Ponce Regional Wastewater Treatment Plant
Technically Based Local Limits

January 2023

Puerto Rico Aqueduct and Sewer Authority

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
µg/L	microgram(s) per liter
AHL	allowable headworks loading
BOD_5	5-day biochemical oxygen demand
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
LAS	linear alkylbenzene sulfonate
lb/day	pound(s) per day
LEL	lower explosive limit
MAHL	maximum allowable headworks loading
MAIL	maximum allowable industrial loading
MBAS	methylene blue active substances
mg/L	milligram(s) per liter
mgd	million gallon(s) per day
ML	minimum level
NA	not available
NO_2	nitrate
NO_3	nitrite
NPDES	National Pollutant Discharge Elimination System
O&G	oil and grease
POC	pollutant of concern
POTW	publicly owned treatment works
PRASA	Puerto Rico Aqueduct and Sewer Authority
PRWQSR	Puerto Rico Water Quality Standards Regulation
QA/QC	quality assurance/quality control
RWWTP	regional wastewater treatment plant
SIU	significant industrial user
SU	standard units
TBLL	technically based local limit
TCLP	Toxicity Characteristic Leaching Procedure
TKN	total Kjeldahl nitrogen
TN	total nitrogen
TSS	total suspended solids
WWTP	wastewater treatment plant

Executive Summary

The Ponce Regional Wastewater Treatment Plant (RWWTP) is a publicly owned treatment works whose operations are authorized under a Water Quality Certificate issued by the Puerto Rico Environmental Quality Board[1] that is incorporated in a National Pollutant Discharge Elimination System (NPDES) permit (PR0021563) issued by the U.S. Environmental Protection Agency, Region 2 (EPA). The NPDES permit includes a relaxation of technology-based secondary treatment requirements for 5-day biochemical oxygen demand (BOD_5) and total suspended solids (TSS), which is allowed by Section 301(h) of the Clean Water Act (CWA). This is commonly referred to as a 301(h) waiver.

Section 303 of the CWA sets forth additional requirements for 301(h) waivers, which include implementing an urban area pretreatment program. Section 125.65 in Title 40 of the Code of Federal Regulations Part 125 (40 CFR 125), published in the *Federal Register* on August 9, 1994, sets forth the urban area pretreatment program requirements of Section 303(c) of the CWA; Section 125.65 specifies compliance with 40 CFR 403–471. Requirements to develop technically based local limits (TBLLs) are specified in 40 CFR 403.5(c).

This TBLL evaluation has been prepared to meet NPDES requirements for the Ponce RWWTP. The limits have been developed in accordance with EPA's Technical Support Document, *Local Limits Development Guidance* (EPA 2004), and in accordance with NPDES Permit No. PR0021563 Part IV (B)(5)(a)(2), Pretreatment Evaluation. In response to these standards, conditions, and requirements, the local limits in Table ES-1 have been developed for the Ponce RWWTP.

Table ES-1. Local Limits Summary

Parameter	Local Limit	Section
Arsenic	3.43 mg/L	Refer to Note a
Cadmium	0.97 mg/L	Refer to Note a
Chromium	1.0 mg/L	Refer to Note b
Copper	3.07 mg/L	Refer to Note a
Cyanide (Free)	0.1 mg/L	Refer to Note a
Lead	6.27 mg/L	Refer to Note a
Mercury	0.05 mg/L	Refer to Note a
Molybdenum	3.33 mg/L	Refer to Note a
Nickel	0.38 mg/L	Refer to Note a
Selenium	10.62 mg/L	Refer to Note a
Silver	27.6 mg/L	Refer to Note a
Zinc	4.06 mg/L	Refer to Note a
Surfactants (MBAS)	200 mg/L	Refer to Note a

[1] On August 2, 2018, Law #171 was promulgated and approved by the governor of Puerto Rico to reorganize several agencies. As a result, the Puerto Rico Environmental Quality Board was eliminated, and its responsibilities now fall under the Puerto Rico Department of Natural and Environmental Resources.

Table ES-1. Local Limits Summary

Parameter	Local Limit	Section
Flow	No Limit	6.1
BOD_5	250 mg/L surcharge level	6.2
TSS	250 mg/L surcharge level	6.2
Total Nitrogen (NH_3, NO_3, and TKN)	Monitor Only	6.3
pH	6.5–9.0 SU	6.4
Phenols[b] (phenolic substances)	1.0 mg/L	6.5
Oil & Grease (O&G)	50 mg/L total O&G	6.6
Temperature	60°C (140°F) from SIU	6.7
Flammability	Closed-cup flashpoint < 140°F (60°C) No two consecutive readings at ≥5% LEL, and no reading of ≥10% LEL allowed	6.8
Toxicity	Industry permit-specific technically based limits	6.9

[a] Listed on Table 5-5 and on line 68 of "TBLL Calc-Ponce.xlsm" attached as Appendix D.

[b] Limits were not technically derived but have been adopted from the General Limit in PRASA Rules and Regulations for the Supply of Water and Sewer Services, Section 2.05.

Notes:

°C = degrees Celsius

°F = degrees Fahrenheit

LEL = lower explosive unit

MBAS = methylene blue active substances

mg/L = milligrams per liter

NH_3 = ammonia

NO_3 = nitrate

SIU = significant industrial user

SU = standard unit(s)

TKN = total Kjeldahl nitrogen

1. Introduction

The Ponce Regional Wastewater Treatment Plant (RWWTP) is located at PR Road 2, Km 256.2 in the municipality of Ponce, Puerto Rico. The plant operates under National Pollutant Discharge Elimination System (NPDES) permit number PR0021563. The Industrial Pretreatment Program regulates five industries that discharge treated waste to the Ponce RWWTP collection system as significant industrial users (SIUs).

Industrial permits issued to SIUs include local limits that were adopted in 1998 and that differ from the Puerto Rico General Limits[2] set by the Puerto Rico Aqueduct and Sewer Authority (PRASA). The data used to develop the 1998 technically based local limits (TBLLs) do not reflect modifications and improvements made to the Ponce RWWTP, changes to regulatory requirements, or changes to the population served and the industrial base that have occurred since 1998. In keeping with U.S. Environmental Protection Agency (EPA) policy and local limits methodology, when conditions change, local limits must be re-evaluated using current data and conditions.

This document uses recent test data to develop revised TBLLs that are specific to current conditions in the Ponce RWWTP collection system. These TBLLs have been revised in response to NPDES permit PR0021563 Part IV (B)(5)(b).

The following appendixes are provided:

- Appendix A Historical Sampling Data
- Appendix B Guidance on the Selection of Pollutants of Concern
- Appendix C Priority Pollutant Screening May 2019
- Appendix D TBLL Calc-Ponce Spreadsheets
- Appendix E Puerto Rico Water Quality Standards for Class SB Waters
- Appendix F Average TCLP for Sludge
- Appendix G Long Hand Calculation of Nickel Local Limits
- Appendix H Monthly BOD_5 and TSS Data
- Appendix I Phenolic Compounds Regulated by Puerto Rico Water Quality Standards
- Appendix J Definitions

[2] PR General Limits are set island-wide for metals at all wastewater treatment plants in Puerto Rico, as contained and specified in the *Rules and Regulations for the Supply of Water and Sewer Service*, adopted in compliance with and pursuant to Section 4, subparagraphs (j), (k), and (n) and Section 19 of the Aqueduct and Sewer Act, Law 40 of May 1, 1945, as amended by Law 163 of May 3, 1949, (Title 22 of the *Laws of Puerto Rico Annotated* Parts 144 (j) and (k) and 159 [22 LPRA 144 (j) and (k) and 159)].

2. Local Limits Development Methodology

The following guidance was used to develop the TBLLs presented in this document:

- *Local Limits Development Guidance* (EPA 2004)
- *Guidance Manual on the Development and Implementation of Local Discharge Limitations under the Pretreatment Program*, EPA 833-B-87-202 (EPA 1987)

This document provides the rationale and legal support for local limits developed in relation to technically based environmental criteria using EPA-approved methodology. The methodology is intended to facilitate full compliance at the treatment facility for all identified criteria. The following steps were taken to develop the Ponce RWWTP TBLLs:

1) Characterize the Ponce RWWTP treatment system in terms of regulatory requirements, plant capacity, treatment trains, unit processes, industrial users, and receiving stream characteristics.
2) Using the site characterization from Step 1, select regulatory/operational criteria that apply to the specific treatment systems.
3) Select parameters that should be considered for local limit development, referred to as pollutants of concern (POCs).[3] Selection is based on review of historic data and also includes a minimum list of EPA-required pollutants. Pollutants selected may be individual elements or compounds, such as metals or halogenated organic compounds that are discussed in Sections 4 through 6. Additionally, local limits may be aimed at controlling groups of substances that collectively exhibit negative characteristics, such as flammability or toxicity. This second category is discussed in Section 6, Other Limits and Concerns.
4) Upon selection of the POCs, collect historic test data or generate new data from sampling and analysis to develop the rationale for the maximum ability of the plant to treat these pollutants and still remain compliant with all applicable criteria.
5) Compile test data and model the fate of the pollutants within the system using partitioning coefficients within the plant and physical properties, such as Henry's constants, in the collection system.
6) Conduct standard EPA-accepted calculations for individual elements and compounds discussed in Sections 4 through 6 to determine the maximum pollutant loading that can be allowed at the headworks (allowable headworks loading [AHL]) and still maintain compliance with all applicable criteria.
7) After applying all calculations for all criteria, use the smallest mass that facilitates meeting environmental and regulatory criteria. This is referred to as the maximum allowable headworks loading (MAHL).
8) Subtract the domestic loading and a safety and growth factor from the MAHL; the remaining allowable pollutant loading is the maximum allowable industrial loading (MAIL) available to industry.
9) Once the MAIL has been calculated, allocate the mass to the industries based on one of the prescribed methods found in the EPA *Local Limits Development Guidance* (EPA 2004). These allocations then form the basis of the local limits for these pollutants.
10) Develop criteria based on limitations that restrict the magnitude of the negative characteristics exhibited by each type of group for collective groups of pollutants in Section 6.

[3] The EPA *Local Limits Development Guidance Manual* (2004) defines and uses the technical term "Pollutants of Concern (POC)" throughout the document. Consequently, to avoid confusion during the regulatory review process of the TBLL, the terms "Pollutants," "Pollutants of Concern," and POC are used throughout this document when referring to parameters considered for local limits development.

3. System Characterization, Industrial Users, Receiving Stream, and Applicable Criteria

3.1 Treatment System

The Ponce RWWTP serves the municipalities of Ponce, Juana Diaz, and portions of Villalba. The RWWTP is permitted to treat a daily maximum flow of 27 million gallons per day (mgd). Currently, the average monthly flow to the RWWTP is approximately 16.5 mgd (range of 14.9 to 18.4 mgd) based on review of data from January 1, 2015, to December 31, 2019 (refer to Appendix A). Table 3-1 lists the plant's design treatment capabilities for flow, 5-day biochemical oxygen demand (BOD_5), and total suspended solids (TSS).

Table 3-1. Ponce RWWTP Design Influent Loading Capacities

Item	Month Average	Daily Maximum
Flow	18 mgd	27 mgd
BOD_5	185 mg/L, 24,686 lb/d	
TSS	178 mg/L, 23,752 lb/d	

Notes:

lb/d = pound(s) per day

mg/L = milligram(s) per liter

The treatment processes consist of influent screening, grit removal, chemically enhanced primary clarification, and disinfection via chlorine injection. The treated effluent from the Ponce RWWTP is then discharged more than 3.5 miles offshore into the Caribbean Sea through an outfall/high-rate diffuser system, as described in Section 3.3.

Sludge handling consists of transferring sludge from the clarifiers to sludge holding tanks and then to drying beds. Once the sludge is dry, it is taken to an approved landfill for disposal. Figure 3-1 shows the treatment train along with a schematic of the plant (including an aerial view of the facility).

After review of the treatment processes, a single partitioning coefficient (overall plant removal) was found to be present in the system.

3.2 Industrial Users

PRASA has issued permits to five SIUs that contribute flow to the Ponce RWWTP. Table 3-2 lists these SIUs and their permitted flow limits. Total permitted combined SIU flow is 401,500 gallons per day (gpd) (0.401 mgd), which is almost 1.5 percent of the plant's NPDES permitted maximum daily flow. Additional test data on these industrial users are available from the PRASA Industrial Pretreatment Program.

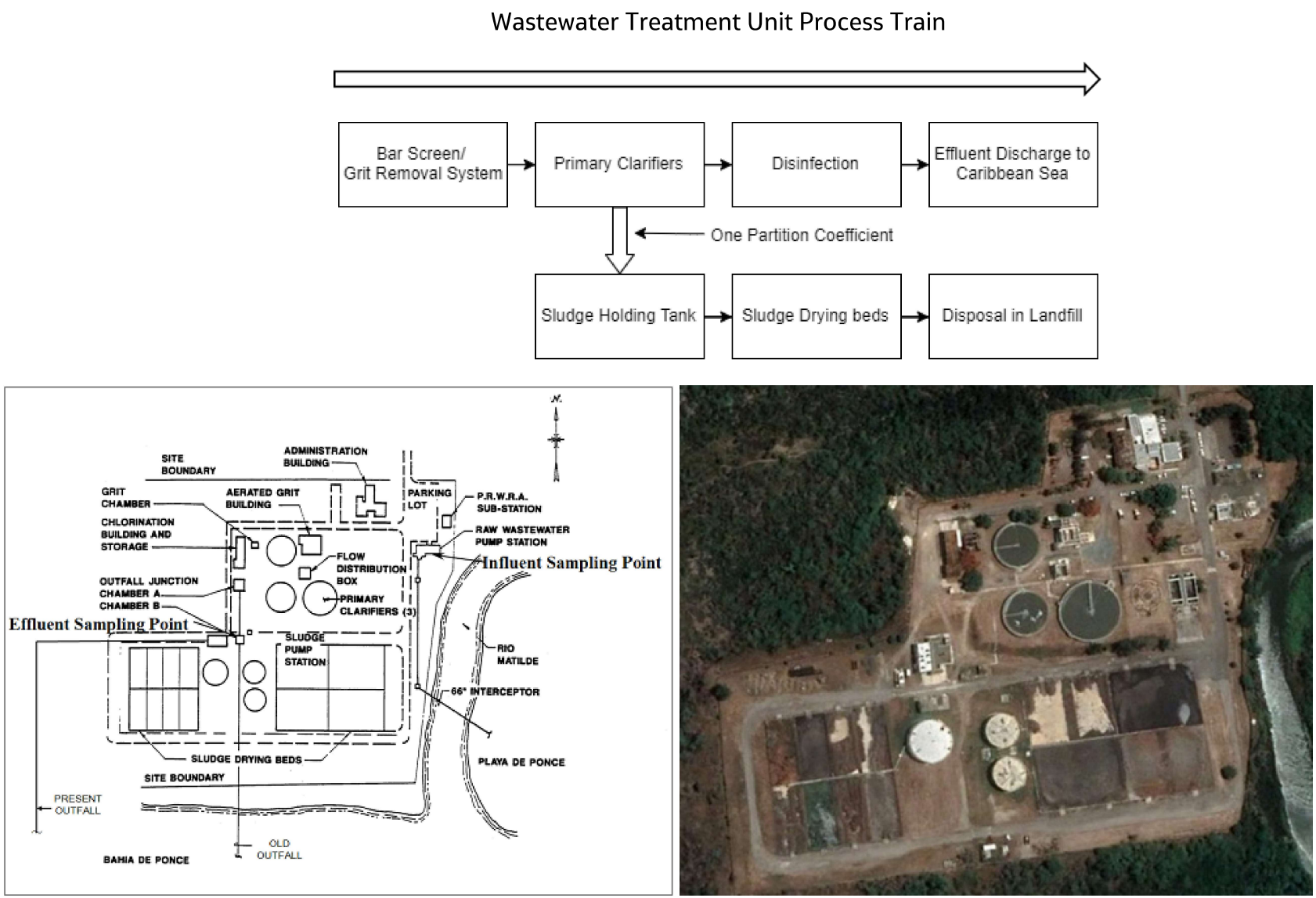


Figure 3-1. Ponce RWWTP, Treatment Unit Processes, and Aerial Site View

Table 3-2. Significant Industrial Users and Respective Permitted Flows

SIU	Permit No.	Process Description (SIC/NAICS)	Federal Category	Category Description	Authorized Flow (gpd)
Baxter Healthcare of Puerto Rico	GDG-17-507-002	Pharmaceutical Manufacturing and Preparations NAICS: 325412	40 CFR Part 439 Subpart D	Pharmaceutical Manufacturing Point Source	39,000
Coopervision Caribbean Corp.	GDA-99-405-036	Ophthalmic Goods Manufacturing NAICS: 339115	40 CFR Part 463 Subpart B	Plastics Molding and Forming Point Source	225,000
Restaurant Environmental Technologies	GDG-09-405-001	SIC: 4952 Sanitary Services, Sewerage System NAICS: 221320 Sewage Treatment Facility	NA	NA	42,500
Septix Waste, Inc.	GDG-02-408-044	SIC: 4952 Sanitary Services	NA	NA	15,000
Zimmer Manufacturing B.V.	GDA-92-408-010	SIC: 2842 Orthopedic, Prosthetic and Surgical Appliances and Supplies	40 CFR Part 433 Subpart A	Metal Finishing Point Source	80,000
				Total Authorized Flow	**401,500**

Notes:

NA = Not Applicable

SIC/NAICS = Standard Industrial Classification/North American Industry Classification System

3.3 Discharge to Caribbean Sea

The Ponce RWWTP discharges advanced primary-treated wastewater into the Caribbean Sea into Class SB receiving waters through an outfall ending in a high-rate diffuser located south of the Ponce Port. The discharge travels through a 48-inch-diameter pipe. The land portion of the outfall runs westward along the shoreline from the Ponce RWWTP pump station for approximately 2,260 feet before turning offshore. The ocean portion of the outfall extends approximately 18,800 feet offshore, running between two shoals, Cayo Viejo and Las Hojitas, and over and down a steep escarpment, terminating in approximately 411 feet of water. The last 230 feet of the outfall pipe is a diffuser manifold, which is designed to achieve a high rate of discharge of the freshwater effluent into the marine receiving water. Figure 3-2 shows the location and configuration of the discharge system.

3.4 Applicable Criteria

Using the site characterization, industrial base, and regulatory/operational considerations applicable to this treatment system, the Ponce RWWTP is subject to the following criteria:

- Water quality standards
- NPDES permit limits
- Biosolids regulations for disposal
- Worker health and safety (toxicity, flammability, explosivity)
- Plant capacity
- Other applicable best professional judgment (BPJ)

These criteria were used to select the POCs and are further discussed in Section 4.

