81E+02	1.00E+03	1.88E+03
Arsenic(mg/L)	0.07	0.07	6.91E-02	7.85E-02	1.48E-01
Cadmium(mg/L)	0.01	0.01	8.18E-03	9.30E-03	1.75E-02
Chromium(mg/L)	0.43	0.43	4.05E-01	4.60E-01	8.66E-01
Cobalt(mg/L)	0.04	0.04	3.00E-03	3.40E-03	6.40E-03
Copper(mg/L)	18.70	18.70	1.75E+01	1.99E+01	3.74E+01
E.Coli(CFU/g dry)	13320.83	13320.83	1.25E+04	1.42E+04	2.66E+04
Lead(mg/L)	0.58	0.58	5.43E-01	6.17E-01	1.16E+00
Magnesium(mg/L)	84.00	84.00	7.86E+01	8.93E+01	1.68E+02
Manganese(mg/L)	3.12	3.12	2.92E+00	3.32E+00	6.24E+00
Mercury(mg/L)	0.05	0.05	4.68E-02	5.31E-02	9.99E-02
Molybdenum(mg/L)	0.13	0.13	1.24E-01	1.41E-01	2.65E-01
Nickel(mg/L)	0.21	0.21	1.95E-01	2.21E-01	4.16E-01
Nitrite(mg/L)	0.04	0.04	3.73E-02	4.23E-02	7.96E-02
Nitrate(mg/L)	0.02	0.02	1.87E-02	2.13E-02	4.00E-02
pH(SU)	7.20	7.20	6.73E+00	7.65E+00	1.44E+01
Potassium(mg/L)	123.75	123.75	1.16E+02	1.31E+02	2.47E+02
Selenium(mg/L)	0.07	0.07	6.21E-02	7.06E-02	1.33E-01
TKN(mg/L)	1994.17	1994.17	1.87E+03	2.12E+03	3.98E+03
TP(mg/L)	760.75	760.75	7.11E+02	8.08E+02	1.52E+03
Total Solids(%)	2.37%	2.37%	2.21E+04	2.51E+04	4.73E+04
VSolids (Dry)	63.36%	63.36%	1.40E+04	1.59E+04	3.00E+04
Zinc(mg/L)	10.01	10.01	9.36E+00	1.06E+01	2.00E+01

Total Land Releases (kg)		
Ammonia(mg/L)	NA - 16	106,740
Arsenic(mg/L)	7440-38-2	8.64
Cadmium(mg/L)	7440-43-9	1.16
Chromium(mg/L)	7440-47-3	54.54
Cobalt(mg/L)	7440-48-4	5.00
Copper(mg/L)	7440-50-8	2,158.27
E.Coli(CFU/g dry)	NA - 01	1,122,977.68
Lead(mg/L)	7439-92-1	91.50
Magnesium(mg/L)	7439-95-4	10,765.23
Manganese(mg/L)	7439-96-5	386.85
Mercury(mg/L)	7439-97-6	6.22
Molybdenum(mg/L)	7439-98-7	14.20
Nickel(mg/L)	7440-02-0	29.39
Nitrite(mg/L)	NA - 17	7.12
Nitrate(mg/L)	NA - 02	26.96
Potassium(mg/L)	NA - 11	15,952.22
Selenium(mg/L)	7782-49-2	7.73
TKN(mg/L)	7727-37-9	230,725.70
TP(mg/L)	NA - 19	88,931.08
Total Solids(%)	NA - 03	2,773,667.23
VSolids (Dry) (%)	NA - 04	13,218,580.28
Zinc(mg/L)	7440-66-6	1,221.88

* E.coli Is in CFU/g dry units

BioGas Combustion Emissions

Total Annual Bio Gas Burned 2,053,376 m³
72,514,973 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	2.95E+00
Acrolein	107-02-8	7.80E-05	lb/MMBTU	1.77E+00
Benzene	71-43-2	3.50E-03	lb/MMBTU	7.94E+01
Dichloromethane	75-09-2	1.37E-04	lb/MMBTU	3.10E+00
Formaldehyde	50-00-0	2.94E-04	lb/MMBTU	6.66E+00
Xylene	1330-20-7	3.68E-05	lb/MMBTU	8.35E-01
Styrene	100-42-5	7.64E-05	lb/MMBTU	1.73E+00
Sulfur oxides (SOx)	7446-09-5	4.50E+00	lb/MMscf	1.48E+02
Toluene	108-88-3	1.09E-04	lb/MMBTU	2.47E+00
1,1,1-Trichloroethane	71-55-6	1.25E-04	lb/MMBTU	2.83E+00
Volatile organic compounds (VOC)	NA - M16	3.00E+00	lb/MMscf	9.87E+01