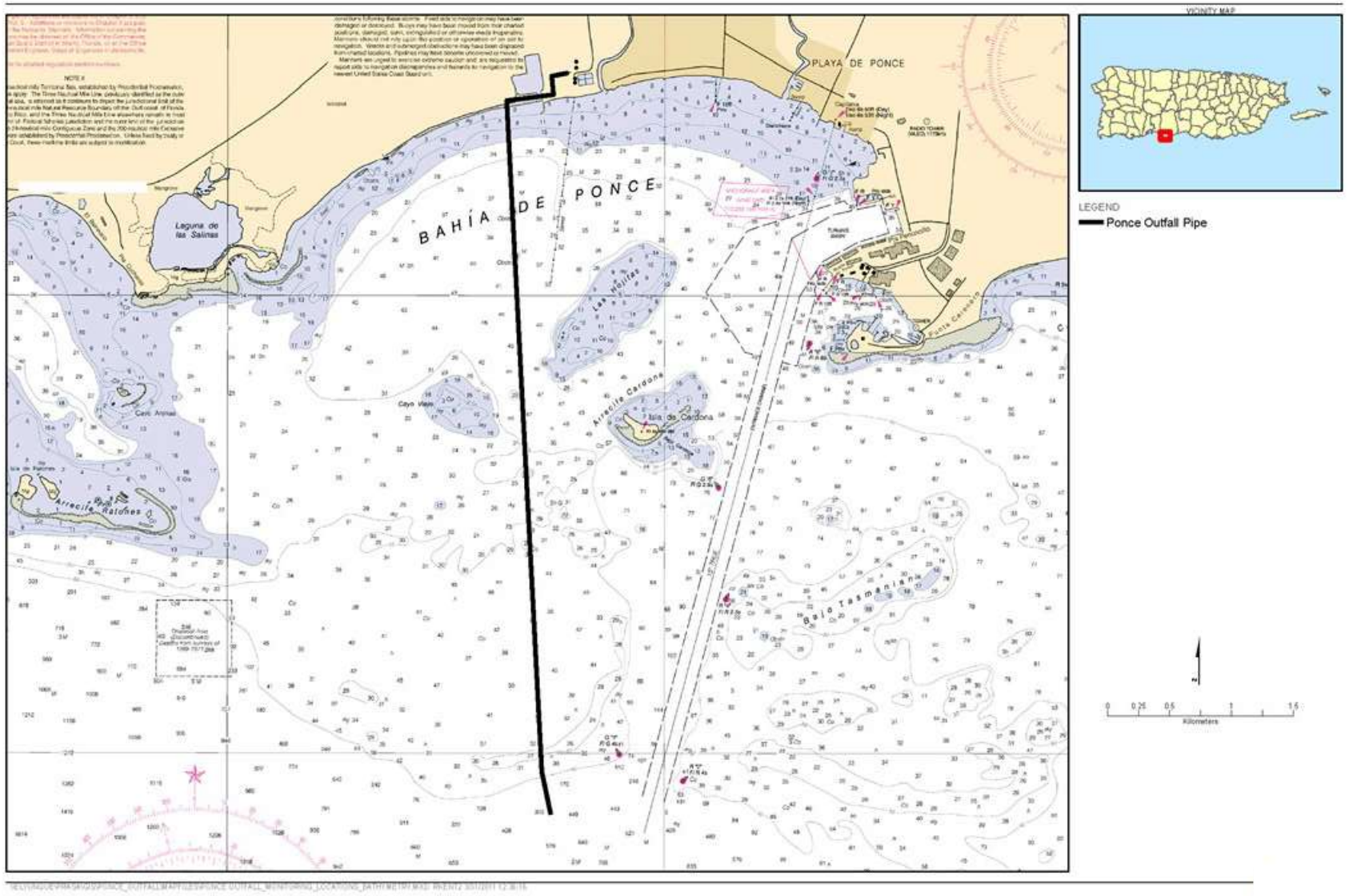


Figure 3-2. Discharge Location and Pipe Configuration of the Ponce RWWTP Outfall

4. POC Screening, Selection, and Sampling

4.1 POC Selection

Toxic pollutants selected for these derivations consist of the EPA-mandated national pollutant list of 11 required metals plus cyanide. Additionally, EPA lists BOD_5, TSS, and ammonia as pollutants that should be discussed. Ammonia in this document is discussed as total nitrogen (TN; total Kjeldahl nitrogen [TKN] + nitrate [NO_2]+ nitrite [NO_3]) because the limiting criteria are for nitrogen.[4] The nitrate and nitrite test results, derived from testing conducted during the development of this TBLL evaluation, were all non-detect. Consequently, nitrogen-related discussions are primarily for TKN results. Flow, pH, flammability, temperature, and oil and grease (O&G) are discussed herein in relation to protecting the treatment works, the collection system, and workers. Surfactants, as methylene blue active substances (MBAS), was added because of a limit in the Ponce NPDES permit.

The prior local limits contained a limit for manganese. A criterion for manganese is not included in the Puerto Rico Water Quality Standards Regulation (PRWQSR) amended in April 2019; therefore, a local limit for this pollutant was not calculated. All other previous local limits are included in this derivation and limits established.

Table 4-1 provides the full list of parameters selected for evaluation.

Table 4-1. Pollutants Selected for this Local Limits Evaluation

Parameters	
Arsenic	Silver
Cadmium	Surfactants (MBAS)
Chromium	Zinc
Copper	Flow
Cyanide (Free)	BOD_5
Lead	TSS
Mercury	Phenol
Molybdenum	pH
Nickel	O&G
Nitrogen (as TKN + NO_3 + NO_2)	Temperature
Selenium	Flammability
Toxicity	

[4] In this primary plant, where very little oxygen is available, microbes use the oxygen in the nitrate and nitrite.

4.2 Surfactants (as MBAS)

Surfactants are divided into non-ionic, cationic, and anionic categories. The MBAS test measures only anionic substances. Results of the test can vary significantly from laboratory to laboratory, depending on application of a backwash that removes interference.

The most common class of compounds found in anionic surfactants is referred to as linear alkylbenzene sulfonate (LAS). LAS is the most common ingredient in dishwashing and laundry detergent. In turn, LAS consists of a straight-chain molecule with a sulfonated benzene ring substituted at some point along the chain (refer to Figure 4-1). The chain typically consists of 10 to 16 carbon atoms but can be shorter or longer depending on the type of surfactant designed by the manufacturer. Terzic et al. (1992) and OECD SIDS (2005) show that long-chain surfactants with the ring substituted on the end of the chain are the most biodegradable, while shorter chains that have been substituted near the middle show the lowest degree of biodegradability. Because LAS adheres strongly to solid particles in the waste stream, as much as 35 percent of the LAS can be removed if primary clarification is used to remove solids from the waste stream. The LAS is further reduced by 98 to 99 percent in activated waste and further reduced in aerobic digestion. LAS is not reduced in anaerobic digestion, and some anaerobic sludges have been measured at more than 1 percent LAS as dry sludge. However, studies also indicate that once land-applied, LAS is quickly biodegraded once it enters the aerobic conditions found in soil and does not show detrimental effects to the environment when land-applied (Scott and Jones 2000).

While LAS is the chief source of anionic surfactants and easily biodegrades at treatment plants, some anionic surfactants are not easily eliminated. According to Scott and Jones (2000), "the removal of constituents in detergent formulations such as fluorescence whitening agents, or naphthalene sulfates used in chemical, pharmaceutical and textile industries is much less efficient. In the case of naphthalene sulfate, 95 percent of these pollutants are still present in WWTP effluents." This information may be useful in the case of Ponce because one of the dischargers is a pharmaceutical manufacturer and should be reviewed in connection with pharmaceutical manufacturers found in this system.

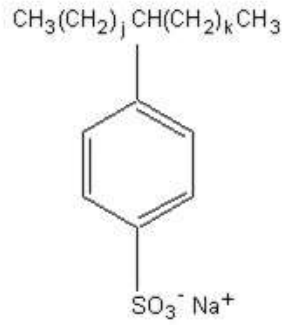


Figure 4-1. Linear Alkylbenzene Sulfonate Molecule

Many compounds contribute to MBAS, including non-surfactants. Because each reactive compound (both surfactant and non-surfactant) exhibits a different level of biodegradability, determining a single limit for all industry would be ineffective. For the Ponce RWWTP, a headworks analysis is appropriate because, without an activated sludge component of its treatment process, minimal removal will result from microbes that have habituated to the presence of MBAS and use it for food. The test data collected during this TBLL (provided in Appendix D) show a 13.96 percent LAS removal by the treatment plant, which has been used to calculate a TBLL of 200 milligrams per liter (mg/L) for industry.

4.3 Sampling and Analysis

Concurrent sampling of influent and effluent locations is necessary to develop partition coefficients (removal factors) for conservative pollutants (metals). Sampling must be conducted concurrently at specific sites in the treatment system (including collection system prior to the plant) to understand and determine how the pollutants will be either removed into the sludge or discharged to the receiving waters. This ratio of removal is known as *removal rate*, *removal coefficient*, or *partitioning coefficient*.

Concurrent sampling in the Ponce RWWTP treatment system was conducted from May 12 to May 26, 2019. Tables 4-2 and 4-3 list the testing schedule for weeks 1 and 2, respectively. Per EPA's guidance document (EPA 2004), composite sampling was conducted for 14 consecutive days for all tests, except cyanide, which was taken as a series of grab samples. Table 4-4 lists pollutants included in the testing regimen. Laboratory analytical methods incorporated the appropriate sensitivity and quality assurance and quality control (QA/QC)[5] procedures necessary to provide useable data. The laboratory analytical reports met or exceeded QA/QC reporting requirements. Where the best testing methods available were insufficient to generate removal factors, the EPA local limits guidance document (EPA 2004), which provides default values (book values), was used as an alternative. Instances where book values were used are noted and discussed. Laboratories that performed the analyses are listed in Table 4-5.

Cyanide testing was not conducted in the sludge samples because of the non-conservative nature of cyanide and also the lack of a disposal criterion.[6] Appendix C provides influent and effluent priority pollutant test data. Using guidance found in the *Guidance Manual on the Development and Implementation of Local Discharge Limitations under the Pretreatment Program* (EPA 1987) (summarized in Appendix B), no organic pollutant qualified as a POC.

Table 4-2. Week 1 Sample Schedule

Location	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Influent	1	1	1	1	1	1	1
Effluent		1	1	1	1	1	1
Sludge			1		1		
Domestic		1				1	
Total	1	3	3	2	3	3	2

Table 4-3. Week 2 Sample Schedule

Location	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Influent	1	1	1	1	1	1	1	
Effluent	1	1	1	1	1	1	1	1
Sludge			1		1			
Domestic		1				1		
Total	2	3	3	2	3	3	2	1

[5] Original laboratory reports (more than 4,000 pages) have not been included herein but are available upon request.

[6] Cyanide does not collect in the sludge. Instead, cyanide reduction occurs in the wastewater treatment process because some microbiota can use it as a food source. When cyanide predominates over time, these organisms proliferate and the plant acclimatizes to the presence of cyanide, allowing for treatment of this toxic material. For this reason, 40 CFR 503 does not list a cyanide limit in its disposal criteria.

Table 4-4. Parameters Selected for Laboratory Analysis on Each Sample

Pollutant	Sample Location			
	Influent	Effluent	Sludge	Domestic
Arsenic	X	X	X	X
Cadmium	X	X	X	X
Chromium Total	X	X	X	X
Copper	X	X	X	X
Cyanide (Free)	X	X		X
Flammability			X	
Lead	X	X	X	X
Mercury	X	X	X	X
Molybdenum	X	X	X	X
Nickel	X	X	X	X
Selenium	X	X	X	X
Silver	X	X	X	X
Zinc	X	X	X	X
Surfactants (MBAS)	X	X	X	X
% Solids			X	
Priority Pollutants	X	X		

Table 4-5. Laboratories Used for Testing

Parameter	Lab
Metals	Eurofins-Frontier Global Services
Surfactants (MBAS)	Environmental Quality Laboratories, Inc.
Cyanide (free), Organic Pesticides, PAHs, PCBs, Dioxins, and % Solids	ALS Environmental

Notes:

PAHs = polycyclic aromatic hydrocarbons

PCBs = polychlorinated biphenyls

5. Data Compilation and Analysis

5.1 Data Compilation

Test data generated from each laboratory were reviewed and verified using data qualifiers and laboratory data QA/QC documentation. All data above the minimum level (ML), as defined in the *Local Limits Development Guidance* (EPA 2004), were used to develop estimated removal efficiencies. If any data point for either the influent or the effluent was below the ML, per EPA guidance, one-half the ML was used. Each laboratory reports a reporting limit (RL; may also be stated as method reporting limit [MRL]) for each parameter. Jacobs staff confirmed that the reported RLs followed the methodology to produce valid MLs using standards at the levels specified.

Domestic wastewater sampling typically is obtained from low-flow areas, which are not representative of the flow entering the plant. As an alternative, the influent test data are used to represent domestic contributions. In this method, referred to as "domestic approximation," the data used for domestic flow consist of all dischargers, including domestic, commercial, and industrial. Use of the influent data, therefore, is a conservative assumption. The data for cyanide (four grab samples per day per site) were entered into a spreadsheet to calculate average values for the sample day. These data, along with data on other pollutants, were then entered into a spreadsheet titled "TBLL Calc-Ponce.xlsm"[7] that automates the calculation of limits as described below. Appendix D provides all pages used from the "TBLL Calc-Ponce.xlsm."

5.2 Removal Efficiency

The Ponce RWWTP has a single sludge removal step after primary clarification. As a result, only a single removal factor is calculated for this plant. Removal efficiencies for each pollutant are automatically calculated in the "TBLL Calc-Ponce.xlsm" file on the Sample Data tab. Each data point for influent, effluent, and sludge (for days available) is entered as a separate sample. The spreadsheet then calculates the removal efficiency on a pollutant-by-pollutant basis across the treatment plant. Average removal efficiencies for overall plant performance are shown in line 5 of the Sample Data tab of the spreadsheet provided in Appendix D. Some data entered in the portion of the "TBLL Calc-Ponce.xlsm" section that calculates removal efficiencies are near the ML, which reduces the accuracy of the values. The reasonableness of each removal factor must be considered; therefore, the resulting values were compared to the *Local Limits Development Guidance* (EPA 2004) book values shown in Table 5-1 as a cross check.

Table 5-1. Pollutant Percent Removal Efficiencies (%) Through Primary Clarification

Pollutant	Reference Removal Rate[a]	Generated by "TBLL Calc-Ponce.xlsm"	Adopted Removal Factor
Arsenic	NP	12.74	12.74
Cadmium	15	44.09	44.09
Chromium	27	44.92	44.92
Copper	22	33.58	33.58
Cyanide	27	Cannot Calculate	27
Lead	57	52.32	52.32

[7] The spreadsheet file is available on CD upon request.

Table 5-1. Pollutant Percent Removal Efficiencies (%) Through Primary Clarification

Pollutant	Reference Removal Rate[a]	Generated by "TBLL Calc-Ponce.xlsm"	Adopted Removal Factor
MBAS	NP	13.96	13.96
Mercury	10	74.43	74.43
Molybdenum	NP	23.78	23.78
Nickel	14	34.56	34.56
Selenium	NP	10.11	10.11
Silver	20	58.78	58.78
Zinc	27	50.41	50.41

[a] Book value from Local Limits Development Guidance (EPA 2004)

Notes:

NP = Book value not published or available

The QA/QC documentation was reviewed in calculating removal factors. The data pairs were then input into the "TBLL Calc-Ponce.xlsm" file, which calculates a removal factor for each data pair. When a data pair contains at least one non-detect, or when the effluent is higher than the influent, the spreadsheet indicates that a removal factor cannot be calculated. The data pairs for which a removal factor can be calculated are then averaged for the final removal factor used in later calculations.

The average values of the individual data pair removal factors are shown in line 5 of the Sample Data tab page 1 of Appendix D. After review of the data, all site-specific removal factors were adopted, except for cyanide.

Many cyanide results for both influent and effluent were near non-detect. For most data pairs, the results for the effluent were higher than for the influent; in some cases, both values were non-detect. This is common when cyanide is nearly absent in the waste stream. The cause of the apparent increase in cyanide within the facility was unknown but has been observed for many years in most wastewater treatment plants (WWTPs). The apparent increase was originally thought to result from positive interfering materials in the cyanide test method. Now, based on research conducted by Jacobs, as well as others, results of experimentation show that sodium hydroxide, the EPA-required preservative for cyanide samples, synthesizes cyanide during sample storage. Influent samples with a higher organic content buffer this action more than effluent so that the net result is an increase in cyanide across the plant.[8] The median book value for cyanide removal was therefore adopted.

5.3 Calculation of Allowable Headworks Loadings

Using the adopted removal factors, the standard methodology from EPA *Local Limits Development Guidance* (EPA 2004) was used to calculate the highest quantity of each pollutant that can be received at the headworks to the treatment plant and still comply with the applicable criteria. Each criterion is explained below in relation to water quality and sludge quality requirements.

[8] A summary of these effects (Heinemann 2018) along with references is available upon request.

To protect receiving water quality, Rule 1303.1.J.1 of the PRWQSR sets metal limits for coastal marine waters (refer to Appendix E). Where the PRWQSR criteria are more stringent, the federal chronic water quality standards have been replaced with the PRWQSR criteria so that the limits are protective of both criteria. The Ponce RWWTP point of discharge is classified as a Puerto Rico Class SB segment of coastal and estuarine waters. Water quality standards are subject to a critical initial dilution (lowest projected dilution), which has been accepted by the Puerto Rico Department of Natural and Environmental Resources at a value of 138:1. Once water quality criteria are calculated, the water-quality-based AHLs are calculated as follows:

$$L_{wq} = \frac{(8.34)(C_{wq})(Q_{potw})}{(1 - R_{potw})}$$

where:

L_{wq} = MAHL (lb/d) based on water quality criteria
C_{wq} = Acute or chronic water quality criteria (in mg/L)
Q_{potw} = Publicly owned treatment works (POTW) average flow (mgd)
R_{potw} = POTW removal efficiency (as a decimal)

5.4 NPDES Criteria

NPDES permit limits for metals are typically developed based on water quality criteria and follow the same equation as given under the water quality section, except that the C_{wq} is replaced by the NPDES permit limit. Table 5-2 lists the metals and other parameters with NPDES limits for the Ponce RWWTP.

Table 5-2. Ponce RWWTP NPDES Limits

Pollutant	Limit in µg/L
Copper	84.93
Cyanide (free)	5.3
Mercury	0.477
Nickel	8.28
Zinc	123.82
Surfactants (MBAS)	8,235

Note:

µg/L = microgram(s) per liter

NPDES limits must be met at the point of discharge from the RWWTP, not at the edge of the mixing zone. The limits in Table 5-2, therefore, were manually entered in line 16 of the Local Limits tab in Appendix D. The dilution factor applied to the NPDES limits is 1:1 (in line 17 of Basic Data tab in Appendix D).

In addition to the NPDES limits applicable to the point of discharge, the permit contains limits at the edge of the mixing zone. These limits are found in Table 5-3 and are identical to PRWQSR water quality criteria entered into line 15 of the Local Limits tab in Appendix D.

Table 5-3. Ponce RWWTP Mixing Zone Limits

Pollutant	Limit in µg/L
Copper	3.73
Cyanide (free)	1.0
Mercury	0.051
Zinc	85.62
Surfactants (MBAS)	500

Once the NPDES limits are entered, the AHLs are calculated as follows:

$$L_{wq} = \frac{(8.34)(C_{npdes})(Q_{potw})}{(1 - R_{potw})}$$

where:

L_{wq} = MAHL (lb/d) based on NPDES limit
C_{npdes} = NPDES limit (in mg/L)
Q_{potw} = POTW average flow (mgd)
R_{potw} = POTW removal efficiency (as a decimal)

5.5 Sludge Quality

Treatment plants are required to prohibit non-domestic discharges in amounts that cause violation of applicable sludge disposal or use regulations or restrict the plant from using its chosen sludge disposal option. Currently, the sludge from the Ponce RWWTP is sent to a landfill and, therefore, must pass Toxicity Characteristic Leaching Procedure (TCLP) requirements. The TCLP test is subject to adhesion and absorption in the solids. TCLP results, therefore, may be low even when significant metal concentrations are present. The result is that TCLP results may be a poor indicator of sludge quality. If TCLP testing shows that the metals in the sludge are subject to leaching, which could prevent using the preferred landfill option, the local limits approach should focus on TCLP.[9] However, Ponce RWWTP sludge quality compliance monitoring shows that the metals are compliant and do not show a tendency to leach. All TCLP data were low compared to TCLP limits and were mostly non-detect for the period January 2015 to October 2019 for all pollutants (individual parameter results are provided in Appendix A). There were detections for several metals (summarized in Appendix F along with the TCLP limits) at concentrations well below their TCLP limits.

An alternative approach focuses on total metals in the sludge. This approach compares sludge quality to Table 3 of 40 CFR 503, which specifies pollutant concentrations as total metals. When the sludge is qualified as acceptable in this manner, a higher probability exists that the sludge may be disposed of by any method chosen by the treatment plant. The equation below is used to calculate AHLs based on

[9] The approach according to *Local Limits Development Guidance* (EPA 2004) is explained as, "The POTW can collect site-specific data for both total pollutant concentrations in the sludge and TCLP concentrations (10–12 data pairs) and use these data to correlate TCLP concentrations with total concentrations in the sludge. Pg 5-18 2004 manual." The developed correlations can then be used to convert total metals to leachable metals.

Table 3 of 40 CFR 503 criteria. Table 3 of 40 CFR 503 is replicated in line 19 of the Local Limits tab in Appendix D and is used to calculate local limits based on sludge disposal.

$$L_{in} = \frac{(8.34)(C_{slcrit})(PS/100)(Q_{sldg})}{R_{potw}}$$

where:

L_{in} = Allowable headworks loading based on sludge quality (lb/d)
PS = Percent solids in the sludge to disposal (%)
Q_{sldg} = Sludge flow to disposal (mgd)
C_{slcrit} = Limiting sludge criteria (milligrams per kilogram)
R_{potw} = POTW removal efficiency (as a decimal)

Sludge testing provides one of the most reliable data sources when considering local limits for conservative pollutants such as metals. Sludge accumulation and treatment concentrates incoming pollutants and averages the pollutants received by the plant over time. Consequently, these data often provide the best estimate of the long-term average pollutant levels from the collection system. The Ponce RWWTP sludge sampled during the period of local limits testing demonstrated results that are a small fraction of the Biosolids Class A limits (Table 3 of 40 CFR 503), which is another indicator that these pollutants are present in low levels throughout the waste collection system.

5.6 MAHL Selection and MAIL Calculations for Metals and Cyanide

The "TBLL Calc-Ponce.xlsm" spreadsheet (Appendix D) automates the calculation of limits so that a limit is generated for each criterion. Table 5-4 displays the MAHL[10] selection process followed by calculation of the MAIL as mass loadings. This format facilitates verification that the smallest AHL has been selected. Table 5-4 presents the AHLs calculated in pounds for each limiting criterion considered. The smallest of the AHLs is referred to as the MAHL because it is the highest loading that may be seen at the headworks for which all criteria will be met. Table 5-4 also presents the current domestic loading, which is subtracted from the MAHL along with a safety factor (10 percent of the MAHL) to calculate the MAIL. The mass remaining is used along with known industrial discharge to calculate the maximum concentrations that can be discharged.

Table 5-4. Applicable AHLs, MAHLs and MAIL

Pollutant (lb/d)	AHL Federal Water Quality Criteria Acute [WQC-A] (lb/d)	AHL PRWQSR Water Quality Criteria Chronic [WQC-C] (lb/d)	AHL NPDES Water Quality Limits [NPDES] (lb/d)	AHL Sludge Based on Table 3 40 CFR 50 [SD] (lb/d)	Domestic Loading (lb/d)	MAIL[a] (lb/d)	Basis
Arsenic	1,497.08	781.09	NA	12.99	0.208	11.49	SD
Cadmium	1,430.77	269.20	NA	3.62	0.02	3.24	SD
Chromium	354,050.81	NA	NA	NA	0.1	318,645.58	WQC-A

[10] The MAHL is shown in line 63 of the local limits calc page 2 Appendix D, but the spreadsheet calculates a concentration limit for each AHL and selects the smallest value.

Table 5-4. Applicable AHLs, MAHLs and MAIL

Pollutant (lb/d)	AHL Federal Water Quality Criteria Acute [WQC-A] (lb/d)	AHL PRWQSR Water Quality Criteria Chronic [WQC-C] (lb/d)	AHL NPDES Water Quality Limits [NPDES] (lb/d)	AHL Sludge Based on Table 3 40 CFR 50 [SD] (lb/d)	Domestic Loading (lb/d)	MAIL[a] (lb/d)	Basis
Copper	164.86	106.33	17.54	177.48	5.52	10.27	NPDES
Cyanide	25.94	25.94	1.00	NA	0.075	0.82	NPDES
Lead	8,767.56	338.28	NA	23.55	0.208	20.98	SD
Mercury	156.80	3.78	0.26	0.85	0.021	0.21	NPDES
Molybdenum	NA	NA	NA	12.56	0.159	11.15	SD
Nickel	2,162.40	239.54	1.74	49.72	0.289	1.27	NPDES
Selenium	6,120.33	1,498.38	NA	39.79	0.250	35.56	SD
Silver	102.67	102.89	NA	NA	0.027	102.67	WQC-A
Zinc	3,632.24	3,268.88	34.26	230.45	17.220	13.61	NPDES
MBAS	NA	NA	1,313	NA	512.050	669.7	NPDES

[a] The MAIL in this column has had 10 percent of the MAHL subtracted.

Notes:

SD = Sludge Disposal

5.7 Uniform Allocation to Permitted Industrial Users

Local limits developed for this document are based on uniform allocation of available pollutant loading applied to permitted industrial users. In this method, the mass of a regulated pollutant is distributed equally to industrial flow and each industry receives the same concentration-based limits. Derivation of uniform limits is driven by inputs for industrial flow in line 13 of the Basic Data Page 1 of Appendix D and the MAIL in line 65 on the Local Limits Page 2 of Appendix D. Table 5-5 presents the selected limits found in line 69 of the Local Limits Calc Page 2 in Appendix D. The resulting limits in Table 6-1 are compared to the Puerto Rico general limits and the previous Ponce RWWTP local limits.

Table 5-5. Comparison of Previous Local Limits with New Limits

Parameter	Puerto Rico General Limits[a]	Previous Ponce RWWTP Limits Adopted 1998	Adopted Local Limit
Arsenic	No Limit	2.4 mg/L	3.43 mg/L
Cadmium	0.1 mg/L	0.1 mg/L	0.97 mg/L
Chromium	1.0 mg/L	1.0 mg/L	1.0 mg/L[b]
Copper	1.0 mg/L	1.0 mg/L	3.07 mg/L
Cyanide (free)	0.1 mg/L	0.1 mg/L	0.1 mg/L[c]
Lead	0.2 mg/L	0.2 mg/L	6.27 mg/L

Table 5-5. Comparison of Previous Local Limits with New Limits

Parameter	Puerto Rico General Limits[a]	Previous Ponce RWWTP Limits Adopted 1998	Adopted Local Limit
Manganese	4.0 mg/L	2.0 mg/L	No Limit[d]
Mercury	0.05 mg/L	0.05 mg/L	0.05 mg/L[c]
Molybdenum	No Limit	No Limit	3.33 mg/L
Nickel	0.5 mg/L	0.5 mg/L	0.38 mg/L
Selenium	0.2 mg/L	0.2 mg/L	10.62 mg/L
Silver	0.05 mg/L	0.05 mg/L	27.6 mg/L
Zinc	0.5 mg/L	1.0 mg/L	4.06 mg/L
Surfactants (MBAS)	No Limit	8.6 mg/L	200 mg/L
Flow	SIU-specific	SIU-specific	SIU-specific[e]
BOD_5	No Limit	250–1,305 mg/L	250 mg/L[f]
TSS	No Limit	250–4,027 mg/L	250 mg/L[f]
Total Nitrogen NO_2+NO_3+TKN	No Limit	23 mg/L	Monitor Only[e]
pH	5.0–10.0 SU	6.5–9.0 SU	6.5–9.0 SU[g]
Phenolics (phenolic substances)	1.0 mg/L	0.5 mg/L	1.0 mg/L[h]
O&G	50 mg/L Total O&G	50 mg/L Total O&G	50 mg/L Total O&G
Temperature	60°C (140°F)	40°C	60°C (140°F) at discharge point[i]
Flammability	No Limit	Specified as flashpoint >140 (°F)	Closed-cup flashpoint < 140°F (60°C) No two consecutive readings at ≥5% LEL, and no reading of ≥10% LEL allowed[i]
Toxicity	Parameter-specific	Parameter-specific	Industry-permit-specific technically based limits[e]

[a] PRASA Rules and Regulations for the Supply of Water and Sewer Services Section 2.05.

[b] The General Limit was retained because the calculated limit was significantly larger than the industrial discharge concentration that would be achieved by the industry implementing Best Management Practices.

[c] EPA requested that the previous limit be retained for any POC that exceeded limits in the last 3 years.

[d] Parameter has been removed from the PRWQSR, and a local limit is no longer needed.

[e] Best Management Practice of establishing SIU-specific requirements.

[f] A limit of 250 mg/L for BOD_5 and TSS is adopted as a surcharge level to recoup additional cost for treatment above domestic-strength waste.

[g] The existing local limit was retained because it was found to be sufficiently protective of the WWTP.

[h] The existing General Limit was retained because it was found to be sufficiently protective of the WWTP.

[i] As per guidance in EPA Model Pretreatment Ordinance.

Notes: °C = degrees Celsius; °F = degrees Fahrenheit; LEL = lower explosive limit; SU = standard unit(s)

6. Other Limits and Concerns

The need for local limits for flow, BOD_5, TSS, pH, O&G, and nitrogen is discussed in this section. Worker health and safety limits for temperature, flammability, and toxicity are also considered. Table 6-1 summarizes resultant local limits for this second group of parameters.

Table 6-1. Local Limits for Other Parameters

Pollutant	Minimum Limit	Maximum Limit
Temperature	NA	60°C (140°F) at discharge point [a]
Flammability	NA	Closed-cup flashpoint <140°F (60°C), No two consecutive readings at ≥5% LEL, and no reading of ≥10% LEL allowed [b]
pH	6.5 SU	9.0 SU
Total Nitrogen		Monitor Only option for Industry-specific Limits
Phenols (phenolic substances)		1.0 mg/L
O&G	NA	50 mg/L Total O&G
Toxicity	NA	Industry-Specific Limits

[a] Puerto Rico General Limit

[b] As per guidance in EPA Model Sewer Use Ordinance

6.1 Flow

The Ponce RWWTP has a monitoring requirement for average monthly flow and a maximum daily limit of 27 mgd. The plant currently receives a monthly average flow of approximately 16.45 mgd based on discharge monitoring report records from January 2015 through December 2019. If all SIUs discharged their full maximum permitted flow at the same time, the total volume would be 0.4015 mgd (refer to Table 3-2), which would constitute less than 2.5 percent of the average flow. The influence of industry is not a significant factor in controlling high flow conditions. Therefore, implementing a best management practice (BMP) to establish industry-specific limits based on technical review of actual industrial needs and requirements is used in lieu of a local limit for flow.

6.2 BOD_5 and TSS

Based on its design capacity, the Ponce RWWTP is rated to treat up to a monthly average of 24,686 lb/d for BOD_5 and up to a monthly average of 23,752 lb/d of TSS. The plant currently has significant excess capacity for both pollutants. Average influent BOD_5 from January 1, 2015, to December 31, 2019, was calculated at 20,737 lb/d; the average influent for TSS during the same period was 16,486 lb/d. Monthly records and summary calculations are provided in Appendix H.

Local limits for BOD_5 and TSS are not adopted because establishing such limits using the uniform allocation method implies that discharges may not be accepted above such a limit, even if capacity is available. Instead, a surcharge limit is set for all discharges greater than 250 mg/L BOD_5 and greater than 250 mg/L TSS, which is a level above which the effluent strength is considered equivalent to

domestic-strength effluent. These surcharge limits are used to determine the cost of sewer service. PRASA also uses industry-permit-specific technically based limits whenever an industry is found to have significant potential to discharge waste with BOD_5 or TSS in quantities that might cause treatment interference or pass-through (including use of excess plant design capacity) at unacceptable levels. Industry-specific limits help to reduce unnecessary loadings to the WWTP and extend the time between costly facility upgrades needed to meet NPDES permit limits and requirements. Industry-specific limits for BOD_5 and TSS will be established based on available capacity at the WWTP, technically achievable limits using industry-supplied pretreatment, and industrial BMPs.

6.3 Total Nitrogen

In April 2019, the PRWQSR was amended to change the definition of TN from the sum of NO_2+NO_3+NH_3 to NO_2+NO_3+TKN. The Ponce RWWTP received a renewed NPDES permit on August 1, 2019, with a TN limit of 43,832 micrograms per liter (µg/L). Discharge data from August 1, 2019, to December 31, 2019, (refer to Appendix A) shows compliance with the new limit, at an average 21.134 µg/L and a maximum 29.410 µg/L. These data include the current industrial contribution. Using the NPDES limit, the average treatment plant flow, and a removal factor found at a similar advanced primary treatment facility,[11] the data in Figure 6-1 show that the industries would need to discharge their full flow and simultaneously increase their TN by more than 600 mg/L to approach an NPDES permit violation. Consequently, a local TN limit is not needed at this time.

6.4 pH

The PRWQSR states a range for pH in Class SB waters of 7.3 to 8.5 standard units (SU). The Ponce RWWTP NPDES permit contains a limit of 6.0 to 9.0 SU at the point of discharge and an approved mixing zone pH of 7.3 to 8.5 SU. The pH range of the Ponce RWWTP effluent between January 2015 and December 2019 was 6.61 to 7.4 SU (discharge monitoring report data and summary calculations are provided in Appendix A). This pH range trends toward the lower permit limitation. A waste stream contribution to the collection system at the maximum pH of 9 can be accommodated as there is little risk of raising the effluent pH to the upper permit limitation. However, a waste stream close to the minimum pH permit limitation of 6 SU could lower the overall pH of the effluent below the permissible discharge limitation. The existing local limits for pH currently used at the Ponce RWWTP are 6.5 to 9.0 SU and have resulted in compliance with the effluent discharge limitation. Therefore, the current local limit range of 6.5 to 9.0 SU is retained.

6.5 Phenolics

The PRWQSR regulates phenol and a subset of toxic phenolic derivatives. Appendix I lists these compounds and their limits. The phenol molecule consists of a six-carbon ring, with a hydroxide group bonded (substituted) at one of the carbons. This substance is significantly less toxic than the other regulated phenolic compounds (and is even the active ingredient in some throat sprays). The PRWQSR limits phenol at 10 mg/L for freshwater and 860 mg/L for marine discharges. Derivatives of phenol occur when another substance (such as a halogen) is bonded (substituted) at one of the carbons in the ring. As more chlorine (or other halogen) substitution occurs, the toxicity of the resulting compounds increases.

[11] Removal factor calculated for the Puerto Nuevo RWWTP, which is also an advanced primary treatment facility like Ponce, was used herein.

Permitted Pounds Available

Permit Limits (mg/L) X Average Daily Flow (MGD) X 8.34

43.8 mg/L X 16.5 MGD X 8.34 = 6027.318 pounds

Current TN Loading After Plant Removal

Maximum measusured TN discharge X Average Daily Flow X 8.34

29.4 mg/L X 16.5 MGD X 8.34 = 4045.734 pounds

Pounds Available to Industry without Credit for plant removal

Equals Pounds Available - Current Loading

6027 lb - 4045 lb = 1981.584 pounds

Converted to mg/L at maximum flow at all facilities

Pounds Available divided by sum of industrial flows divided by 8.34

1918 lb /(0.41 MGD X 8.34) = 579.5 mg/L

Application of removal factor from influent to effluent Ponce Treatment facility at demonstrated removal factor of 4.5% at nearly identical treatment facility at Puerto Nuevo.

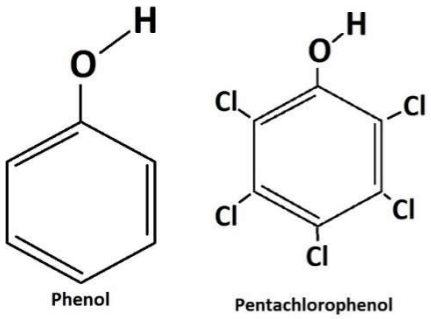
Concentration mg/l divided (100%-removal factor %)

579.5 mg/L ÷ (100% - 4.5%) = 606.8 mg/L

Figure 6-1. Evaluation of Available Total Nitrogen Capacity

As an example, pentachlorophenol is formed when each of the open points in the ring is attached to a chlorine. Pentachlorophenol has all available points substituted and is limited by the PRWQSR to 1 µg/L.

A reference value for unsubstituted phenol is available for both domestic concentration (0.025 µg/L) and for a removal factor (median value 90 percent) across activated sludge treatment, which is not used at the Ponce RWWTP. Based on these references, a local limit could significantly exceed 90 mg/L.



Reference data for the more toxic forms of substituted phenols, however, are not available. Consequently, it is not possible to develop a local limit for each compound in Appendix I based on reference data.

Currently, the general limit in the PRASA Rules and Regulations for the Supply of Water and Sewer Services, Section 2.05, contains a limit of 1.0 mg/L for phenolic compounds. This limit is applied to the sum of the individual concentrations of toxic phenolic substances on the list of priority pollutants analyzed

using procedures in accordance with 40 CFR 136, Table 1C. This limit will be retained, with the modification that the limit applies to phenolic compounds, excluding unsubstituted phenol.

6.6 Oil and Grease

A local limit of 50 mg/L for O&G was established in the prior Ponce RWWTP local limits without reference to the nature of the O&G. Based on previous requests by EPA regarding local limits for O&G, this limit will be retained.

6.7 Temperature

Prior to this TBLL evaluation, local limits for temperature were established in the Puerto Rico General Limits[12] at 60 degrees Celsius (°C) (140 degrees Fahrenheit [°F]). The 60°C (140°F) limit at the point of discharge into the Ponce RWWTP sanitary sewer system is both in keeping with the Puerto Rico general limit and with a BPJ limit (which has been observed in other TBLLs to be set as high as 65°C [150°F]). The rationale is based on worker health and safety concerns and helps to achieve the temperature limit at the treatment plant. Therefore, a local limit including a 60°C (140°F) value at the industry's discharge point is established.

PRASA reserves the right to adopt a more stringent limit to meet requirements placed on the Ponce RWWTP. These limitations include treatment plant effluent limits and a 104°F (40°C) limit at sewage treatment plant headworks, which is a specific requirement of the federal pretreatment regulations (cf. 40 CFR 403.5(b)(5)).

6.8 Flammability

Local limits for flammability are adopted at any discharge with a closed-cup flashpoint greater than 140°F (60°C). An additional lower explosive limit (LEL) local limit requirement is that no two successive readings of an LEL meter in the headspace of the collection system below an industry's discharge into the sanitary sewer may exceed 5 percent, and no single LEL meter reading may be 10 percent or higher.

These limits, which are based on federal pretreatment regulations (cf., 40 CFR 403.5 (b)(1)), prohibit any discharge with a closed-cup flashpoint greater than 140°F (60°C). The LEL limits are established based on worker and community health and safety. Therefore, a local limit requiring that no two consecutive readings at 5 percent or more of the LEL and that no reading of 10 percent or more of the LEL is adopted. These additional LEL limitations allow a more prompt and timely response to flammable compounds in the collection system that could develop into a hazardous condition.

6.9 Toxic Organic Pollutants

No toxic organic POCs were identified in this system. Therefore, system-wide local limits were not developed for toxic organic pollutants. Instead, PRASA will address toxic organic pollutants using industry-permit-specific technically based limits whenever a toxic compound is identified in an industrial discharge. The process for developing such a limit is similar to development of TBLLs as applied to waste discharge from an industry to the effluent discharge from the Ponce RWWTP. If required, industry-specific limits will be based on permissible exposure limits, time-weighted averages, any additional information from toxicological references (such as the American Conference of Governmental Industrial Hygienists [ACGIH]), and (as appropriate) Henry's constant.

[12] *Ibid.*

7. Local Limits Implementation

The new local limits will apply to all non-domestic users. It is the intent of this document that only users that have been issued industrial wastewater discharge permits by PRASA, such as SIUs and other users with a potential to discharge pollutants for which local limits have been developed, will be required to routinely monitor for compliance with local limits.