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

Sample calculations

Acetaldehyde emissions = Total amount of gas burned (m³) X 35.31 ft/m³ X 690 BTU/ft³ X Emission Factor (lb/MMBTU) X 0.4536 kg/lb
= 2,053,376 m³ X 35.31467 ft/m³ X 690 BTU/ft³ X 1.30E-04 lb/MMBTU X 0.4536 kg/lb
= 2.95E+00 kg/yr

Sulfur oxides emissions = Total amount of gas burned (m³) X 35.31 ft/m³ X Emission Factor (lb/MMscf) X 0.4536 kg/lb
= 2,053,376 m³ X 35.31467 ft/m³ X 4.50E+00 lb/MMscf X 0.4536 kg/lb
= 1.48E+02 kg/yr

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	55.1	31	1,707	2.53E+01	2.52E-01	5.10E+00	4.32E+04	1.91E+03	8.71E+03
Feb	49.2	29	1,426	2.86E+01	3.29E-02	5.70E+00	4.08E+04	2.08E+02	8.13E+03
Mar	54.9	31	1,700	2.64E+01	1.47E-01	4.70E+00	4.48E+04	1.11E+03	7.99E+03
Apr	51.4	30	1,541	2.60E+01	2.82E-01	5.50E+00	4.00E+04	1.93E+03	8.48E+03
May	50.8	31	1,575	2.14E+01	6.33E-02	4.80E+00	3.37E+04	4.43E+02	7.56E+03
Jun	50.3	30	1,509	2.21E+01	4.00E-02	4.80E+00	3.34E+04	2.68E+02	7.24E+03
Jul	47.7	31	1,478	2.29E+01	4.71E-02	4.90E+00	3.38E+04	3.09E+02	7.24E+03
Aug	51.5	31	1,598	2.23E+01	1.68E-01	4.70E+00	3.56E+04	1.19E+03	7.51E+03
Sep	49.0	30	1,471	2.35E+01	4.22E-02	4.60E+00	3.46E+04	2.76E+02	6.77E+03
Oct	47.3	31	1,466	2.30E+01	4.00E-02	4.60E+00	3.37E+04	2.60E+02	6.74E+03
Nov	47.8	30	1,435	2.12E+01	4.59E-02	5.10E+00	3.04E+04	2.92E+02	7.32E+03
Dec	50.2	31	1,557	2.46E+01	4.35E-02	4.70E+00	3.83E+04	3.00E+02	7.32E+03
Total	605	366	18,464	---	---	---	kg/year	kg/year	kg/year
							4.42E+05	8.49E+03	9.10E+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

$$\begin{aligned}
 \text{January Ammonia} &= \text{Influent flow (10}^3 \text{ m}^3\text{/day)} \times 1000 \text{ L/m}^3 \times 31 \text{ Days} \times \text{Contaminant Concentration (mg/L)} \times 1 \text{ kg/10}^6 \text{ mg} \\
 &= 55.1 \times 10^3 \text{ m}^3\text{/day} \times 1000 \text{ L/m}^3 \times 31 \text{ Days} \times 2.53\text{E}+01 \text{ mg/L} \times 1 \text{ kg/10}^6 \text{ mg} \div 1,000,000 \text{ mg/kg} \\
 &= 4.32\text{E}+04 \text{ kg/month}
 \end{aligned}$$