8. References

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Appendix A
Historical Sampling Data

Plant: Ponce RWWTP Data set: 301(h) Waiver Priority Pollutant

Sample Date	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium, Hexavalent
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Mar-15	0.242 J	0.692 J	34.5	*0.06 U*	192	0.051 J	2.7 J
Oct-16	0.229	1.24	40.1	*0.061 U*	222	0.039	2.1 I
Feb-17	0.383	1.02	43.6	*0.061 U*	248	0.045	2.4 JI
Sep-18	0.113	1.01	41.9	*0.03 U*	191	0.037	1 J
Mar-19	0.196	1.1	51.4	*0.03 U*	202	0.053	0.9 JI
PRWQSR	640	36	NA	NA	NA	7.95	50.4
Count	5	5	5	5	5	5	5
Min	0.113	0.692	34.5	ND	191	0.037	0.9
Average	0.2326	1.0124	42.3	ND	211	0.045	1.82
Max	0.383	1.24	51.4	ND	248	0.053	2.7

Sample Date	Chromium, Total	Copper	Lead	Manganese	Mercury	Nickel	Selenium
	µg/L	mg/L	µg/L	µg/L	ng/L	ng/L	µg/L
Mar-15	0.56	29.5	0.567	81.2	29.7	1.35	0.581
Oct-16	0.64	24.2	0.441	110	25.4 J	1.42	*2.61 U*
Feb-17	0.73	23.4	0.377	105	20.7	1.26	1.74 J
Sep-18	0.49	23.6	0.614	118	57 J	1.25	1.22 J
Mar-19	0.64	30.5	1.08	141	48.9	1.44	0.89
PRWQSR	NA	3.73	8.52	NA	51	8.28	71.14
Count	5	5	5	5	5	5	5
Min	0.49	23.4	0.377	81.2	20.7	1.25	0.581
Average	0.61	26.24	0.616	111	36.3	1.34	1.11
Max	0.73	30.5	1.08	141	57	1.44	1.74

Sample Date	Silver	Thallium	Zinc
	µg/L	µg/L	µg/L
Mar-15	0.081 J	0.004 J	51.2
Oct-16	*0.06 U*	*0.0025 U*	26.5
Feb-17	0.067	*0.0025 U*	28.9
Sep-18	0.059 J	*0.0025 U*	37.9
Mar-19	0.157 J	*0.0025 U*	57 JH
PRWQSR	2.24	0.47	85.62
Count	4	1	5
Min	0.059	0.004	26.5
Average	0.091	0.004	40.3
Max	0.157	0.004	57

Plant: Ponce RWWTP Data set: 301(h) Waiver Priority Pollutant

Sample Date	Ammonia, as N	Cyanide, Free		Fluoride	MBAS (Detergents)	Nitrate/Nitrite, as N		Sulfide
	mg/L	µg/L		mg/L	mg/L	mg/L		mg/L
Mar-15	26.3	19.3	JL	0.15	2.61	0.13	U	0.105
Oct-16	19.4	2.99	JL	0.109	4.72	0.13	U	0.025
Feb-17	23.4	0.509	JL	0.29	2.81	0.13	U	0.16
Sep-18	23.7	*1*	*U*	0.148	1.76	0.02	U	0.077
Mar-19	21.1	*1*	*U*	0.135	1.85	0.13	U	0.085
PRWQSR	NA	1		NA	0.5	NA		2.0
Count	5	5		5	5	5		5
Min	19.4	0.509		0.109	1.76	ND		0.025
Average	22.8	7.60		0.166	2.75	ND		0.090
Max	26.3	19.3		0.29	4.72	ND		0.16

Sample Date	TKN		Total Nitrogen (TKN+NO3/NO2)	
	mg/L		mg/L	
Mar-15	NS		26.3	
Oct-16	23	J	23	J
Feb-17	24.6		24.6	
Sep-18	27.3		27.3	
Mar-19	20.6	J	20.6	J
PRWQSR	NA		5	
Count	5		5	
Min	20.6		20.6	
Average	23.9		24.4	
Max	27.3		27.3	

Plant: Ponce RWWTP Data set: 301(h) Waiver Priority Pollutant

Sample Date	4,4'-DDD		4,4'-DDE		4,4'-DDT		Aldrin		Alpha - BHC	
	µg/L		µg/L		µg/L		µg/L		µg/L	
Mar-15	*0.029*	*UDI*	*0.005*	*UD*	*0.005*	*UD*	*0.005*	*UD*	0.0087	U
Oct-16	*0.043*	*UI*	*0.01*	*UJL*	*0.01*	*U*	*0.01*	*UJL*	0.01	U
Feb-17	*0.023*	*UDI*	*0.0025*	*UDJL*	*0.0025*	*UDJL*	*0.0036*	*UDI*	*0.0025*	*UD*
Sep-18	*0.01*	*UD*	*0.01*	*UD*	*0.088*	*UDI*	*0.01*	*UD*	*0.01*	*UD*
Mar-19	*0.0097*	*UDI*	*0.005*	*UD*	*0.059*	*UDJL*	*0.005*	*UD*	*0.005*	*UD*
PRWQSR	0.0012		0.00018		0.0003		0.0000077		0.0039	
Count	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Sample Date	Azinphos, methyl (guthion)		Beta - BHC		Carbaryl		Chlordane, technical		Chlorpyrifos	
	ng/L		µg/L		µg/L		µg/L		ng/L	
Mar-15	*0.05*	*U*	*0.019*	*UDI*	*0.17*	*U*	*0.63*	*UDI*	*0.025*	*U*
Oct-16	*0.05*	*U*	*0.01*	*UJL*	*1*	*U*	*3*	*UI*	*0.025*	*U*
Feb-17	*0.05*	*U*	*0.0025*	*UD*	*1*	*U*	*2*	*UDI*	*0.025*	*U*
Sep-18	*0.05*	*UJ*	*0.01*	*UD*	*1*	*U*	*0.1*	*UD*	*0.025*	*UJ*
Mar-19	*0.051*	*U*	*0.015*	*UDJL*	*1*	*U*	*0.05*	*UD*	*0.026*	*U*
PRWQSR	0.01		0.14		1.6		0.0032		0.0056	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Sample Date	Coumaphos		Delta - BHC		Demeton		Dieldrin		Endosulfan I	
	µg/L		µg/L		µg/L		ng/L		µg/L	
Mar-15	*0.025*	*U*	*0.033*	*UDI*	*0.075*	*U*	*0.012*	*UDI*	*0.012*	*UDI*
Oct-16	*0.025*	*U*	*0.059*	*UI*	*0.075*	*UJL*	*0.01*	*UJL*	*0.027*	*UI*
Feb-17	0.028	J	*0.0025*	*UD*	*0.075*	*U*	*0.0025*	*UDJ*	*0.0025*	*UD*
Sep-18	*0.025*	*UJ*	*0.01*	*UD*	*0.075*	*UJ*	*0.01*	*UD*	*0.01*	*UD*
Mar-19	*0.026*	*U*	*0.013*	*UDJL*	*0.076*	*U*	*0.005*	*UD*	*0.005*	*UD*
PRWQSR	NA		NA		0.1		0.000012		0.0087	
Min	5		5		5		5		5	
Min	0.028		ND		ND		ND		ND	
Average	0.028		ND		ND		ND		ND	
Max	0.028		ND		ND		ND		ND	

Plant: Ponce RWWTP

Sample Date	Endosulfan II		Endosulfan sulfate		Endrin		Endrin aldehyde		Ethyl parathion	
	µg/L		µg/L		µg/L		µg/L		µg/L	
Mar-15	*0.0072*	*UDI*	*0.016*	*UDI*	*0.005*	*UDJ*	*0.01*	*UD*	*0.025*	*U*
Oct-16	*0.01*	*UJL*	*0.024*	*UI*	*0.01*	*U*	*0.02*	*UJL*	*0.025*	*U*
Feb-17	*0.003*	*UDI*	*0.011*	*UDI*	*0.0025*	*UD*	*0.005*	*UDJ*	*0.025*	*U*
Sep-18	*0.01*	*UD*	*0.01*	*UD*	*0.01*	*UD*	*0.02*	*UD*	*0.025*	*UJ*
Mar-19	*0.015*	*UDJL*	*0.0081*	*UDJL*	*0.005*	*UD*	*0.01*	*UD*	*0.026*	*U*
PRWQSR	0.0087		40		0.0023		1		NA	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Sample Date	Fenthion		Gamma BHC (Lindane)		Heptachlor		Heptachlor epoxide		Malathion	
	µg/L		µg/L		µg/L		µg/L		µg/L	
Mar-15	*0.025*	*U*	*0.014*	*UDI*	*0.005*	*UD*	*0.005*	*UD*	0.025	UJ
Oct-16	*0.025*	*UJ*	*0.045*	*UJL*	*0.01*	*UJL*	*0.01*	*U*	0.025	UJ
Feb-17	*0.025*	*U*	*0.0081*	*UDI*	*0.0025*	*UDJL*	*0.0025*	*UDJ*	0.03	J
Sep-18	*0.025*	*UJ*	*0.01*	*UD*	*0.01*	*UD*	*0.01*	*UD*	0.025	UJ
Mar-19	*0.026*	*U*	*0.005*	*UDJL*	*0.024*	*UDJL*	*0.005*	*UDJL*	0.026	U
PRWQSR	NA		0.16		0.000059		0.00032		0.1	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		0.03	
Average	ND		ND		ND		ND		0.03	
Max	ND		ND		ND		ND		0.03	

Sample Date	Methyl parathion		Mirex		Naled		Perthane		Toxaphene	
	µg/L		µg/L		µg/L		µg/L		mg/L	
Mar-15	*0.025*	*U*	*0.005*	*UD*	*0.19*	*UI*	*1.6*	*UDJ*	*1.6*	*UDI*
Oct-16	*0.025*	*U*	*0.01*	*U*	*0.05*	*UJ*	*2.3*	*UI*	*3.2*	*UI*
Feb-17	*0.025*	*U*	*0.019*	*UDI*	*0.05*	*U*	*1.5*	*UDI*	*0.54*	*UDI*
Sep-18	*0.025*	*UJ*	*0.01*	*UD*	*0.05*	*UJ*	*0.2*	*UD*	*1*	*UD*
Mar-19	*0.026*	*U*	*0.005*	*UD*	*0.051*	*U*	*0.8*	*UDI*	*0.5*	*UD*
PRWQSR	NA		0.001		NA		NA		0.0002	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Plant: Ponce RWWTP

Sample Date	Methoxychlor	
	µg/L	
Mar-15	*0.005*	*UD*
Oct-16	*0.025*	*UI*
Feb-17	*0.013*	*UDI*
Sep-18	*0.01*	*UD*
Mar-19	*0.03*	*UDJL*
PRWQSR	0.02	
Count	5	
Min	ND	
Average	ND	
Max	ND	

Plant: Ponce RWWTP Data set: 301(h) Waiver Priority Pollutant

Sample Date	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium, Hexavalent
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Mar-15	0.242 J	0.692 J	34.5	*0.06 U*	192	0.051 J	2.7 J
Oct-16	0.229	1.24	40.1	*0.061 U*	222	0.039	2.1 I
Feb-17	0.383	1.02	43.6	*0.061 U*	248	0.045	2.4 JI
Sep-18	0.113	1.01	41.9	*0.03 U*	191	0.037	1 J
Mar-19	0.196	1.1	51.4	*0.03 U*	202	0.053	0.9 JI
PRWQSR	640	36	NA	NA	NA	7.95	50.4
Count	5	5	5	5	5	5	5
Min	0.113	0.692	34.5	ND	191	0.037	0.9
Average	0.2326	1.0124	42.3	ND	211	0.045	1.82
Max	0.383	1.24	51.4	ND	248	0.053	2.7

Sample Date	Chromium, Total	Copper	Lead	Manganese	Mercury	Nickel	Selenium
	µg/L	mg/L	µg/L	µg/L	ng/L	ng/L	µg/L
Mar-15	0.56	29.5	0.567	81.2	29.7	1.35	0.581
Oct-16	0.64	24.2	0.441	110	25.4 J	1.42	*2.61 U*
Feb-17	0.73	23.4	0.377	105	20.7	1.26	1.74 J
Sep-18	0.49	23.6	0.614	118	57 J	1.25	1.22 J
Mar-19	0.64	30.5	1.08	141	48.9	1.44	0.89
PRWQSR	NA	3.73	8.52	NA	51	8.28	71.14
Count	5	5	5	5	5	5	5
Min	0.49	23.4	0.377	81.2	20.7	1.25	0.581
Average	0.61	26.24	0.616	111	36.3	1.34	1.11
Max	0.73	30.5	1.08	141	57	1.44	1.74

Sample Date	Silver	Thallium	Zinc
	µg/L	µg/L	µg/L
Mar-15	0.081 J	0.004 J	51.2
Oct-16	*0.06 U*	*0.0025 U*	26.5
Feb-17	0.067	*0.0025 U*	28.9
Sep-18	0.059 J	*0.0025 U*	37.9
Mar-19	0.157 J	*0.0025 U*	57 JH
PRWQSR	2.24	0.47	85.62
Count	4	1	5
Min	0.059	0.004	26.5
Average	0.091	0.004	40.3
Max	0.157	0.004	57

Plant: Ponce RWWTP Data set: 301(h) Waiver Priority Pollutant

Sample Date	Ammonia, as N	Cyanide, Free	Fluoride	MBAS (Detergents)	Nitrate/Nitrite, as N	Sulfide
	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L
Mar-15	26.3	19.3 JL	0.15	2.61	0.13 U	0.105
Oct-16	19.4	2.99 JL	0.109	4.72	0.13 U	0.025
Feb-17	23.4	0.509 JL	0.29	2.81	0.13 U	0.16
Sep-18	23.7	*1 U*	0.148	1.76	0.02 U	0.077
Mar-19	21.1	*1 U*	0.135	1.85	0.13 U	0.085
PRWQSR	NA	1	NA	0.5	NA	2.0
Count	5	5	5	5	5	5
Min	19.4	0.509	0.109	1.76	ND	0.025
Average	22.8	7.60	0.166	2.75	ND	0.090
Max	26.3	19.3	0.29	4.72	ND	0.16

Sample Date	TKN	Total Nitrogen (TKN+NO3/NO2)
	mg/L	mg/L
Mar-15	NS	26.3
Oct-16	23 J	23 J
Feb-17	24.6	24.6
Sep-18	27.3	27.3
Mar-19	20.6 J	20.6 J
PRWQSR	NA	5
Count	5	5
Min	20.6	20.6
Average	23.9	24.4
Max	27.3	27.3

Plant: Ponce RWWTP Data set: 301(h) Waiver Priority Pollutant

Sample Date	4,4'-DDD		4,4'-DDE		4,4'-DDT		Aldrin		Alpha - BHC	
	µg/L		µg/L		µg/L		µg/L		µg/L	
Mar-15	*0.029*	*UDI*	*0.005*	*UD*	*0.005*	*UD*	*0.005*	*UD*	0.0087	U
Oct-16	*0.043*	*UI*	*0.01*	*UJL*	*0.01*	*U*	*0.01*	*UJL*	0.01	U
Feb-17	*0.023*	*UDI*	*0.0025*	*UDJL*	*0.0025*	*UDJL*	*0.0036*	*UDI*	*0.0025*	*UD*
Sep-18	*0.01*	*UD*	*0.01*	*UD*	*0.088*	*UDI*	*0.01*	*UD*	*0.01*	*UD*
Mar-19	*0.0097*	*UDI*	*0.005*	*UD*	*0.059*	*UDJL*	*0.005*	*UD*	*0.005*	*UD*
PRWQSR	0.0012		0.00018		0.0003		0.0000077		0.0039	
Count	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Sample Date	Azinphos, methyl (guthion)		Beta - BHC		Carbaryl		Chlordane, technical		Chlorpyrifos	
	ng/L		µg/L		µg/L		µg/L		ng/L	
Mar-15	*0.05*	*U*	*0.019*	*UDI*	*0.17*	*U*	*0.63*	*UDI*	*0.025*	*U*
Oct-16	*0.05*	*U*	*0.01*	*UJL*	*1*	*U*	*3*	*UI*	*0.025*	*U*
Feb-17	*0.05*	*U*	*0.0025*	*UD*	*1*	*U*	*2*	*UDI*	*0.025*	*U*
Sep-18	*0.05*	*UJ*	*0.01*	*UD*	*1*	*U*	*0.1*	*UD*	*0.025*	*UJ*
Mar-19	*0.051*	*U*	*0.015*	*UDJL*	*1*	*U*	*0.05*	*UD*	*0.026*	*U*
PRWQSR	0.01		0.14		1.6		0.0032		0.0056	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Sample Date	Coumaphos		Delta - BHC		Demeton		Dieldrin		Endosulfan I	
	µg/L		µg/L		µg/L		ng/L		µg/L	
Mar-15	*0.025*	*U*	*0.033*	*UDI*	*0.075*	*U*	*0.012*	*UDI*	*0.012*	*UDI*
Oct-16	*0.025*	*U*	*0.059*	*UI*	*0.075*	*UJL*	*0.01*	*UJL*	*0.027*	*UI*
Feb-17	0.028	J	*0.0025*	*UD*	*0.075*	*U*	*0.0025*	*UDJ*	*0.0025*	*UD*
Sep-18	*0.025*	*UJ*	*0.01*	*UD*	*0.075*	*UJ*	*0.01*	*UD*	*0.01*	*UD*
Mar-19	*0.026*	*U*	*0.013*	*UDJL*	*0.076*	*U*	*0.005*	*UD*	*0.005*	*UD*
PRWQSR	NA		NA		0.1		0.000012		0.0087	
Min	5		5		5		5		5	
Min	0.028		ND		ND		ND		ND	
Average	0.028		ND		ND		ND		ND	
Max	0.028		ND		ND		ND		ND	

Plant: Ponce RWWTP

Sample Date	Endosulfan II		Endosulfan sulfate		Endrin		Endrin aldehyde		Ethyl parathion	
	µg/L		µg/L		µg/L		µg/L		µg/L	
Mar-15	*0.0072*	*UDI*	*0.016*	*UDI*	*0.005*	*UDJ*	*0.01*	*UD*	*0.025*	*U*
Oct-16	*0.01*	*UJL*	*0.024*	*UI*	*0.01*	*U*	*0.02*	*UJL*	*0.025*	*U*
Feb-17	*0.003*	*UDI*	*0.011*	*UDI*	*0.0025*	*UD*	*0.005*	*UDJ*	*0.025*	*U*
Sep-18	*0.01*	*UD*	*0.01*	*UD*	*0.01*	*UD*	*0.02*	*UD*	*0.025*	*UJ*
Mar-19	*0.015*	*UDJL*	*0.0081*	*UDJL*	*0.005*	*UD*	*0.01*	*UD*	*0.026*	*U*
PRWQSR	0.0087		40		0.0023		1		NA	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Sample Date	Fenthion		Gamma BHC (Lindane)		Heptachlor		Heptachlor epoxide		Malathion	
	µg/L		µg/L		µg/L		µg/L		µg/L	
Mar-15	*0.025*	*U*	*0.014*	*UDI*	*0.005*	*UD*	*0.005*	*UD*	0.025	UJ
Oct-16	*0.025*	*UJ*	*0.045*	*UJL*	*0.01*	*UJL*	*0.01*	*U*	0.025	UJ
Feb-17	*0.025*	*U*	*0.0081*	*UDI*	*0.0025*	*UDJL*	*0.0025*	*UDJ*	0.03	J
Sep-18	*0.025*	*UJ*	*0.01*	*UD*	*0.01*	*UD*	*0.01*	*UD*	0.025	UJ
Mar-19	*0.026*	*U*	*0.005*	*UDJL*	*0.024*	*UDJL*	*0.005*	*UDJL*	0.026	U
PRWQSR	NA		0.16		0.000059		0.00032		0.1	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		0.03	
Average	ND		ND		ND		ND		0.03	
Max	ND		ND		ND		ND		0.03	

Sample Date	Methyl parathion		Mirex		Naled		Perthane		Toxaphene	
	µg/L		µg/L		µg/L		µg/L		mg/L	
Mar-15	*0.025*	*U*	*0.005*	*UD*	*0.19*	*UI*	*1.6*	*UDJ*	*1.6*	*UDI*
Oct-16	*0.025*	*U*	*0.01*	*U*	*0.05*	*UJ*	*2.3*	*UI*	*3.2*	*UI*
Feb-17	*0.025*	*U*	*0.019*	*UDI*	*0.05*	*U*	*1.5*	*UDI*	*0.54*	*UDI*
Sep-18	*0.025*	*UJ*	*0.01*	*UD*	*0.05*	*UJ*	*0.2*	*UD*	*1*	*UD*
Mar-19	*0.026*	*U*	*0.005*	*UD*	*0.051*	*U*	*0.8*	*UDI*	*0.5*	*UD*
PRWQSR	NA		0.001		NA		NA		0.0002	
Min	5		5		5		5		5	
Min	ND		ND		ND		ND		ND	
Average	ND		ND		ND		ND		ND	
Max	ND		ND		ND		ND		ND	

Plant: Ponce RWWTP

Sample Date	Methoxychlor	
	µg/L	
Mar-15	*0.005*	*UD*
Oct-16	*0.025*	*UI*
Feb-17	*0.013*	*UDI*
Sep-18	*0.01*	*UD*
Mar-19	*0.03*	*UDJL*
PRWQSR	0.02	
Count	5	
Min	ND	
Average	ND	
Max	ND	