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	55.1	5.70E-01	1.66E+01	9.00E-02	31	9.73E+02	1.26E+05	1.54E+02
February	49.2	4.90E-01	2.01E+01	3.00E-02	29	6.99E+02	1.27E+05	4.28E+01
March	54.9	6.10E-01	1.78E+01	3.00E-02	31	1.04E+03	1.34E+05	5.10E+01
April	51.4	2.00E-01	1.88E+01	2.00E-02	30	3.08E+02	1.29E+05	3.08E+01
May	50.8	2.30E-01	1.82E+01	5.00E-02	31	3.62E+02	1.27E+05	7.87E+01
June	50.3	1.10E-01	1.62E+01	3.00E-02	30	1.66E+02	1.08E+05	4.53E+01
July	47.7	1.20E-01	1.69E+01	3.00E-02	31	1.77E+02	1.11E+05	4.43E+01
August	51.5	4.14E-01	1.44E+01	2.00E-02	31	6.61E+02	1.02E+05	3.20E+01
September	49.0	7.00E-02	1.65E+01	2.00E-02	30	1.03E+02	1.07E+05	2.94E+01
October	47.3	2.10E-01	1.68E+01	2.00E-02	31	3.08E+02	1.09E+05	2.93E+01
November	47.8	4.00E-01	1.71E+01	2.00E-02	30	5.74E+02	1.09E+05	2.87E+01
December	50.2	1.00E-01	1.63E+01	2.00E-02	31	1.56E+02	1.13E+05	3.11E+01
ANNUAL TOTALS:					366	kg/year 5.52E+03	kg/year 1.40E+06	kg/year 5.97E+02

Month	Emission (kg/day)		
	Total Ammonia	Nitrate - Ion*	Total-P
January	31.4	4052.1	4.96
February	24.1	4391.5	1.48
March	33.5	4323.0	1.65
April	10.3	4298.0	1.03
May	11.7	4111.1	2.54
June	5.5	3616.5	1.51
July	5.7	3567.1	1.43
August	21.3	3299.8	1.03
September	3.4	3581.8	0.98
October	9.9	3530.9	0.95
November	19.1	3628.6	0.96
December	5.0	3641.2	1.00

* 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

January Nitrate = Contaminant Conc. (mg/L) x 4.4 mg NO₃/mg N in NO₃ x Daily Flow (1000 m³/d) x 1000 L/m³ / 1000000 mg/kg x d/month
= 16.6 mg/L x 4.44 mg NO₃/mg N in NO₃ x 55,078 m³/d x 1,000 L/m³ / 1,000,000 mg/kg x 31 d/month
= 1.26E+05 kg/month

Air Emissions from Treatment Processes

Total Annual Influent Flow: 18,463,541 m³

Process	Substance	CAS #	Emission Factor ¹	Emission Rate (kg/yr)
Plant-wide	Total VOCs ³	NA - M16	1.07	1.98E+04
	Ammonia (Total) ³	NA - 16	2.28	4.21E+04
	Nitrogen oxides ²	11104-93-1	0.010	8.49E+01
Headworks Screening	Benzene	71-43-2	0.780	1.44E+01
	Carbon tetrachloride	56-23-5	0.049	9.05E-01
	Chloroform	67-66-3	0.220	4.06E+00
	Dichloromethane	75-09-2	0.049	9.05E-01
	Ethylbenzene	100-41-4	0.086	1.59E+00
	Toluene	108-88-3	0.080	1.48E+00
	Trichloroethylene	79-01-6	0.046	8.49E-01
	Xylene	1330-20-7	0.086	1.59E+00
Aerated Grit Chamber	Benzene	71-43-2	0.43	7.94E+00
	Chloroform	67-66-3	0.073	1.35E+00
	Dichloromethane	75-09-2	0.15	2.77E+00
	p-Dioxane	54841-74-6	0.0018	3.32E-02
	Formaldehyde	50-00-0	0.000216	3.99E-03
	Styrene	100-42-5	0.00066	1.22E-02
	Toluene	108-88-3	0.32	5.91E+00
	Trichloroethylene	79-01-6	0.034	6.28E-01
Primary Settling Tank	Xylene	1330-20-7	0.1	1.85E+00
	Benzene	71-43-2	0.065	1.20E+00
	Carbon tetrachloride	56-23-5	1.1	2.03E+01
	Chloroform	67-66-3	1.8	3.32E+01
	Dichloromethane	75-09-2	1.5	2.77E+01
	Formaldehyde	50-00-0	0.026	4.80E-01
	Styrene	100-42-5	0.13	2.40E+00
	Toluene	108-88-3	0.19	3.51E+00
	Trichloroethylene	79-01-6	0.35	6.46E+00
	Vinylidene chloride	75-35-4	0.016	2.95E-01
Oxygen Activated Sludge	Xylene	1330-20-7	0.23	4.25E+00
	Benzene	71-43-2	0.000456	8.42E-03
	Carbon tetrachloride	56-23-5	0.000852	1.57E-02
	Chloroform	67-66-3	0.00998	1.84E-01
	Dichloromethane	75-09-2	0.00864	1.60E-01
	Formaldehyde	50-00-0	0.0000348	6.43E-04
	Styrene	100-42-5	0.000588	1.09E-02
	Toluene	108-88-3	0.00104	1.92E-02
	Trichloroethylene	79-01-6	0.00163	3.01E-02
	Vinylidene chloride	75-35-4	0.000372	6.87E-03
Secondary Clarifier	Xylene	1330-20-7	0.0014	2.58E-02
	Benzene	71-43-2	0.017	3.14E-01
	Carbon tetrachloride	56-23-5	0.0009	1.66E-02
	Chloroform	67-66-3	0.00948	1.75E-01
	Dichloromethane	75-09-2	0.011	2.03E-01
	p-Dioxane	54841-74-6	0.00288	5.32E-02
	Formaldehyde	50-00-0	0.00018	3.32E-03
	Styrene	100-42-5	0.00292	5.39E-02
	Toluene	108-88-3	0.002211	4.08E-02

Air Emissions from Treatment Processes

Process	Substance	CAS #	Emission Factor ¹	Emission Rate
Tertiary Filters	Benzene	71-43-2	0.00048	8.86E-03
	Chloroform	67-66-3	0.013	2.40E-01
	Dichloromethane	75-09-2	0.00331	6.11E-02
	Toluene	108-88-3	0.00125	2.31E-02
	Trichloroethylene	79-01-6	0.00101	1.86E-02
	Xylene	1330-20-7	0.000696	1.29E-02
Anaerobic Digesters	Benzene	71-43-2	0.00048	8.86E-03
	Chloroform	67-66-3	0.013	2.40E-01
	Dichloromethane	75-09-2	0.00331	6.11E-02
	Toluene	108-88-3	0.00125	2.31E-02
	Trichloroethylene	79-01-6	0.00101	1.86E-02
	Xylene	1330-20-7	0.000696	1.29E-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 "National Pollutant Release Inventory Guidance Manual for the Wastewater Sector", 1999

Sample Calculations

$$\begin{aligned}
 \text{Plant-wide VOC Emissions} &= \text{Annual Influent Flow (m}^3\text{)} \times \text{Emission Factor (kg/1000 m}^3\text{ influent)} \\
 &= 18,463,541 \text{ m}^3 \times 1.07 \text{ kg/1000 m}^3\text{ influent} \\
 &= 18,463,541 \text{ m}^3 \times 1.07 \text{ kg/1,000 m}^3\text{ influent} \\
 &= 1.98\text{E}+04 \text{ kg/yr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Plant-wide nitrogen oxides emissions} &= \text{Nitrogen in sewage} \times \text{Emission Factor} \\
 &= 8.49\text{E}+03 \text{ kg} \times 0.010 \text{ kg N}_2\text{O-N/kg sewage-N} \\
 &= 5.24\text{E}+03 \text{ kg} \times 0.010 \text{ kg N}_2\text{O-N/kg sewage-N} \\
 &= 8.49\text{E}+01 \text{ kg/yr}
 \end{aligned}$$

$$\begin{aligned}
 \text{Benzene emission from headworks screening} &= \text{Annual influent flow (m}^3\text{)} \times \text{Emission Factor (kg/10}^6\text{ m}^3\text{ influent)} \\
 &= 18463540.7 \text{ m}^3 \times 0.78 \text{ kg/1000000 m}^3\text{ influent} \\
 &= 18,463,541 \text{ m}^3 \times 0.78 \text{ kg/1,000,000 m}^3\text{ influent} \\
 &= 1.44\text{E}+01 \text{ kg/yr}
 \end{aligned}$$

Process Emissions Summary

Contaminant	CAS #	Emission Rate
Ethylbenzene	100-41-4	1.59E+00
Styrene	100-42-5	2.48E+00
Toluene	108-88-3	1.10E+01
Xylene	1330-20-7	7.73E+00
Formaldehyde	50-00-0	4.88E-01
p-Dioxane	54841-74-6	8.64E-02
Carbon tetrachloride	56-23-5	2.12E+01
Chloroform	67-66-3	3.95E+01
Benzene	71-43-2	2.39E+01
Dichloromethane	75-09-2	3.19E+01
Vinylidene chloride	75-35-4	3.02E-01
Trichloroethylene	79-01-6	8.01E+00
Ammonia	NA - 16	4.21E+04
Total VOCs	NA - M16	1.98E+04
Nitrogen oxides	11104-93-1	8.49E+01