Plant: Ponce RWWTP Data set: Sludge Testing

	Metals	Metals	Metals	Metals	Metals	Metals	Metals	Metals
Sample Date	Arsenic - Total mg/L	Barium - Total mg/L	Cadmium - Total mg/L	Chromium - Total mg/L	Lead - Total mg/L	Mercury - Total mg/L	Silver - Total mg/L	Selenium - Total mg/L
01/08/2015	<0.01	<1.0	<0.002	<0.05	<0.05	<0.0002	<0.002	<0.01
02/10/2015	<0.01	<1.0	<0.002	<0.05	<0.05	**0.0006**	<0.002	<0.01
04/01/2015	<0.01	<1.0	<0.002	<0.05	<0.05	**0.00009**	<0.002	<0.01
07/21/2015	<0.01	**0.41**	**0.003**	<0.005	<0.005	<0.0002	<0.002	<0.01
10/13/2015	<0.01	<0.005	<0.0005	<0.005	<0.005	<0.0002	<0.002	<0.03
01/28/2016	<0.01	**0.16**	<0.0005	<0.005	<0.005	<0.0002	<0.002	<0.03
04/05/2016	<0.01	**0.06**	<0.0005	<0.005	<0.005	<0.0002	<0.002	<0.03
07/05/2016	<0.01	**0.17**	<0.0005	<0.005	<0.005	<0.0002	<0.002	<0.03
10/06/2016	<0.10	**0.13**	<0.0010	<0.050	<0.100	**0.0002**	<0.010	<0.10
01/03/2017	<0.011	**0.31**	<0.001	**0.049**	<0.003	**0.004**	<0.008	<0.011
06/06/2017	<0.006	**0.065**	<0.001	<0.001	<0.003	**0.00076**	<0.001	<0.011
08/29/2017	<0.10	<0.050	<0.0050	<0.050	<0.050	<0.0002	<0.020	<0.30
12/12/2017	<0.01	**0.189**	<0.0005	<0.005	<0.005	<0.0002	<0.002	**0.06**
12/28/2017	<0.01	**0.127**	**0.0052**	**0.006**	<0.005	<0.0002	<0.002	**0.15**
01/25/2018	<0.01	**0.183**	**0.0074**	**0.01**	<0.005	<0.0002	<0.002	**0.11**
04/03/2018	**0.52**	**0.13**	<0.0025	<0.025	<0.025	<0.0002	<0.010	<0.15
07/24/2018	<0.05	**0.17**	**0.0025**	<0.025	<0.025	<0.0002	<0.010	<0.15
10/02/2018	<0.05	**0.265**	<0.0025	<0.025	<0.025	**0.0003**	<0.010	<0.15
01/02/2019	<0.05	**0.68**	**0.005**	<0.025	<0.025	**0.0003**	<0.010	<0.15
02/07/2019	<0.05	**0.525**	<0.0025	<0.025	<0.025	<0.0002	<0.010	<0.15
04/10/2019	<0.05	**0.125**	<0.0025	<0.025	<0.025	**0.0003**	<0.010	<0.15
07/01/2019	<0.05	**0.08**	<0.0025	<0.050	<0.050	<0.0002	<0.010	<0.15
10/01/2019	<0.05	**0.335**	**0.0035**	<0.050	<0.050	**0.0001**	<0.010	**0.39**
Parameter	Arsenic - Total	Barium - Total	Cadmium - Total	Chromium - Total	Lead - Total	Mercury - Total	Silver - Total	Selenium - Total
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Samples	23	23	23	23	23	23	23	23
Detections	1	18	6	3	0	9	0	4
Minimum	0.52	0.06	0.0025	0.006	ND	0.00009	ND	0.06
Average	0.52	0.23	0.0044	0.022	ND	0.0007	ND	0.18
Maximum	0.52	0.68	0.0074	0.049	ND	0.004	ND	0.39

Plant: Ponce RWWTP Data set: Sludge Testing

	Gen Chem	Gen Chem	Gen Chem	Gen Chem	Gen Chem	Gen Chem	Gen Chem
Sample Date	Corrosivity, pH S. U.	Density g/mL	Ignitability mm/sec	Nitrate and Nitrite - Total mg/Kg	Paint Filter Test	Releasable Cyanide mg/Kg	Releasable Sulfide mg/Kg
01/08/2015	6.75	0.4445	<2.2	9.84	NEGATIVE	<1.0	<1.0
02/10/2015	7.08	0.4603	<2.2	0.83	Negative	<1.0	<1.0
04/01/2015	6.37	0.4207	DNI	0.61	0	<1.0	<1.0
07/21/2015	6.62	0.4015	DNI	1	0	<1.0	<1.0
10/13/2015	6.72	0.4871	DNI	0.41	0	<1.0	<1.0
01/28/2016	7.09	0.6173	DNI	1.62	0	<1.0	<1.0
04/05/2016	6.85	2.51	DNI	70.3	0	<1.0	<1.0
07/05/2016	7.15	0.5164	DNI	195	0	<1.0	<1.0
10/06/2016	7.04	0.4857	DNI	42.8	0	<1.0	<1.0
01/03/2017		0.6341	DNI	57.5	0	<1.0	<1.0
06/06/2017		0.4825	DNI	10.12	0	<1.0	<1.0
08/29/2017	7.66	0.5419	DNI	8.79	0	<1.0	<1.0
12/12/2017	6.67		DNI			<1.0	<1.0
12/28/2017	6.7	0.6497	DNI	74.3	0	<1.0	<1.0
01/25/2018	5.55	0.4498	DNI	0.55	0	<1.0	<1.0
04/03/2018	7.07	0.7809	DNI	57.8	0	<1.0	<1.0
07/24/2018	7.14	0.4135	DNI	1.64	0	<1.0	<1.0
10/02/2018	6.79	0.363	DNI	16.2	0	<1.0	<1.0
01/02/2019	7.37	0.4684	DNI	55.1	<0	<1.0	<1.0
02/07/2019	7.17	0.394	DNI	29.2	0	<1.0	<1.0
04/10/2019	6.87	0.4324	DNI	431	0	<1.0	<1.0
07/01/2019	6.51	0.5394	DNI	78.7	0	<1.0	<10.0
10/01/2019	6.96	0.5383	DNI	458	0	<1.0	<10.0
Parameter	Corrosivity, pH	Density	Ignitability	Nitrate and Nitrite - Total	Paint Filter Test	Releasable Cyanide	Releasable Sulfide
Units	S. U.	g/mL	mm/sec	mg/Kg	0	mg/Kg	mg/Kg
Samples	21	22	23	22	22	23	23
Detections	21	22	0	22	19	0	0
Minimum	5.55	0.363	ND	0.41	0	ND	ND
Average	6.86	0.59	ND	72.8	0	ND	ND
Maximum	7.66	2.51	ND	458	0	ND	ND

Plant: Ponce RWWTP Data set: Sludge Testing

	Gen Chem	Gen Chem	Chem	Chem	Chem
Sample Date	Total Kjeldahl Nitrogen (as N) mg/Kg	Total Solids %	1,1-Dichloroethene mg/L	1,2-Dichloroethane mg/L	1,4-Dichlorobenzene mg/L
01/08/2015	**14120**	**92.3**	<0.00053	<0.00045	<0.00053
02/10/2015	**5987**	**59.2**	<0.00053	<0.00045	<0.00053
04/01/2015	**10233**	**94.1**	<0.00053	<0.00045	<0.00053
07/21/2015	**5490**	**91.4**	<0.0012	<0.0012	<0.0012
10/13/2015		**93.6**	<0.0012	<0.0012	<0.0012
01/28/2016	**11459**	**92**	<0.0012	<0.0012	<0.0012
04/05/2016	**3450**	**71.1**	<0.0012	<0.0012	<0.0012
07/05/2016	**13034**	**90.6**	<0.0012	<0.0012	<0.0012
10/06/2016	**19107**	**78.6**	<0.003	<0.003	<0.003
01/03/2017	**1361**	909875.00 mg/kg	<0.034	<0.016	<0.049
06/06/2017	**2750**	946627.00 mg/kg	<0.0034	<0.0016	<0.0049
08/29/2017	**15423**	**78.1**	<0.0100	<0.0200	<0.0300
12/12/2017			<0.0100	<0.0200	<0.0300
12/28/2017	**8164**	**67**	<0.0100	<0.0200	<0.0300
01/25/2018	**10376**	**69**	<0.0100	<0.0200	<0.0300
04/03/2018	**10989**	**94.2**	<0.0100	<0.0200	<0.0300
07/24/2018	**7353**	**88**	<0.0100	<0.0200	<0.0300
10/02/2018	**3884**	**88.9**	<0.0100	<0.0200	<0.0300
01/02/2019	**13891**	**91.2**	<0.0100	<0.0200	<0.0300
02/07/2019	**7217**	**85.2**	<0.0100	<0.0200	<0.0300
04/10/2019	**7893**	**88**	<0.0100	<0.0200	<0.0300
07/01/2019	**4780**	**92.9**	<0.0100	<0.0200	<0.0300
10/01/2019	**2003**	**58.4**	<0.0100	<0.0200	<0.0300
Parameter	Total Kjeldahl Nitrogen (as N)	Total Solids	1,1-Dichloroethene	1,2-Dichloroethane	1,4-Dichlorobenzene
Units	mg/Kg	%	mg/L	mg/L	mg/L
Samples	21	22	23	23	23
Detections	21	20	0	0	0
Minimum	1361	58.4	ND	ND	ND
Average	8522	83.2	ND	ND	ND
Maximum	19107	94.2	ND	ND	ND

Plant: Ponce RWWTP Data set: Sludge Testing

	Chem	Chem	Chem	Chem	Chem	Chem
Sample Date	2,4,5-TP mg/L	2,4,5-Trichlorophenol mg/L	2,4,6-Trichlorophenol mg/L	2,4-D mg/L	2,4-Dinitrotoluene mg/L	2-Butanone mg/L
01/08/2015	<0.00024	<0.00025	<0.00014	<0.000088	<0.00016	<0.00070
02/10/2015	<0.00024	<0.00025	<0.00014	<0.000088	<0.00016	<0.00070
04/01/2015	<0.00024	<0.00025	<0.00014	<0.000088	<0.00016	<0.00070
07/21/2015	<0.00024	<0.00020	<0.00020	<0.000088	<0.00020	<0.0060
10/13/2015	<0.00024	<0.00020	<0.00020	<0.000088	<0.00020	<0.0060
01/28/2016	<0.00024	<0.00020	<0.00020	<0.000088	<0.00020	<0.0060
04/05/2016	<0.00024	<0.00020	<0.00020	<0.000088	<0.00020	<0.0060
07/05/2016	<0.00024	<0.00020	<0.00020	<0.000088	<0.00020	<0.0060
10/06/2016	<0.01	<0.001	<0.001	<0.01	<0.001	<0.015
01/03/2017	<0.0066	<0.06	<0.047	<0.0088	<0.07	<0.024
06/06/2017	<0.0066	<0.0061	<0.0048	<0.0088	<0.0072	<0.0024
08/29/2017	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
12/12/2017	<0.00020	<0.00400	<0.00400	<0.00050	<0.00400	<0.0300
12/28/2017	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
01/25/2018	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
04/03/2018	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
07/24/2018	<0.00020	<0.00400	<0.00400	<0.00050	<0.00400	<0.0300
10/02/2018	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
01/02/2019	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
02/07/2019	<0.00020	<0.00400	<0.00400	<0.00050	<0.00400	<0.0300
04/10/2019	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
07/01/2019	<0.00020	<0.00400	<0.00400	<0.000500	<0.00400	**0.112**
10/01/2019	<0.00050	<0.00400	<0.00400	<0.000500	<0.00400	<0.0300
Parameter	2,4,5-TP	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-D	2,4-Dinitrotoluene	2-Butanone
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Samples	23	23	23	23	23	23
Detections	0	0	0	0	0	1
Minimum	ND	ND	ND	ND	ND	0.112
Average	ND	ND	ND	ND	ND	0.112
Maximum	ND	ND	ND	ND	ND	0.112

Plant: Ponce RWWTP Data set: Sludge Testing

	Chem	Chem	Chem	Chem	Chem	Chem
Sample Date	Benzene mg/L	Carbon tetrachloride mg/L	Chlordane mg/L	Chlorobenzene mg/L	Chloroform mg/L	Endrin mg/L
01/08/2015	<0.00071	<0.00039	<0.0025	<0.00057	<0.00057	<0.00015
02/10/2015	<0.00071	<0.00039	<0.0025	<0.00057	<0.00057	<0.00015
04/01/2015	<0.00071	<0.00039	<0.0025	<0.00057	<0.00057	<0.00015
07/21/2015	<0.0012	<0.0012	<0.0025	<0.0012	<0.0012	<0.00015
10/13/2015	<0.0012	<0.0012	<0.0025	<0.0012	<0.0012	<0.00015
01/28/2016	<0.0012	<0.0012	<0.0025	<0.0012	<0.0012	<0.00015
04/05/2016	<0.0012	<0.0012	<0.0025	<0.0012	<0.0012	<0.00015
07/05/2016	<0.0012	<0.0012	<0.0025	<0.0012	<0.0012	<0.00015
10/06/2016	<0.003	<0.003	<0.0050	<0.003	<0.003	<0.0005
01/03/2017	<0.019	<0.031	<0.0012	<0.034	<0.043	<0.0044
06/06/2017	<0.0019	<0.0031	<0.0012	<0.0034	**0.0137**	<0.0044
08/29/2017	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
12/12/2017	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
12/28/2017	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
01/25/2018	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
04/03/2018	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
07/24/2018	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
10/02/2018	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
01/02/2019	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
02/07/2019	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
04/10/2019	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
07/01/2019	<0.0100	<0.0100	<0.0025	<0.0300	<0.0200	<0.0003
10/01/2019	<0.0100	<0.0100	<0.0010	<0.0300	<0.0200	<0.0001
Parameter	Benzene	Carbon tetrachloride	Chlordane	Chlorobenzene	Chloroform	Endrin
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Samples	23	23	23	23	23	23
Detections	0	0	0	0	1	0
Minimum	ND	ND	ND	ND	0.0137	ND
Average	ND	ND	ND	ND	0.0137	ND
Maximum	ND	ND	ND	ND	0.0137	ND

Plant: Ponce RWWTP Data set: Sludge Testing

	Chem	Chem	Chem	Chem	Chem	Chem
Sample Date	Heptachlor mg/L	Heptachlor epoxide mg/L	Gamma - BHC mg/L	Hexa-chlorobenzene mg/L	Hexa-chlorobutadiene mg/L	Hexa-chloroethane mg/L
01/08/2015	<0.00010	<0.00015	<0.00010	<0.00012	<0.00025	<0.00019
02/10/2015	<0.00010	<0.00015	<0.00010	<0.00012	<0.00025	<0.00019
04/01/2015	<0.00010	<0.00015	<0.00010	<0.00012	<0.00025	<0.00019
07/21/2015	<0.00010	<0.00015	<0.00010	<0.00020	<0.00020	<0.00020
10/13/2015	<0.00010	<0.00015	<0.00010	<0.00020	<0.00020	<0.00020
01/28/2016	<0.00010	<0.00015	<0.00010	<0.00020	<0.00020	<0.00020
04/05/2016	<0.00010	<0.00015	<0.00010	<0.00020	<0.00020	<0.00020
07/05/2016	<0.00010	<0.00015	<0.00010	<0.00020	<0.00020	<0.00020
10/06/2016	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
01/03/2017	<0.0044		<0.0034	<0.07	<0.04	<0.04
06/06/2017	<0.0044		<0.0034	<0.0072	<0.004	<0.0041
08/29/2017	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
12/12/2017	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
12/28/2017	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
01/25/2018	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
04/03/2018	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
07/24/2018	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
10/02/2018	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
01/02/2019	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
02/07/2019	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
04/10/2019	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
07/01/2019	<0.0003	<0.0003	<0.0003	<0.00400	<0.00400	<0.00400
10/01/2019	<0.0003	<0.0003	<0.0001	<0.00400	<0.00400	<0.00400
Parameter	Heptachlor	Heptachlor epoxide	Gamma - BHC	Hexa-chlorobenzene	Hexa-chlorobutadiene	Hexa-chloroethane
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Samples	23	21	23	23	23	23
Detections	0	0	0	0	0	0
Minimum	ND	ND	ND	ND	ND	ND
Average	ND	ND	ND	ND	ND	ND
Maximum	ND	ND	ND	ND	ND	ND

Plant: Ponce RWWTP Data set: Sludge Testing

	Chem	Chem	Chem	Chem	Chem	Chem
Sample Date	m,p-Cresol mg/L	Methoxychlor mg/L	Nitrobenzene mg/L	o-Cresol mg/L	Penta-chlorophenol mg/L	Pyridine mg/L
01/08/2015	<0.00025	<0.00025	<0.00027	<0.00027	<0.0016	<0.0005
02/10/2015	<0.00025	<0.00025	<0.00027	<0.00027	<0.0016	<0.0005
04/01/2015	<0.00025	<0.00025	<0.00027	<0.00027	<0.0016	<0.0005
07/21/2015	<0.00025	<0.00025	<0.00085	<0.00020	<0.00110	<0.00035
10/13/2015	<0.00025	<0.00025	<0.00085	<0.00020	<0.00110	<0.00035
01/28/2016	<0.00025	<0.00025	<0.00085	<0.00020	<0.00110	<0.00035
04/05/2016	<0.00025	<0.00025	<0.00085	<0.00020	<0.00110	<0.00035
07/05/2016	<0.00025	<0.00025	<0.00085	<0.00020	<0.00110	<0.00035
10/06/2016	<0.001	<0.0008	<0.001	<0.001	<0.010	<0.001
01/03/2017	<0.11	<0.003	<0.067	<0.045	<0.092	<0.19
06/06/2017	<0.011	<0.003	<0.0068	<0.0046	<0.0093	<0.02
08/29/2017	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
12/12/2017	**0.9414**	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
12/28/2017	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
01/25/2018	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
04/03/2018	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
07/24/2018	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
10/02/2018	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
01/02/2019	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
02/07/2019	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
04/10/2019	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
07/01/2019	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
10/01/2019	<0.00500	<0.0003	<0.01700	<0.00400	<0.02200	<0.00700
Parameter	m,p-Cresol	Methoxychlor	Nitrobenzene	o-Cresol	Penta-chlorophenol	Pyridine
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Samples	23	23	23	23	23	23
Detections	1	0	0	0	0	0
Minimum	0.9414	ND	ND	ND	ND	ND
Average	0.9414	ND	ND	ND	ND	ND
Maximum	0.9414	ND	ND	ND	ND	ND

Plant: Ponce RWWTP Data set: Sludge Testing

	Chem	Chem	Chem	Chem
Sample Date	Tetra-chloroethene	Toxaphene	Trichloroethene	Vinyl chloride
	mg/L	mg/L	mg/L	mg/L
01/08/2015	<0.00050	<0.0035	<0.00086	<0.00052
02/10/2015	<0.00050	<0.0035	<0.00086	<0.00052
04/01/2015	<0.00050	<0.0035	<0.00086	<0.00052
07/21/2015	<0.0012	<0.0035	<0.0012	<0.0012
10/13/2015	<0.0012	<0.0035	<0.0012	<0.0012
01/28/2016	<0.0012	<0.0035	<0.0012	<0.0012
04/05/2016	<0.0012	<0.0035	<0.0012	<0.0012
07/05/2016	<0.0012	<0.0035	<0.0012	<0.0012
10/06/2016	<0.003	<0.0050	<0.003	<0.003
01/03/2017	<0.043	<0.0068	<0.036	<0.019
06/06/2017	<0.0043	<0.0068	<0.0036	<0.0019
08/29/2017	<0.0200	<0.0040	<0.0300	<0.0200
12/12/2017	<0.0200	<0.0040	<0.0300	<0.0200
12/28/2017	<0.0200	<0.0040	<0.0300	<0.0200
01/25/2018	<0.0200	<0.0040	<0.0300	<0.0200
04/03/2018	<0.0200	<0.0040	<0.0300	<0.0200
07/24/2018	<0.0200	<0.0040	<0.0300	<0.0200
10/02/2018	<0.0200	<0.0040	<0.0300	<0.0200
01/02/2019	<0.0200	<0.0040	<0.0300	<0.0200
02/07/2019	<0.0200	<0.0040	<0.0300	<0.0200
04/10/2019	<0.0200	<0.0040	<0.0300	<0.0200
07/01/2019	<0.0200	<0.0040	<0.0300	<0.0200
10/01/2019	<0.0200	<0.0015	<0.0300	<0.0200
Parameter	Tetra-chloroethene	Toxaphene	Trichloroethene	Vinyl chloride
Units	mg/L	mg/L	mg/L	mg/L
Samples	23	23	23	23
Detections	0	0	0	0
Minimum	ND	ND	ND	ND
Average	ND	ND	ND	ND
Maximum	ND	ND	ND	ND

Appendix B
Guidance on the Selection of Pollutants of Concern

Guidance on the Selection of Pollutants of Concern

Guidance Manual on the Development and Implementation of Local Discharge Limitations

Under the Pretreatment Program, EPA 833-B-87-202, December 1987

Also, EPA guidance directs that a toxic pollutant may be classified as a POC if it meets the following screening criteria:

- *The maximum concentration of the pollutant in a grab sample from the POTWs influent is more than half the inhibition threshold for the biological process; or the maximum concentration of the pollutant in a 24-hour composite sample from the POTWs influent is more than one-fourth of the inhibition threshold for the biological process.*
- *The maximum concentration of the pollutant in the POTW's influent is more than 1/500 of the applicable sludge criteria.*
- *The maximum concentration of the pollutant in the POTWs influent is more than the maximum allowable effluent concentration.*
- *The maximum concentration of the pollutant in the POTW's effluent is more than one half the allowable effluent concentration.*
- *The maximum concentration of the pollutant in the POTW's sludge is more than one half of the allowable sludge concentration.*
- *The maximum measured concentration of the pollutant was greater than the ACGIH screening level for fume toxicity.*

Appendix C
Priority Pollutant Screening May 2019

List of Priority Pollutants found at or above MDL

For All reports organic compounds are not listed if results were at or below MDL

				Sample ID		PPA001		PPA005			
				Sample date		5/12/2019		5/13/2019			
				PRWQSR		Result Influent		Result Effluent			
Method	**Analysis Type**	**Detections**	**Parameter**	**µg/l**		**µg/l**		**µg/l**		**MDL**	**RL**
624	Volatile Organic Compounds (GC/MS)	2	Chloroform	2000		2.3		2.6		0.5	1
		2	Toluene	520		1.3		2.3		0.5	1
625.1	Semivolatile Organic Compounds	1	1,4-Dichlorobenzene	900		1.3	J	0.87	J	0.029	9.6
		1	2,4,6-Trichlorophenol	28		ND	U	0.61	J	0.058	9.6
		1	2,4-Dichlorophenol	60		ND	U	0.33	J	0.047	9.6
		1	2-Chlorophenol	800		ND	U	0.24	J	0.054	9.6
		1	2-Methylnaphthalene	NA		ND	U	0.038	J	0.026	0.19
		2	Bis(2-ethylhexyl) Phthalate	22		5	J	9	J	0.018	9.6
		2	Butyl Benzyl Phthalate	1.0		1.2	J	0.69	J	0.028	4.8
		1	Dibenzofuran	NA		ND	U	0.021	J	0.018	0.19
		2	Diethyl Phthalate	600		2.4	J	2.8	J	0.012	9.6
		2	Dimethyl Phthalate	2000		0.21	J	0.058	J	0.021	9.6
		2	Di-n-butyl Phthalate	30		1.2	J	0.63	J	0.023	9.6
		1	Di-n-octyl Phthalate	NA		ND	U	0.3	J	0.023	9.6
		2	Isophorone	18000		0.4	J	0.36	JX	0.016	9.6
		1	Naphthalene	NA		ND	U	0.055	J	0.022	0.19
		2	Phenol	300000		6	J	13		0.1	9.6
8082A	Congener Specific PCBs	1	PCB 44	0.00064		ND	U	6.3	JP	2.5	8.0
		1	PCB 52	0.00064		ND	U	6.1		2.5	5.0
		1	PCB 118	0.00064		ND	U	2.8	JP	2.5	5.0
1613B	Tetra Chlorinated Dioxins & Furans ID HRGC/HRMS	0									
622	Organophosphorous Pesticides	0									
608.3	Organochlorine Pesticides	0									
612	Organochlorine Pesticides	0									
632	Solvent Extractable Nonvolatile Compounds	0									

J - The result is an estimated value
P- The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the twoanalytical results.
U - Undetected above the MDL
X -See case narrative

Appendix D
TBLL Calc-Ponce Spreadsheets

PONCE WWTP

Line Number

Basic Data

1	Name of Facility:	Ponce	<--- For this color cells, input is optional
2	Point of Contact:	Wayne W. Heinemann	
3	Person Entering Data:	ERR	
4	Reviewer:	WWH	
5	**GENERAL INFORMATION:**	(Data in colored cells below required)	
6	Receiving Water Hardness (if fresh)		<----- Number must be between 25 and 400
7	(M)arine, (F)resh, or (B)oth Discharges	**M**	<----- Enter only letters "M", "F", or "B"
8	Sludge: Class A (A) or (C)eiling level	**A**	<----- Enter only letters "A" or "C"
9	Plant: (A)ctivated sludge or (O)ther	**O**	<----- Enter only letters "A" or "O"
10			
11	Total Plant Flow (in MGD)	**16.45 MGD**	<----- For flows typically the most critical situation (one that
12	Domestic Flow (in MGD)	**16.0485 MGD**	yields the lowest local limits) is the lowest flow month, but
13	Industrial Flow (in MGD)	**0.4015 MGD**	run several scenarios if there is any doubt. Adopt the
14	Infiltration/Inflow (by subtraction)		lowest limits.
15	Acute Dilution Factor	**138. : 1**	<----- Based on 1Q10+avg plnt flow
16	Chronic Dilution Factor	**138. : 1**	<----- Based on 7Q10 + avg plnt flow
17	Dilution Factor for _NPDES___	1. : 1	<----- Enter Chronic DF if not otherwise determined
18	Digester Flow (in MGD)	**0.246 MGD**	<----- recommend: 0.24675 MGD @ 2% solids
19	Dry Sludge Production Rate (US Tons/day)	**20.5164 T/D**	<----- recommend: 20.57895 T/D
20			
21	**Default Method for Calculating Limits**	**Customize as needed for specific pollutants at "LOCLIMIT.XLS" Rows 45-49**	
22	Sampling Data Available (inf, eff, sludge) (Y/N)	**Y**	<--- "Y" if sampling data available, otherwise defaults presum
23	Credit present loading of existing sources (Y/N)	**N**	<-- reduce influent to domestic using "loclimit.xls" row 28
24	Adjust for receiving water pollution (Y/N)	**N**	<-- requires receiving water data in "loclimit.xls" row 29
25	Use Observed Overall Removal Rate (Y/N)	**Y**	<-- Always say "Y" if good data available from the POTW
26	Use Observed Primary Removal Rate (Y/N)	**N**	<-- If primary effluent sample data is obtained say "Y"
27	Fraction of Loading Capacity held in reserve	**10.00%**	<-- Enter .1 for 10%, etc.
28			
29	**Which Conservative Pollutants to Limit? (Bold = Required by EPA)**		
30	**Check (or Un-Check) for Each Pollutant**	Develop Local Limit? (check for YES)	
31	Antimony	☐	
32	**Arsenic (T)**	☑	
33	Arsenic (penta or +5)	☐	
34	Beryllium	☐	
35	**Cadmium**	☑	
36	Chromium(+6)	☐	
37	**Chromium (T)**	☑	

Line Number

Basic Data

38	**Copper**	☑
39	**Cyanide**	☑
40	**Lead**	☑
41	**Mercury**	☑
42	**Molybdenum**	☑
43	**Nickel**	☑
44	**Selenium**	☑
45	**Silver**	☑
46	Thallium	☐
47	TributylTin	☐
48	**Zinc**	☑
49	Add #1	☐
50	Add #2	☐
51	Add #3	☐
52	Add #4	☐

53																						
54	**RECAP of how loadings were set:**	(Don't enter data in below section)	**Sb**	**As**	**As5**	**Be**	**Cd**	**Cr6**	**Cr**	**Cu**	**CN**	**Pb**	**Hg**	**Mo**	**Ni**	**Se**	**Ag**	**Th**	**TBT**	**Zn**
55	Domestic Level from Sampling	Data to right is returned ->>	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
56	Compensate for Existing Sources	Data to right is returned ->>	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
57	Adjust for background levels	Data to right is returned ->>	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
58	Overall removal rate from sampling	Data to right is returned ->>	Y	N	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	Y	Y	N
59	Primary removal rate from sampling	Data to right is returned ->>	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

60 (For Contributing Flows Method, manually change row 11 of LOCLIM.xls spreadsheet to reflect the flow for which the pollutant will be allocated)

61 This "How to Allocate Loadings" section is used to understand how limits were derived at a later date or by a reviewer.

Line Number															
1	**SUMMARY DATA**		Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
2	Average Influent Conc.		1.557 ug/L	0.149 ug/L	1.171 ug/L	41.207 ug/L	0.557 ug/L	1.557 ug/L	0.158 ug/L	1.184 ug/L	2.156 ug/L	1.871 ug/L	0.204 ug/L	128.657 ug/L	3825.714 ug/L
3	Average Effluent Conc.		1.485 ug/L	0.074 ug/L	0.585 ug/L	31.521 ug/L	3.571 ug/L	0.651 ug/L	0.049 ug/L	0.999 ug/L	1.408 ug/L	1.790 ug/L	0.087 ug/L	56.807 ug/L	3621.429 ug/L
5	Average Overall Removal		12.74%	44.09%	44.92%	33.58%	27.00%	52.32%	74.43%	23.78%	34.56%	10.11%	58.78%	50.41%	13.96%
6	Effluent Variation (COV)		0.12	0.18	0.14	0.17	1.80	0.28	0.75	0.11	0.11	0.16	0.47	0.15	0.12
7	Average Sludge Conc.		1.3 mg/kg	0.31 mg/kg	5.43 mg/kg	92.53 mg/kg	0. mg/kg	2.46 mg/kg	1.88 mg/kg	3.12 mg/kg	3.72 mg/kg	2.57 mg/kg	1.21 mg/kg	180.38 mg/kg	
8	Ambient Receiving Water Conc.														
9	Average Industrial Conc.														
10	**SUMMARY (ABOVE)**		Reference removal rate												
11	**SAMPLE 1**	Mon													
12	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
13	5/12/2019	Influent	1.72 ug/l	0.104 ug/l	1.16 ug/l	38.8 ug/l	0.5 ug/l	1.16 ug/l	0.227 ug/l	1.29 ug/l	2.15 ug/l	1.93 ug/l	0.152 ug/l	103. ug/l	3,870. ug/l
14	5/13/2019	Effluent	1.58 ug/l	0.064 ug/l	0.53 ug/l	42.7 ug/l	3.5 ug/l	0.388 ug/l	0.0694 ug/l	1.01 ug/l	1.38 ug/l	1.76 ug/l	0.055 ug/l	50.2 ug/l	3,010. ug/l
15		Prim._Clar.													
16		Sludge													
17		Sludge Wet													
18	RL	RL	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0052 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.5 ug/l	100. ug/l
20	Overall Removal Rate		8.14%	38.46%	54.31%	Can't Do	Can't Do	66.55%	69.43%	21.71%	35.81%	8.81%	63.82%	51.26%	22.22%
21															
22	**SAMPLE 2**	Tue													
23	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
24	5/13/2019	Influent	1.52 ug/l	0.067 ug/l	0.73 ug/l	27.8 ug/l	1.3 ug/l	0.612 ug/l	0.0464 ug/l	1.35 ug/l	1.56 ug/l	2.01 ug/l	0.058 ug/l	75.6 ug/l	3,790. ug/l
25	5/14/2019	Effluent	1.56 ug/l	0.071 ug/l	0.63 ug/l	36.6 ug/l	3. ug/l	0.487 ug/l	0.0537 ug/l	1.12 ug/l	1.44 ug/l	2.03 ug/l	0.176 ug/l	55.8 ug/l	4,610. ug/l
26		Prim._Clar.													
27	5/14/2019	Sludge	1.08 mg/kg	0.29 mg/kg	5.08 mg/kg	110. mg/kg		2.73 mg/kg	2.22 mg/kg	2.35 mg/kg	4.33 mg/kg		0.65 mg/kg	211. mg/kg	
28		Sludge Wet													
29	RL	RL	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0052 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.5 ug/l	100. ug/l
31	Overall Removal Rate		Can't Do	Can't Do	13.70%	Can't Do	Can't Do	20.42%	Can't Do	17.04%	7.69%	Can't Do	Can't Do	26.19%	Can't Do
32															
33	**SAMPLE 3**	Wed													
34	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
35	5/14/2019	Influent	1.75 ug/l	0.141 ug/l	1.42 ug/l	47.6 ug/l	0.5 ug/l	1.62 ug/l	0.215 ug/l	1.9 ug/l	2.42 ug/l	2.34 ug/l	0.351 ug/l	149. ug/l	4,680. ug/l
36	5/15/2019	Effluent	1.53 ug/l	0.06 ug/l	0.59 ug/l	32.8 ug/l	3.3 ug/l	0.491 ug/l	0.0357 ug/l	1.05 ug/l	1.47 ug/l	2.11 ug/l	0.084 ug/l	56.5 ug/l	3,440. ug/l
37		Prim._Clar.													
38		Sludge													
39		Sludge Wet													
40	RL	RL	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.005 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.5 ug/l	100. ug/l
42	Overall Removal Rate		12.57%	57.45%	58.45%	31.09%	Can't Do	69.69%	83.40%	44.74%	39.26%	9.83%	76.07%	62.08%	26.50%
43															
44	**SAMPLE 4**	Thurs													
45	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
46	5/15/2019	Influent	1.53 ug/l	0.088 ug/l	0.88 ug/l	29.9 ug/l	0.5 ug/l	0.941 ug/l	0.103 ug/l	1.06 ug/l	1.85 ug/l	2.29 ug/l	0.085 ug/l	109. ug/l	2,970. ug/l
47	5/16/2019	Effluent	1.75 ug/l	0.064 ug/l	0.75 ug/l	35.5 ug/l	16.5 ug/l	0.495 ug/l	0.0437 ug/l	1.16 ug/l	1.52 ug/l	2.19 ug/l	0.088 ug/l	64.2 ug/l	3,870. ug/l
48		Prim._Clar.													
49	5/16/2019	Sludge	1.52 mg/kg	0.33 mg/kg	8.68 mg/kg	182. mg/kg		4.78 mg/kg	0.69 mg/kg	3.89 mg/kg	7.39 mg/kg	2.57 mg/kg	2.62 mg/kg	362. mg/kg	
50		Sludge Wet													
51	RL	RL	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.005 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.5 ug/l	100. ug/l
53	Overall Removal Rate		Can't Do	27.27%	14.77%	Can't Do	Can't Do	47.40%	57.57%	Can't Do	17.84%	4.37%	Can't Do	41.10%	Can't Do
54															
55	**SAMPLE 5**	Fri													
56	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
57	5/16/2019	Influent	1.78 ug/l	0.127 ug/l	1.25 ug/l	42.1 ug/l	0.5 ug/l	1.31 ug/l	0.102 ug/l	1.19 ug/l	2.21 ug/l	2.36 ug/l	0.114 ug/l	142. ug/l	3,890. ug/l
58	5/17/2019	Effluent	1.34 ug/l	0.069 ug/l	0.55 ug/l	26.8 ug/l	3.1 ug/l	0.576 ug/l	0.0355 ug/l	1.07 ug/l	1.24 ug/l	1.35 ug/l	0.081 ug/l	65.3 ug/l	3,600. ug/l
59		Prim._Clar.													
60		Sludge													
61		Sludge Wet													
62	RL	RL	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0028 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.35 ug/l	100. ug/l
64	Overall Removal Rate		24.72%	45.67%	56.00%	36.34%	Can't Do	56.03%	65.20%	10.08%	43.89%	42.80%	28.95%	54.01%	7.46%

Line Number														
65														
66	**SAMPLE 6**	Sat												
67	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
68	5/17/2019	Influent	1.28 ug/l	0.142 ug/l	1.29 ug/l	36.3 ug/l	0.5 ug/l	1.79 ug/l	0.197 ug/l	1.19 ug/l	2.24 ug/l	1.45 ug/l	0.128 ug/l	145. ug/l	3,740. ug/l
69	5/18/2019	Effluent	1.34 ug/l	0.088 ug/l	0.58 ug/l	31.8 ug/l	3.6 ug/l	0.758 ug/l	0.0363 ug/l	0.98 ug/l	1.36 ug/l	1.45 ug/l	0.075 ug/l	56.5 ug/l	3,640. ug/l
70		Prim._Clar.													
71		Sludge													
72		Sludge Wet													
73	RL	RL	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0028 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.2 ug/l	100. ug/l
75	Overall Removal Rate		Can't Do	38.03%	55.04%	12.40%	Can't Do	57.65%	81.57%	17.65%	39.29%	Can't Do	41.41%	61.03%	2.67%
76															
77	**SAMPLE 7**	Sun													
78	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
79	5/18/2019	Influent	1.38 ug/l	0.1 ug/l	0.98 ug/l	41.5 ug/l	0.5 ug/l	1.9 ug/l	0.118 ug/l	1.02 ug/l	2.24 ug/l	1.38 ug/l	0.161 ug/l	112. ug/l	4,140. ug/l
80	5/19/2019	Effluent	1.35 ug/l	0.046 ug/l	0.45 ug/l	21.9 ug/l	4.3 ug/l	0.45 ug/l	0.0219 ug/l	0.89 ug/l	1.15 ug/l	1.39 ug/l	0.047 ug/l	36.9 ug/l	3,810. ug/l
81		Prim._Clar.													
82		Sludge													
83		Sludge Wet													
84	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0028 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.2 ug/l	100. ug/l
86	Overall Removal Rate		2.17%	54.00%	54.08%	47.23%	Can't Do	76.32%	81.44%	12.75%	48.66%	Can't Do	70.81%	67.05%	7.97%
87															
88	**SAMPLE 8**														
89	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
90	5/19/2019	Influent	1.28 ug/l	0.082 ug/l	1.04 ug/l	30.1 ug/l	0.5 ug/l	1.28 ug/l	0.0797 ug/l	0.86 ug/l	1.82 ug/l	1.39 ug/l	0.109 ug/l	102. ug/l	3,960. ug/l
91	5/20/2019	Effluent	1.29 ug/l	0.064 ug/l	0.55 ug/l	30.9 ug/l	0.5 ug/l	0.607 ug/l	0.026 ug/l	0.94 ug/l	1.4 ug/l	1.44 ug/l	0.073 ug/l	53. ug/l	3,770. ug/l
92		Prim._Clar.													
93		Sludge													
94		Sludge Wet													
95	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0028 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.2 ug/l	100. ug/l
97	Overall Removal Rate		Can't Do	21.95%	47.12%	Can't Do	Can't Do	52.58%	67.38%	Can't Do	23.08%	Can't Do	33.03%	48.04%	4.80%
98															
99	**SAMPLE 9**														
100	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
101	5/20/2019	Influent	1.34 ug/l	0.069 ug/l	0.75 ug/l	32. ug/l	0.5 ug/l	0.888 ug/l	0.0385 ug/l	0.9 ug/l	1.54 ug/l	1.51 ug/l	0.088 ug/l	65.5 ug/l	4,420. ug/l
102	5/21/2019	Effluent	1.44 ug/l	0.087 ug/l	0.66 ug/l	33. ug/l	0.5 ug/l	0.787 ug/l	0.151 ug/l	1.02 ug/l	1.59 ug/l	1.66 ug/l	0.103 ug/l	57.9 ug/l	2,650. ug/l
103		Prim._Clar.													
104	5/21/2019	Sludge	ND	ND	2.54 ug/l	64.6 ug/l	ND	1.96 ug/l	3.79 ug/l	ND	2.35 ug/l	ND	0.356 ug/l	120. ug/l	
105		Sludge Wet													
106	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0028 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.355 ug/l	100. ug/l
108	Overall Removal Rate		Can't Do	Can't Do	12.00%	Can't Do	Can't Do	11.37%	Can't Do	Can't Do	Can't Do	Can't Do	Can't Do	11.60%	40.05%
109															
110	**SAMPLE 10**														
111	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
112	5/21/2019	Influent	1.67 ug/l	0.118 ug/l	1.26 ug/l	64.2 ug/l	0.5 ug/l	1.27 ug/l	0.238 ug/l	1.53 ug/l	2.25 ug/l	1.62 ug/l	0.665 ug/l	115. ug/l	3,150. ug/l
113	5/22/2019	Effluent	1.38 ug/l	0.08 ug/l	0.51 ug/l	27.6 ug/l	4.1 ug/l	0.891 ug/l	0.0285 ug/l	0.84 ug/l	1.32 ug/l	1.79 ug/l	0.02 ug/l	50. ug/l	3,840. ug/l
114		Prim._Clar.													
115		Sludge													
116		Sludge Wet													
117	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0029 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.51 ug/l	100. ug/l
119	Overall Removal Rate		17.37%	32.20%	59.52%	57.01%	Can't Do	29.84%	88.03%	45.10%	41.33%	Can't Do	96.99%	56.52%	Can't Do
120															
121	**SAMPLE 11**														
122	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
123	5/22/2019	Influent	1.39 ug/l	0.117 ug/l	0.8 ug/l	34.6 ug/l	0.5 ug/l	1.45 ug/l	0.0966 ug/l	0.78 ug/l	1.81 ug/l	2.03 ug/l	0.108 ug/l	98.1 ug/l	3,920. ug/l
124	5/23/2019	Effluent	1.33 ug/l	0.077 ug/l	0.5 ug/l	30.4 ug/l	4.1 ug/l	0.939 ug/l	0.0351 ug/l	0.8 ug/l	1.28 ug/l	2.01 ug/l	0.117 ug/l	54.4 ug/l	3,690. ug/l
125		Prim._Clar.													
126	5/23/2019	Sludge	ND	ND	ND	13.5 ug/l		0.37 ug/l	0.832 ug/l	ND	0.803 ug/l	ND	ND	28.5 ug/l	