Natural Gas Emissions

Consumption : 109,796 m³
3,877,446 ft³

Substance	CAS #	Emission Factor (lb/1000000 ft ³)	Emission Rate (kg/yr)	VOC?
Sulphur Dioxide	7446-09-5	0.6	1.06E+00	
Nitrogen Oxides	11104-93-1	100	1.76E+02	
Carbon Monoxide	630-08-0	84	1.48E+02	
Nitrous Oxide	10024-97-2	2.2	3.87E+00	
Total Particulate Matter	NA - M08	-	3.34E+00	
Particulate Matter <=10 micrometers	NA - M09	-	3.34E+00	
Particulate Matter <=2.5 micrometers	NA - M10	1.9	3.34E+00	
Carbon Dioxide	124-38-9	120,000	2.11E+05	
TOC	NA	11	1.93E+01	
Lead	7439-92-1	0.0005	8.79E-04	
Methane	74-82-8	2.3	4.05E+00	
VOC	NA - M16	5.5	9.67E+00	Y
Speciated Organic Compounds				
2-Methylnaphthalene	91-57-6	0.000024	4.22E-05	Y
3-Methylchloranthrene	56-49-5	< 0.000018	3.17E-06	Y
7,12-Dimethylbenz(a)anthracene	57-97-6	< 0.000016	2.81E-05	Y
Acenaphthene	83-32-9	< 0.000018	3.17E-06	Y
Acenaphthylene	208-96-8	< 0.000018	3.17E-06	Y
Anthracene	120-12-7	< 0.000024	4.22E-06	Y
Benz(a)anthracene	56-55-3	< 0.000018	3.17E-06	Y
Benzene	71-43-2	0.0021	3.69E-03	Y
Benzo(a)pyrene	50-32-8	< 0.000012	2.11E-06	Y
Benzo(b)fluoranthene	205-99-2	< 0.000018	3.17E-06	Y
Benzo(g,h,i)perylene	191-24-2	< 0.000012	2.11E-06	Y
Benzo(k)fluoranthene	207-08-9	< 0.000018	3.17E-06	Y
Butane	106-97-8	2.1	3.69E+00	Y
Benzo(a)phenanthrene	218-01-9	< 0.000018	3.17E-06	Y
Dibenzo(a,h)anthracene	53-70-3	< 0.000012	2.11E-06	Y
Dichlorobenzene	25321-22-6	0.0012	2.11E-03	Y
Ethane	74-84-0	3.1	5.45E+00	
Fluoranthene	206-44-0	0.000003	5.28E-06	Y
Fluorene	86-73-7	0.000028	4.92E-06	Y
Formaldehyde	50-00-0	0.075	1.32E-01	Y
Hexane	110-54-3	1.8	3.17E+00	Y
Indeno(1,2,3-cd)pyrene	193-39-5	< 0.000018	3.17E-06	Y
Naphthalene	91-20-3	0.00061	1.07E-03	Y
Pentane	109-66-0	2.6	4.57E+00	Y
Phenanthrene	85-01-8	0.000017	2.99E-05	Y
Propane	74-98-6	1.6	2.81E+00	Y
Pyrene	129-00-0	0.00005	8.79E-05	Y
Toluene	108-88-3	0.0034	5.98E-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	3.52E-04	
Barium	7440-39-3	0.0044	7.74E-03	
Beryllium	7440-41-7	< 0.000012	2.11E-05	
Cadmium	7440-43-9	0.0011	1.93E-03	
Chromium	7440-47-3	0.0014	2.46E-03	
Cobalt	7440-48-4	0.000084	1.48E-04	
Copper	7440-50-8	0.00085	1.49E-03	
Manganese	7439-96-5	0.00038	6.68E-04	
Mercury	7439-97-6	0.00026	4.57E-04	
Molybdenum	7439-98-7	0.0011	1.93E-03	
Nickel	7440-02-0	0.0021	3.69E-03	
Selenium	7782-49-2	0.000024	4.22E-05	
Vanadium	7440-62-2	0.0023	4.05E-03	
Zinc	7440-66-6	0.029	5.10E-02	

Sample Calculation

$$\begin{aligned}
 \text{NOx Emission Rate} &= \text{Consumption} \times \text{Emission Factor} \\
 &= 3,877,446 \text{ ft}^3/\text{yr} \times 100 \text{ lb}/10^6 \text{ ft}^3 \times 0.4536 \text{ kg}/\text{lb} \\
 &= 175.9 \text{ kg}/\text{yr}
 \end{aligned}$$

Reference

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

2020 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	3.87E+00	-	3.87E+00	0.00E+00	0.00E+00	GHG
Ethylbenzene	100-41-4	1.59E+00	-	1.59E+00	0.00E+00	0.00E+00	1A
Styrene	100-42-5	4.21E+00	-	4.21E+00	0.00E+00	0.00E+00	1A, 5
Butane	106-97-8	3.69E+00	-	3.69E+00	0.00E+00	0.00E+00	5
Acrolein	107-02-8	1.77E+00	-	1.77E+00	0.00E+00	0.00E+00	1A
Toluene	108-88-3	1.35E+01	-	1.35E+01	0.00E+00	0.00E+00	1A, 5
Pentane	109-66-0	4.57E+00	-	4.57E+00	0.00E+00	0.00E+00	5
Hexane	110-54-3	3.17E+00	-	3.17E+00	0.00E+00	0.00E+00	1A, 5
Nitrogen Oxides	11104-93-1	2.61E+02	-	2.61E+02	0.00E+00	0.00E+00	4
Anthracene	120-12-7	4.22E-06	-	4.22E-06	0.00E+00	0.00E+00	2
Carbon Dioxide	124-38-9	2.11E+05	-	2.11E+05	0.00E+00	0.00E+00	GHG
Pyrene	129-00-0	8.79E-05	-	8.79E-05	0.00E+00	0.00E+00	2
Xylene	1330-20-7	8.57E+00	-	8.57E+00	0.00E+00	0.00E+00	1A, 5
Benzo(g,h,i)perylene	191-24-2	2.11E-06	-	2.11E-06	0.00E+00	0.00E+00	2
Indeno(1,2,3-cd)pyrene	193-39-5	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Benzo(b)fluoranthene	205-99-2	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Fluoranthene	206-44-0	5.28E-06	-	5.28E-06	0.00E+00	0.00E+00	2
Benzo(k)fluoranthene	207-08-9	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Acenaphthylene	208-96-8	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Benzo(a)phenanthrene	218-01-9	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Dichlorobenzene	25321-22-6	2.11E-03	-	2.11E-03	0.00E+00	0.00E+00	-
Formaldehyde	50-00-0	7.28E+00	-	7.28E+00	0.00E+00	0.00E+00	1A, 5
Benzo(a)pyrene	50-32-8	2.11E-06	-	2.11E-06	0.00E+00	0.00E+00	2
Dibenzo(a,h)anthracene	53-70-3	2.11E-06	-	2.11E-06	0.00E+00	0.00E+00	2
p-Dioxane	54841-74-6	8.64E-02	-	8.64E-02	0.00E+00	0.00E+00	-
Carbon tetrachloride	56-23-5	2.12E+01	-	2.12E+01	0.00E+00	0.00E+00	1A
3-Methylchloranthrene	56-49-5	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Benz(a)anthracene	56-55-3	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
7,12-Dimethylbenz(a)anthracene	57-97-6	2.81E-05	-	2.81E-05	0.00E+00	0.00E+00	2
Carbon Monoxide	630-08-0	1.48E+02	-	1.48E+02	0.00E+00	0.00E+00	4
Chloroform	67-66-3	3.95E+01	-	3.95E+01	0.00E+00	0.00E+00	1A
Benzene	71-43-2	1.03E+02	-	1.03E+02	0.00E+00	0.00E+00	1A, 5
1,1,1-Trichloroethane	71-55-6	2.83E+00	-	2.83E+00	0.00E+00	0.00E+00	-
Lead	7439-92-1	9.15E+01	9.15E+01	8.79E-04	9.15E+01	0.00E+00	1B
Magnesium	7439-95-4	1.08E+04	1.08E+04	0.00E+00	1.08E+04	0.00E+00	-
Manganese	7439-96-5	3.87E+02	3.87E+02	6.68E-04	3.87E+02	0.00E+00	1A
Mercury	7439-97-6	6.22E+00	6.22E+00	4.57E-04	6.22E+00	0.00E+00	1B
Molybdenum	7439-98-7	1.42E+01	1.42E+01	1.93E-03	1.42E+01	0.00E+00	-
Nickel	7440-02-0	2.94E+01	2.94E+01	3.69E-03	2.94E+01	0.00E+00	1A
Arsenic	7440-38-2	8.64E+00	8.64E+00	3.52E-04	8.64E+00	0.00E+00	1B
Barium	7440-39-3	7.74E-03	-	7.74E-03	0.00E+00	0.00E+00	-
Beryllium	7440-41-7	2.11E-05	-	2.11E-05	0.00E+00	0.00E+00	-
Cadmium	7440-43-9	1.16E+00	1.16E+00	1.93E-03	1.16E+00	0.00E+00	1B
Chromium	7440-47-3	5.45E+01	5.45E+01	2.46E-03	5.45E+01	0.00E+00	1A
Cobalt	7440-48-4	5.00E+00	5.00E+00	1.48E-04	5.00E+00	0.00E+00	1B
Copper	7440-50-8	2.16E+03	2.16E+03	1.49E-03	2.16E+03	0.00E+00	1A
Vanadium	7440-62-2	4.05E-03	-	4.05E-03	0.00E+00	0.00E+00	1A
Zinc	7440-66-6	5.10E-02	-	5.10E-02	0.00E+00	0.00E+00	1A
Sulfur oxides (SOx)	7446-09-5	1.49E+02	-	1.49E+02	0.00E+00	0.00E+00	4
Methane	74-82-8	4.05E+00	-	4.05E+00	0.00E+00	0.00E+00	GHG
Ethane	74-84-0	5.45E+00	-	5.45E+00	0.00E+00	0.00E+00	-
Propane	74-98-6	2.81E+00	-	2.81E+00	0.00E+00	0.00E+00	5
Acetaldehyde	75-07-0	2.95E+00	-	2.95E+00	0.00E+00	0.00E+00	1A
Dichloromethane	75-09-2	3.50E+01	-	3.50E+01	0.00E+00	0.00E+00	1A
Vinylidene chloride	75-35-4	3.02E-01	-	3.02E-01	0.00E+00	0.00E+00	-
TKN	7727-37-9	2.31E+05	2.31E+05	0.00E+00	2.31E+05	0.00E+00	-
Selenium	7782-49-2	7.73E+00	7.73E+00	4.22E-05	7.73E+00	0.00E+00	1B