Line Number															
127		Sludge Wet													
128	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0029 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.51 ug/l	100. ug/l
130	Overall Removal Rate		4.32%	34.19%	37.50%	12.14%	Can't Do	35.24%	63.66%	Can't Do	29.28%	0.99%	Can't Do	44.55%	5.87%
131															
132	**SAMPLE 12**														
133	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
134	5/23/2019	Influent	1.39 ug/l	0.129 ug/l	0.88 ug/l	40.8 ug/l	0.5 ug/l	2.47 ug/l	0.224 ug/l	0.74 ug/l	1.83 ug/l	1.89 ug/l	0.253 ug/l	111. ug/l	4,130. ug/l
135	5/24/2019	Effluent	1.48 ug/l	0.092 ug/l	0.59 ug/l	36.4 ug/l	2.5 ug/l	0.858 ug/l	0.0586 ug/l	1.03 ug/l	1.38 ug/l	1.97 ug/l	0.125 ug/l	72.7 ug/l	3,400. ug/l
136		Prim._Clar.													
137		Sludge													
138		Sludge Wet													
139	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0051 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.51 ug/l	100. ug/l
141	Overall Removal Rate		Can't Do	28.68%	32.95%	10.78%	Can't Do	65.26%	73.84%	Can't Do	24.59%	Can't Do		50.59%	34.50%	17.68%
142															
143	**SAMPLE 13**														
144	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
145	5/24/2019	Influent	1.86 ug/l	0.261 ug/l	2.29 ug/l	68.2 ug/l	0.5 ug/l	2.96 ug/l	0.343 ug/l	1.7 ug/l	3.41 ug/l	2.01 ug/l	0.412 ug/l	266. ug/l	3,230. ug/l
146	5/25/2019	Effluent	1.89 ug/l	0.088 ug/l	0.71 ug/l	26.7 ug/l	0.5 ug/l	0.692 ug/l	0.0389 ug/l	1.11 ug/l	1.75 ug/l	1.95 ug/l	0.092 ug/l	61.1 ug/l	3,860. ug/l
147		Prim._Clar.													
148		Sludge													
149		Sludge Wet													
150	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0029 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.51 ug/l	100. ug/l
152	Overall Removal Rate		Can't Do	66.28%	69.00%	60.85%	Can't Do	76.62%	88.66%	34.71%	48.68%	2.99%	77.67%	77.03%	Can't Do
153															
154	**SAMPLE 14**														
155	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
156	5/25/2019	Influent	1.91 ug/l	0.542 ug/l	1.66 ug/l	43. ug/l	0.5 ug/l	2.15 ug/l	0.18 ug/l	1.07 ug/l	2.85 ug/l	1.98 ug/l	0.165 ug/l	208. ug/l	3,670. ug/l
157	5/26/2019	Effluent	1.53 ug/l	0.082 ug/l	0.59 ug/l	28.2 ug/l	0.5 ug/l	0.7 ug/l	0.0486 ug/l	0.96 ug/l	1.43 ug/l	1.96 ug/l	0.085 ug/l	60.8 ug/l	3,510. ug/l
158		Prim._Clar.													
159		Sludge													
160		Sludge Wet													
161	RL	Detection_Limit	0.3 ug/l	0.02 ug/l	0.1 ug/l	0.1 ug/l	1. ug/l	0.041 ug/l	0.0051 ug/l	0.06 ug/l	0.1 ug/l	0.61 ug/l	0.02 ug/l	0.51 ug/l	0. ug/l
163	Overall Removal Rate		19.90%	84.87%	64.46%	34.42%	Can't Do	67.44%	73.00%	10.28%	49.82%	1.01%	48.48%	70.77%	4.36%
164															
165	**SAMPLE 15**														
166	Date:	LOCATION	Arsenic (T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
167		Influent													
168		Effluent													

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	Pollutant:	Arsenic(T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
2	**Part II: PLANT DATA - OPEN AND CHANGE "BASICDATA.XLS" VALUES IF FLOWS CONTRIBUTING FOR A PARTICULAR POLLUTANT VARY**												
3	Total Plant Flow (in MGD)	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD	16.45 MGD
4	Domestic Flow (in MGD)	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD	16.0485 MGD
5	Industrial Flow (in MGD)	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD
6	Infiltration/Inflow (by subtraction)	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD	0. MGD
7	Acute Dilution Factor	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1
8	Chronic Dilution Factor	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1	138. : 1
9	Dilution Factor for HH Limits	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1	1. : 1
10	Digester Flow (in MGD)	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD	0.246 MGD
11	Dry Sludge Production Rate (US Tons/day)	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D	20.5164 T/D
12	Nitrification	1.5		5.2	.25-1.9,1-100	.05-.48	.34-.5		0.5		.25-.5, 5	.08-.5	
13	**Part III: CONCENTRATIONS LIMITING THE POTW DUE TO PASS THROUGH OR INTERFERENCE**												
14	WQ Acute criteria, aquatic life (mg/L)	0.069 mg/l	0.0423 mg/l	10.3 mg/l	0.0058 mg/l	0.001 mg/l	0.2208 mg/l	NA	0.07 mg/l	0.291 mg/l	0.0022 mg/l	0.0951 mg/l	NA
15	WQ Chronic criteria, aquatic life (mg/L)	0.036 mg/l	0.00795 mg/l	NA	0.00373 mg/l	0.001 mg/l	0.00852 mg/l	NA	0.00828 mg/l	0.07114 mg/l	0.00224 mg/l	0.08562 mg/l	NA
16	Other Water Criteria-Color Code at Input	NA	NA	NA	0.08493 mg/L	0.0053 mg/L	NA	NA	0.00828 mg/L	NA	NA	0.12382 mg/L	8.23500 mg/L
18	Anaerobic Digestor Inhibition Level	1.6 mg/l	20. mg/l	NA	40. mg/l	4. mg/l	340. mg/l	NA	10. mg/l	NA	13. mg/l	400. mg/l	
19	Class A Sludge standards (40 CFR 503)	41. mg/l	39. mg/l	NA	1,500. mg/l	NA	300. mg/l	75. mg/l	420. mg/l	100. mg/l	NA	2,800. mg/l	
20	Sludge ceiling concentration for beneficial use	75. mg/l	85. mg/l	NA	4,300. mg/l	NA	840. mg/l	75. mg/l	420. mg/l	100. mg/l	NA	7,500. mg/l	
21		Other Water Criter	Values in gray are NPDES Limits		Values in Blue are WQ Chronic criteria, human Health (EPA)				Values from PRWQSR				
22	**Part IV: POLLUTANT CONCENTRATION ------**	**SUMMARY**											
23	Estimated Average Industrial Conc.	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l	0. mg/l
24	Ambient Concentration (receiving water)	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0 mg/L	0.0000 mg/L
25	Adjusted Domestic concentration	0.00156 mg/l	0.00015 mg/l	0.00117 mg/l	0.04121 mg/l	0.00056 mg/l	0.00156 mg/l	0.00118 mg/l	0.00216 mg/l	0.00187 mg/l	0.0002 mg/l	0.12866 mg/l	3.82571 mg/l
26	Typical Domestic Concentrations	0.003 mg/l	0.003 mg/l	0.05 mg/l	0.061 mg/l	0.041 mg/l	0.049 mg/l	0.01 mg/l	0.021 mg/l	0.001 mg/l	0.005 mg/l	0.175 mg/l	0. mg/l
27	Average Sludge Level (mg/Kg - Dry)	1.3 mg/kg	0.31 mg/kg	5.433 mg/kg	92.525 mg/kg	0. mg/kg	2.46 mg/kg	3.12 mg/kg	3.718 mg/kg	2.57 mg/kg	1.209 mg/kg	180.375 mg/kg	0. mg/kg
28	Average Influent Level (mg/l)	0.0016 mg/l	0.0001 mg/l	0.0012 mg/l	0.0412 mg/l	0.0006 mg/l	0.0016 mg/l	0.0012 mg/l	0.0022 mg/l	0.0019 mg/l	0.0002 mg/l	0.1287 mg/l	3.8257 mg/l
29	Average Effluent Level (mg/l)	0.0015 mg/l	0.00007 mg/l	0.0006 mg/l	0.0315 mg/l	0.0036 mg/l	0.0007 mg/l	0.001 mg/l	0.0014 mg/l	0.0018 mg/l	0.0001 mg/l	0.0568 mg/l	3.6214 mg/l
30													
31	**Part V: REMOVAL RATES**												
32	Average Primary Removal Rate	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
33	Average Overall Removal Rate	12.74%	44.09%	44.92%	33.58%	27.00%	52.32%	23.78%	34.56%	10.11%	58.78%	50.41%	13.96%
34	Reference Primary Removal Rate												
35	Reference 2d Decile Plant Removal	31.00%	33.00%	68.00%	67.00%	41.00%	39.00%		25.00%	33.00%	50.00%	64.00%	
36	Reference Ave Plant Removal	12.74%	44.09%	44.92%	33.58%	27.00%	52.32%	23.78%	34.56%	10.11%	58.78%	50.41%	13.96%
37	Reference 8th Decile Removal	53.00%	91.00%	91.00%	95.00%	84.00%	76.00%		62.00%	67.00%	88.00%	88.00%	
38													
39	**Part VI: HOW TO CALCULATE LIMITS:**												
40	Sampling Data Available (inf, eff, sludge) (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
41	Credit present loading of existing sources (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N
42	Adjust for receiving water pollution	N	N	N	N	N	N	N	N	N	N	N	N
43	Use Observed Overall Removal Rate (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N
44	Use Observed Primary Removal Rate (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N
45													
46	**Part VII: LOCAL LIMITS CORRESPONDING TO THE CRITERIA ABOVE BASED ON COMPLIANCE WITH:**												
47	Acute WQ Standards (in mg/l)	447.027 mg/l	427.28 mg/l	105,733.791 mg/l	47.586 mg/l	7.723 mg/l	2,618.286 mg/l	NA	645.694 mg/l	1,827.702 mg/l	30.654 mg/l	1,079.591 mg/l	NA
48	Chronic WQ Standards (in mg/l)	233.202 mg/l	80.388 mg/l	NA	30.107 mg/l	7.723 mg/l	100.963 mg/l	NA	71.449 mg/l	447.401 mg/l	30.718 mg/l	971.076 mg/l	NA
49	Other Water Criteria-Color Code at Input	NA	NA	NA	3.592 mg/l	0.275 mg/l	NA	NA	0.432 mg/l	NA	NA	5.088 mg/l	239.207 mg/l

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1	Pollutant:	Arsenic(T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
50	Sludge Application Limits (in mg/l)	3.819 mg/l	1.075 mg/l	NA	51.355 mg/l	NA	6.969 mg/l	3.704 mg/l	14.762 mg/l	11.807 mg/l	NA	63.679 mg/l	NA
51	Activated Sludge Inhibition (in mg/l)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
52	Anaerobic Digestor Inhibition (in mg/l)	7.633 mg/l	27.788 mg/l	NA	71.327 mg/l	9.055 mg/l	398.13 mg/l	NA	17.645 mg/l	NA	NA	481.025 mg/l	NA
53													
54	**Part VIII: SAMPLE QUALITY: COMPARISON OF LOADINGS AND REMOVAL RATES IMPLIED BY SAMPLE DATA**												
55	Pollutants in Influent (per sampling)	0.214 lbs	0.02 lbs	0.161 lbs	5.653 lbs	0.076 lbs	0.214 lbs	0.162 lbs	0.296 lbs	0.257 lbs	0.028 lbs	17.651 lbs	524.861 lbs
56	Pollutants in biosolids (per sampling)	0.053 lbs	0.013 lbs	0.223 lbs	3.797 lbs	0. lbs	0.101 lbs	0.128 lbs	0.153 lbs	0.105 lbs	0.05 lbs	7.401 lbs	0. lbs
57	Pollutants in effluent (per sampling)	0.201 lbs	0.01 lbs	0.079 lbs	4.26 lbs	0.483 lbs	0.088 lbs	0.135 lbs	0.19 lbs	0.242 lbs	0.012 lbs	7.677 lbs	7.677 lbs
58	% Influent load accounted for: (eff/inf)	118.91%	110.81%	188.03%	142.51%	631.44%	88.45%	161.85%	115.92%	135.34%	219.91%	85.43%	93.24%
59	Current HW Load Implied by Sludge Data:	3.22%	0.80%	0.00%	64.44%	0.00%	0.82%	4.29%	25.44%	2.62%	0.08%	42.86%	0.00%
60	Local Limit implied by %max Biosolids level	1.948 mg/L	0.764 mg/L	NA	25.682 mg/L	NA	7.717 mg/L	1.118 mg/L	9.888 mg/L	2.906 mg/L	NA	76.556 mg/L	NA
61													
62	**PART IX: MASS BASED ANALYSIS**												
63	Limiting MAHL (Dom Load + LL*IUflow)	12.9948 lb/d	3.621 lb/d	354,050.81 lb/d	17.54 lb/d	1. lb/d	23.55 lb/d	12.56 lb/d	1.74 lb/d	39.79 lb/d	102.67 lb/d	34.26 lb/d	1,313.04 lb/d
64	Domestic and 10.% reserve for safety and growth	1.5079 lb/d	0.382 lb/d	35,405.24 lb/d	7.27 lb/d	0.17 lb/d	2.56 lb/d	1.41 lb/d	0.46 lb/d	4.23 lb/d	10.29 lb/d	20.65 lb/d	643.35 lb/d
65	Max. Allowable Industrial Loading (MAIL)	11.4869 lb/d	3.239 lb/d	318,645.58 lb/d	10.27 lb/d	0.82 lb/d	20.98 lb/d	11.15 lb/d	1.27 lb/d	35.56 lb/d	92.38 lb/d	13.61 lb/d	669.68 lb/d
66													
67	**Part X: LOCAL LIMIT RECAP:**	**Arsenic(T)**	**Cadmium**	**Chrome (T)**	**Copper**	**Cyanide**	**Lead**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Zinc**	**MBAS**
68	Industrial Flow (in MGD)	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD	0.4015 MGD
69	Local Limit = MAIL/(8.34*Industrial Flow)	3.43 mg/l	0.967 mg/l	95,160.408 mg/l	3.068 mg/l	0.245 mg/l	6.266 mg/l	3.329 mg/l	0.38 mg/l	10.619 mg/l	27.59 mg/l	4.065 mg/l	199.994 mg/l
70													
71													
72	Limiting MAHL- Inf load in pounds	12.781	3.600	354,050.654	11.890	0.920	23.332	12.398	1.440	39.531	102.644	16.605	788.175
73													
74													
75	AHLs in Pounds	Arsenic(T)	Cadmium	Chrome (T)	Copper	Cyanide	Lead	Molybdenum	Nickel	Selenium	Silver	Zinc	MBAS
76	Acute WQ Standards (in lb/d)	1497.082	1430.771	354050.815	164.856	25.935	8767.564	NA	2162.401	6120.330	102.672	3632.242	NA
77	Chronic WQ Standards (in lb/d)	781.086	269.200	NA	106.329	25.935	338.283	NA	239.536	1498.377	102.888	3268.878	NA
78	Other Water Criteria-Color Code at Input	NA	NA	NA	17.544	0.996	NA	NA	1.736	NA	NA	34.256	1313.036
79	Activated Sludge Inhibition (in lb/d)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
80	Sludge Application Limits (in lb/d)	12.995	3.621	NA	177.477	NA	23.545	12.560	49.719	39.787	NA	230.449	NA
81	Max. Allowable Industrial Loading	12.79 lb/d	3.6 lb/d	354,050.66 lb/d	12.03 lb/d	0.92 lb/d	23.34 lb/d	12.4 lb/d	1.45 lb/d	39.54 lb/d	102.64 lb/d	17.04 lb/d	800.99 lb/d
82	Domestic pounds	0.208415	0.019952	0.156694	5.515349	0.074571	0.208425	0.158510	0.288530	0.250385	0.027237	17.220050	512.050777
83	Reserve in Pounds	1.162	0.327	32186.423	1.093	0.084	2.122	1.127	0.132	3.594	9.331	1.549	72.817

PONCE WWTP

Line Number

WATER QUALITY CRITERIA CALCULATIONS (in ug/L unless otherwise noted)

1	Receiving Water: (F)resh, (M)arine, (B)oth	M
2	Hardness for Use in Calculations:	0.00

3		PRIOR	CAR	MARINE			TOTAL	TOTAL	TOTAL	Conv. Fact.		
4		ITY	CIN				LIMITING	LIMITING	LIMITING	Marine	Fresh	Fresh
5	*POLLUTANT*	PLTNT?	GEN?	ACUTE	CHRONIC	Hhealth	ACUTE	CRHONIC	HH	dis/tot	Acute	Chronic
6	Antimony (i)					4300.00	0. ug/l	0. ug/l	4,300. ug/l	1.00	1.00	1.00
7	ARSENIC (T)	Y	Y	69. ug/l	36. ug/l		69. ug/l	36. ug/l	NA	1.00	1.00	1.00
8	ARSENIC(PENT)	Y	Y	2,319. ug/l	13. ug/l		2,319. ug/l	13. ug/l	NA	1.00	1.00	1.00
9	Beryllium						0. ug/l	0. ug/l	NA	1.00	1.00	1.00
10	CADMIUM - Dependent on Hardness in B6	Y	N	42. ug/l	9.3 ug/l		42.2535 ug/l	9.36 ug/l	NA	0.99	#NUM!	#NUM!
11	CHROMIUM(HEX)	Y	N	1,100. ug/l	50. ug/l		1,107.7543 ug/l	50.4 ug/l	NA	0.99	0.98	0.96
12	CHROMIUM(T) - Dependent on hardness in $	N	N	10,300. ug/l	NA		10,300. ug/l	NA	NA	1.00	0.32	0.86
13	COPPER - Dependent on Hardness in B6	Y	N	4.8 ug/l	3.1 ug/l		5.7831 ug/l	3.73 ug/l	NA	0.83	0.96	0.96
14	CYANIDE	Y	N	1.0 ug/l	1. ug/l	220,000. ug/l	1. ug/l	1. ug/l	220,000. ug/l	1.00	1.00	1.00
15	LEAD - Dependent on hardness in B6	Y	N	210. ug/l	8.1 ug/l		220.8202 ug/l	8.52 ug/l	NA	0.95	#NUM!	#NUM!
16	MERCURY	Y	N	1.8 ug/l	0.94 ug/l	0.15 ug/l	2.1176 ug/l	1.1059 ug/l	0.15 ug/l	0.85	0.85	1.00
17	Molybdenum	N	N						NA			
18	NICKEL - Dependent on hardness in B6	Y	N	74. ug/l	8.2 ug/l	4,600. ug/l	74.7475 ug/l	8.28 ug/l	4,600. ug/l	0.99	1.00	1.00
19	SELENIUM	Y	N	290. ug/l	71. ug/l	11,000. ug/l	290.5812 ug/l	71.14 ug/l	11,000. ug/l	1.00	1.00	1.00
20	SILVER - Dependent on hardness in B6.	Y	N	1.9 ug/l	NA		2.2353 ug/l	NA	NA	0.85	0.85	1.00
21	Thallium			2,130. ug/l	NA	0.5 ug/l	2,130. ug/l	0. ug/l	0.47 ug/l	1.00	1.00	1.00
22	Tributyl Tin (TBT)			0.420	0.007		0.42 ug/l	0.0074 ug/l	NA	1.00	1.00	1.00
23	ZINC- Dependent on hardness in B6	Y	N	90. ug/l	81. ug/l		95.1374 ug/l	85.62 ug/l	NA	0.95	0.98	0.99
24	Arsenic (inorganic)	Y	N			0.14 ug/l	0. ug/l	0. ug/l	0.14 ug/l	1.00	1.00	1.00
25	Aluminum						0. ug/l	0. ug/l	0. ug/l	1.00	1.00	1.00
26	MBAS						0. ug/l	0. ug/l	0. ug/l	1.00	1.00	1.00
27	Formaldehyde						0. ug/l	0. ug/l	0. ug/l	1.00	1.00	1.00
28	free Cyanide						0. ug/l	0. ug/l	0. ug/l	1.00	1.00	1.00
							0. ug/l	0. ug/l	0. ug/l	1.00	1.00	1.00
							0. ug/l	0. ug/l	0. ug/l	1.00	1.00	1.00

Confirmed Federal

CAUTION: The values calculated in this color box are derived from the Water Quality Standards boxes below. Changing the location or order of any of the pollutants in rows 10 to 23 may corrupt the entire workbook. Boxes B5 and B6 are taken from the LOCLIMIT.XLS spreadsheet. This spreadsheet cannot function without

Appendix E
Puerto Rico Water Quality Standards For Class SB Waters

Substance	Class SB (ug/L)
Arsenic (As)	36 (AL)
Cadmium (Cd)	7.95 (AL)
Cyanide (Free CN)	1.0 (AL)
Copper (Cu)	3.73 (AL)
Chromium III (Cr+3)	---
Chromium VI (Cr+6)	50.4 (AL)
Chromium (Cr)	---
Mercury (Hg)	0.051 (HH)
Nickel (Ni)	8.28 (AL)
Silver (Ag)	2.24 (AL)
Lead (Pb)	8.52 (AL)
Selenium (Se)	71.14 (AL)
Zinc (Zn)	85.62 (AL)
Surfactants (MBAS)	500
Total Nitrogen	5,000
Total Phosphorus	1,000

Identification codes for the applicability of standards to uses. These codes include designated and existing uses.
AL = Protection of the water body for the propagation and preservation of aquatic species or species dependent on the water body.
DW = Protection of the water body for use as source of drinking water supply.
HH = Protection of the water body or aquatic life for reasons of human health.