2020 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	8.01E+00	-	8.01E+00	0.00E+00	0.00E+00	1A
Acenaphthene	83-32-9	3.17E-06	-	3.17E-06	0.00E+00	0.00E+00	2
Phenanthrene	85-01-8	2.99E-05	-	2.99E-05	0.00E+00	0.00E+00	2
Fluorene	86-73-7	4.92E-06	-	4.92E-06	0.00E+00	0.00E+00	2
Naphthalene	91-20-3	1.07E-03	-	1.07E-03	0.00E+00	0.00E+00	1A
2-Methylnaphthalene	91-57-6	4.22E-05	-	4.22E-05	0.00E+00	0.00E+00	-
TOC	NA	1.93E+01	-	1.93E+01	0.00E+00	0.00E+00	-
E.Coli (cts/g)	NA - 01	1.12E+06	1.12E+06	0.00E+00	1.12E+06	0.00E+00	-
Nitrate	NA - 02	2.70E+01	2.70E+01	0.00E+00	2.70E+01	1.40E+06	1A
TS (%)	NA - 03	2.77E+06	2.77E+06	0.00E+00	2.77E+06	0.00E+00	-
TVS (%)	NA - 04	1.32E+07	1.32E+07	0.00E+00	1.32E+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	1.60E+04	1.60E+04	0.00E+00	1.60E+04	0.00E+00	-
Molybdenum	NA - 13	8.42E+02	8.42E+02	0.00E+00	8.42E+02	0.00E+00	-
Ammonia	NA - 16	1.49E+05	1.07E+05	4.21E+04	1.07E+05	5.52E+03	1A
Nitrite	NA - 17	7.12E+00	7.12E+00	0.00E+00	7.12E+00	0.00E+00	-
Phosphorus	NA - 19	8.89E+04	8.89E+04	0.00E+00	8.89E+04	5.97E+02	1A
Total Particulate Matter	NA - M08	3.34E+00	-	3.34E+00	0.00E+00	0.00E+00	4
Particulate Matter <=10 micrometers	NA - M09	3.34E+00	-	3.34E+00	0.00E+00	0.00E+00	4
Particulate Matter <=2.5 micrometers	NA - M10	3.34E+00	-	3.34E+00	0.00E+00	0.00E+00	4
Total VOCs	NA - M16	1.99E+04	-	2.01E+04	0.00E+00	0.00E+00	4

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