Appendix F
Average TCLP for Sludge

Project: Ponce TBLL
all results are in mg/L
Sludge

Date	Arsenic	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
01/08/2015	<0.01	<0.002	<0.05	<0.05	<0.0002	<0.01	<0.002
02/10/2015	<0.01	<0.002	<0.05	<0.05	**0.0006**	<0.01	<0.002
04/01/2015	<0.01	<0.002	<0.05	<0.05	**0.00009**	<0.01	<0.002
07/21/2015	<0.01	**0.003**	<0.005	<0.005	<0.0002	<0.01	<0.002
10/13/2015	<0.01	<0.0005	<0.005	<0.005	<0.0002	<0.03	<0.002
01/28/2016	<0.01	<0.0005	<0.005	<0.005	<0.0002	<0.03	<0.002
04/05/2016	<0.01	<0.0005	<0.005	<0.005	<0.0002	<0.03	<0.002
07/05/2016	<0.01	<0.0005	<0.005	<0.005	<0.0002	<0.03	<0.002
10/06/2016	<0.10	<0.0010	<0.050	<0.100	**0.0002**	<0.10	<0.010
01/03/2017	<0.011	<0.001	**0.049**	<0.003	**0.004**	<0.011	<0.008
06/06/2017	<0.006	<0.001	<0.001	<0.003	**0.00076**	<0.011	<0.001
08/29/2017	<0.10	<0.0050	<0.050	<0.050	<0.0002	<0.30	<0.020
12/28/2017	<0.01	**0.0052**	**0.006**	<0.005	<0.0002	**0.15**	<0.002
12/12/2017	<0.01	<0.0005	<0.005	<0.005	<0.0002	**0.06**	<0.002
01/25/2018	<0.01	**0.0074**	**0.01**	<0.005	<0.0002	**0.11**	<0.002
04/03/2018	**0.52**	<0.0025	<0.025	<0.025	<0.0002	<0.15	<0.010
07/24/2018	<0.05	**0.0025**	<0.025	<0.025	<0.0002	<0.15	<0.010
10/02/2018	<0.05	<0.0025	<0.025	<0.025	**0.0003**	<0.15	<0.010
01/02/2019	<0.05	**0.005**	<0.025	<0.025	**0.0003**	<0.15	<0.010
02/07/2019	<0.05	<0.0025	<0.025	<0.025	<0.0002	<0.15	<0.010
04/10/2019	<0.05	<0.0025	<0.025	<0.025	**0.0003**	<0.15	<0.010
07/01/2019	<0.05	<0.0025	<0.050	<0.050	<0.0002	<0.15	<0.010
10/01/2019	<0.05	**0.0035**	<0.050	<0.050	**0.0001**	**0.39**	<0.010
Maximum	**0.52**	**0.0074**	**0.049**	**<0.1**	**0.004**	**0.15**	**<0.02**
TCLP Limits	**5**	**1**	**5**	**5**	**0.2**	**1**	**5**

Appendix G
Long Hand Calculation of Nickel Local Limits

Long Hand Calculation of Nickel Local Limit

Allowable Headwork Loading (AHL) Based on Protection of Water Quality

Acute WQS, Chronic WQS, PRWQSR, and NPDES Permit Limits

POTW's are required to prohibit nondomestic user discharges in amounts that result in violation of water quality Standards and/or NPDES Limits.

Federal WQ criteria are found at: http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm
PRWQS are contained in the Rule 1301.1.I.1 of the PRWQSR which sets metals limits for coastal marine waters
NPDES Limits for Ponce are found in NPDES Permit #PR0023736
Where a dilution factor has been approved the factor applies to the Water Quality Standards but not to NPDES Limits
Dilution Factor Applied for Aguadilla: A dilution factor as been approved at 191:1

Nickel

Federal Acute =	74.75 µg/l	
Federal Chronic =	8.28 µg/l	
PRWQSR =	8.28 µg/l	Most stringent WQS (expressed in mg/L) = 0.00828
NPDES=	8.28 µg/l	

Using the most stringent from above, the Allowable Headworks Loading is calculated using the following equation:

$$Lwqs = \frac{(8.34)(Ccrit)(Qpotw * Dilution\ Factor)}{(1\text{-}Rpotw)}$$

Where:

		WQS	NPDES
Lwqs =	Maximum allowable headworks loading (lbs/day) based on NPDES permit limits or Water Quality Criteria	For Nickel	For Nickel
Ccrit=	(NPDES effluent limits or WQ criteria minus ambient concentration expressed as mg/L)	0.00828	0.00828
Qpotw=	(POTW average flow in MGD)	16.45	16.45
Dilution Factor (WQS) =	(1 is equivalent to no diluiton factor)	138	1
Rpotw =	(Overall Removal Factor)	0.3456	0.3456

Nickel

WQS Lwqs = $\frac{(8.34\ lb/gal)(.00828\ mg)(16.45\ mgd * 138)}{(1\text{-}0..3456)}$ = 239.536 lb/d

NPDES Lnpdes = $\frac{(8.34\ lb/gal)(.00828\ mg)(16.45\ mgd * 1)}{(1\text{-}0.6128)}$ = 1.736 lb/d

Long Hand Calculation of Nickel Local Limit

Allowable Headwork Loading (AHL) Based on Sludge Criteria

Maximum headwork loadings to protect sludge quality are derived, based on Table 3 criteria contained in 40 CFR 503, using the following equation.

$$Lin = \frac{(8.34)(CsIcrit)(PS/100)(QsIdg)}{Rpotw}$$

Where:

Lin =	Allowable Headwork Pounds per Day	
PS =	Percent solids in the sludge to disposal (%)	
Qsldg =	Sludge flow to disposal (MGD)	
CsIcrit =	Limiting sludge criteria (mg/kg)(Table 3)	
Rpotw =	POTW removal efficiency (as a decimal)	

For Nickel
2
0.246
420
0.3456

Table 3 40 CFR 503 Pollutant	Clean Sludge (mg/kg)
Arsenic	41
Cadmium	39
Chromium	NA
Copper	1500
Cyanide	NA
Lead	300
Mercury	17
Molybdenum	NA
Nickel	420
Selenium	100
Silver	NA

For the Aguadilla the Plant Daily sludge flow and percent solids is not available
Values used are based on standard design estimation methods.

Nickel

$$Lin = \frac{(8.34)(420)(0.02)(0.246)}{0.3456} = 49.87 \text{ lb/d}$$

Long Hand Calculation of Nickel Local Limit

Selection of Lowest AHL Representing Maximum Allowable Headworks Loading (MAHL)

The smallest of the above calculated values is selected as the MAHL

Selection of MAHL lb/d				
	WQS	NPDES	Sludge Disposal	Maximum Allowable Headworks Loading (MAHL)
Lead	239.536	1.736	49.872	1.736

Calculation of the Maximum Allowable Industrial Loading (MAIL)

The domestic (uncontrollable) sources and a safety/growth factor are subtracted from the MAHL to calculate the MAIL as follows:

$$MAIL = (MAHL)(1\text{-}SF) - L_{unc}$$

Where:

MAIL = Maximum available industrial loading, lbs/day
MAHL = Maximum allowable headworks loading, lbs/day
SF = Safety and Growth factor, as a decimal
L_{unc} = Loadings from uncontrolled sources (uncontrolled sources = all sources minus permitted industry loadings), lbs/day

For Nickel
1.736
10%
0.288

Using conservative approach L_{unc} has been established using (domestic flow =average plant influent-permitted industrial flow) and average influent concentration as follows:

L_{unc} = (average Influent concentration in mg/L)(average domestic flow to POTW)(8.34)

Nickel

L_{unc} = (2.156 µg/L/1000 µg/mg)(16.04 MGD)(8.34) = 0.288 lb/d
MAIL = (1.082 lb/d) * (1-0.1) - (0.283 lb/d) = 1.274 lb/d

Calculation of Industrial Local Limit mg/l using Uniform Allocation Method

The uniform allocation method devides the MAIL by the industrial flow and a factor of 8.34 to convert to a concentration based limit using the following equation:

$$\text{Local Limit} = \frac{\text{MAIL lb/d}}{(8.34 \times Qi)}$$

Where:

Qi = Total Industrial Flow, MGD 0.4015 MGD

Nickel

MAILconc = 1.274 lb/d ÷ (8.34 * 0.4015 MGD) = 0.38 mg/l

Appendix H
Monthly BOD_5 and TSS Data

Ponce RWWTP Monthly Flow, BOD5, and TSS Records

Month	Flow	BOD5				TSS			
	Monthly Average	% Removal	Effluent Conc.	Influent Conc.	Calculated Influent Loading	% Removal	Effluent Conc.	Influent Conc.	Calculated Influent Loading
	mgd	%	mg/L	mg/L	lb/d	%	mg/L	mg/L	lb/d
Jan-2015	16.4	29	74	104	14,256	43	66	116	15,837
Feb-2015	16.77	28	82	114	15,929	52	63	131	18,357
Mar-2015	16.57	43	78	137	18,911	49	67	131	18,155
Apr-2015	16.58	50	76	152	21,018	36	78	122	16,853
May-2015	15.48	72	85	304	39,192	50	69	138	17,816
Jun-2015	14.86	50	81	162	20,077	39	79	130	16,050
Jul-2015	16.18	31	83	120	16,232	58	53	126	17,028
Aug-2015	15.77	54	85	185	24,303	40	81	135	17,755
Sep-2015	15.92	55	85	189	25,079	35	84	129	17,158
Oct-2015	16.74	51	88	180	25,073	32	83	122	17,041
Nov-2015	16.6	57	80	186	25,757	34	83	126	17,410
Dec-2015	15.51	46	81	150	19,403	32	80	118	15,218
Jan-2016	16.61	45	92	167	23,172	38	71	115	15,864
Feb-2016	16.18	51	92	188	25,336	45	74	135	18,156
Mar-2016	16.64	52	92	192	26,599	38	83	134	18,578
Apr-2016	16.95	40	101	168	23,796	57	74	172	24,328
May-2016	16.46	34	101	153	21,007	33	72	107	14,752
Jun-2016	16.56	37	83	132	18,195	37	73	116	16,003
Jul-2016	16.46	28	99	138	18,876	35	69	106	14,572
Aug-2016	17.09	46	90	167	23,755	34	80	121	17,276
Sep-2016	16.66	38	99	160	22,186	39	80	131	18,222
Oct-2016	17.33	32	104	153	22,105	34	78	118	17,081
Nov-2016	17.23	38	81	131	18,773	39	71	116	16,726
Dec-2016	16.44	37	94	149	20,458	42	69	119	16,311
Jan-2017	15.92	38	81	131	17,346	39	80	131	17,413
Feb-2017	15.63	32	100	147	19,170	40	66	110	14,339
Mar-2017	15.84	36	99	155	20,435	38	68	110	14,489
Apr-2017	16.44	38	85	137	18,797	38	70	113	15,480
May-2017	16.2	33	97	145	19,560	46	60	111	15,012
Jun-2017	15.74	39	89	146	19,153	45	67	122	15,991
Jul-2017	15.46	36	89	139	17,930	36	71	111	14,304
Aug-2017	16.62	39	86	141	19,542	34	72	109	15,121
Sep-2017		25	118	157		63	52	141	
Oct-2017		43	61	107		26	74	100	
Nov-2017		43	77	135		37	48	76	
Dec-2017	17.06	47	82	155	22,013	23	69	90	12,750
Jan-2018	16.34	35	100	154	20,965	26	74	100	13,628
Feb-2018	15.71	41	104	176	23,095	26	65	88	11,509
Mar-2018	16.39	50	74	148	20,231	22	75	96	13,144
Apr-2018	17.09	58	66	157	22,398	24	76	100	14,253
May-2018	17.13	34	88	133	19,049	28	76	106	15,080
Jun-2018	16.53	46	71	131	18,126	33	66	99	13,580

Ponce RWWTP Monthly Flow, BOD5, and TSS Records

Month	Flow	BOD5				TSS			
	Monthly Average	% Removal	Effluent Conc.	Influent Conc.	Calculated Influent Loading	% Removal	Effluent Conc.	Influent Conc.	Calculated Influent Loading
	mgd	%	mg/L	mg/L	lb/d	%	mg/L	mg/L	lb/d
Jul-2018	16.37	40	71	118	16,156	31	67	97	13,257
Aug-2018	16.76	43	77	135	18,882	25	75	100	13,978
Sep-2018	16.96	47	67	126	17,881	34	58	88	12,430
Oct-2018	18.36	45	71	129	19,767	23	78	101	15,511
Nov-2018	17.17	55	79	176	25,139	29	82	115	16,538
Dec-2018	16.4	50	74	148	20,243	37	72	114	15,632
Jan-2019	15.96	54	82	178	23,728	44	70	125	16,638
Feb-2019	15.85	43	100	175	23,191	40	73	122	16,083
Mar-2019	16.34	23	93	121	16,459	49	64	125	17,101
Apr-2019	16.39	36	103	161	21,999	56	70	159	21,747
May-2019	16.48	37	94	149	20,507	53	65	138	19,008
Jun-2019	16.17	35	92	142	19,088	57	50	116	15,681
Jul-2019	16.85	30	84	120	16,863	62	52	137	19,230
Aug-2019	16.32	48	77	148	20,155	71	45	155	21,120
Sep-2019	17.18	44	70	125	17,910	66	52	153	21,914
Oct-2019	16.64	31	82	119	16,492	64	43	119	16,576
Nov-2019	17.02	41	81	137	19,488	75	39	156	22,144
Dec-2019		46	70	130		64	42	117	
Minimum	14.86	23	61	104	14256	22	39	76	11509
Average	**16.45**	**42**	**86**	**150**	**20737**	**41**	**68**	**119**	**16486**
Maximum	18.36	72	118	304	39192	75	84	172	24328

Appendix I
Phenolic Compounds Regulated by Puerto Rico Water Quality Standards Regulation

Phenol and Phenolic Compounds

	Subtance	Classes SB (ug/L)	Class SD (ug/L)	Class SG (ug/L)[a]
+, *	Pentachlorophenol	0.4 (HH)	0.3 (HH)	0.3 (HH)
	2,4,5-Trichlorophenol	600 (HH)	300 (HH)	300 (HH)
+, *	2,4,6-Trichlorophenol	28 (HH)	15 (HH)	15 (HH)
+	2,4-Dichlorophenol	60 (HH)	10 (HH)	10 (HH)
+	2,4-Dimethylphenol	3,000 (HH)	100 (HH)	100 (HH)
+	2-Chlorophenol	800 (HH)	30 (HH)	30 (HH)
+	2-Methyl-4,6-Dinitrophenol	30 (HH)	2 (HH)	2 (HH)
+	3-Methyl-4,6-Dinitrophenol	2,000 (HH)	500 (HH)	500 (HH)
+	2,4-Dinitrophenol	300 (HH)	10 (HH)	10 (HH)
	Nonyphenol	1.7 (AL)	6.6 (AL)	---
+	Phenol	300,000 (HH)	4,000 (HH)	4,000 (HH)

PUERTO RICO WATER QUALITY STANDARDS REGULATION

Rule 1303, as Amended on April 2019

AL = Protection of the water body for the propagation and preservation of aquatic species or species dependent on the water body.
DW = Protection of the water body for use as source of drinking water supply.
HH = Protection of the water body or aquatic life for reasons of human health.

* = Identifies a substance that may be a carcinogen. The HH Criteria is base on a carcinogenicity risk of 10.5-5
+ = Identifies a priority pollutant.
a = For the protection of ground waters with the potential to be used or that are used as source of drinking water supply, the applicable water quality standard is the Drinking Water (DW) or Human Health (HH) criteria. For those ground waters that flow into other water bodies, the applicable water quality standard for ground waters is the most stringent criteria resulting from the comparison between the standard applicable to the classification of the water body into which it flows and the DW or HH criteria applicable to ground waters.

Appendix J
Definitions

Appendix J. Definitions

Allowable Headworks Loading (AHL)	The estimated maximum loading of a pollutant that can be received at a POTW's headworks that should not cause a POTW to violate a particular treatment plant or environmental criterion. AHLs are developed to prevent interference or pass-through.
Applicable Criteria	A regulation or standard that must be considered in the development of a local limit.
Best Management Practice (BMP)	Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the U.S. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. (EPA definition)
Best Professional Judgment	Use of experience and technical expertise to determine a course of action for which a clear-cut direction is not available in statutory or research literature.
Biological Treatment	A treatment process that depends on use of microbiological processes to remove pollutants or render them to a less objectionable state.
Book Values	Numeric values that have been determined in research studies to apply to similar processes. Most information is taken from EPA's 2004 *Guidance Manual on Development of Local Limits* (EPA Publication EPA 833-R-04-002A). See also *Reference Values*.
Categorical User	Industry subject to a category listed in 40 CFR 405-471. By definition, Categorical Users are also listed as significant industrial users.
Chemical Treatment	A treatment process that uses a chemical reaction to reduce pollutants, make pollutants easier to treat, or render them less objectionable. An example includes pH adjustment.
Chemically Enhanced	The addition of chemicals to the waste stream to enhance the actions of a treatment process that is already present in the system.
Cobalt (Pt/Co) Scale	The Cobalt (Pt/Co) scale is a measure of color is a scale where each unit of the scale is defined as the color induced by dissolving 1 milligram per liter (mg/L) of platinum in water using cobalt platinate as the solute.
Composting	The process of adding vegetable matter and accelerating decomposition into a humus-like substance by various micro-organisms, including bacteria, fungi, and actinomycetes, in the presence of oxygen. The resulting product is used for soil amendment.
Concurrent Sampling	Sampling conducted at the same time, or with a lag period approximately equivalent to the time that the flow is resident in any portion of the system. Concurrent sampling estimates how any given characteristic changes as flow moves through the system.
Conservative Pollutant	Pollutants that are presumed not to be destroyed, biodegraded, chemically transformed, or volatilized within the publicly owned treatment works (POTW). Conservative pollutants introduced to a POTW ultimately exit the POTW solely through the POTW's effluent and sludge. Most metals are considered conservative pollutants.
Control Efficiency	The percent capture of a pollutant that is removed by a control measure installed specifically to remove that pollutant.
Criteria	A regulation or standard that may be applicable to the development of a local limit.

Design Capacity, Design Flow	The theoretical capacity based on engineering studies. Capacity is typically engineered into the original design. Changes to the system based on the system actually built after design may differ if changes were made to the design during construction, which results in the final "As-Built Capacity".
Dispersion Factor	A factor that describes how air emissions mix with the ambient air after being emitted from the original source.
Domestic (L_{unch})	Domestic waste describes waste that is generated by residential use and light commercial. In practice, the calculations typically treat domestic waste as the flow that remains after all permitted industrial flow is removed from the waste stream which does not apply a factor for non-permitted commercial. See *Domestic Approximation.*
Domestic Approximation	Domestic sampling typically is taken from low-flow areas, as an alternative; the test data from the influent is used to represent domestic contributions. These data consist of all dischargers, including domestic, commercial, and industrial. Use of the data is a conservative assumption.
Domestic Strength	Waste generated from residential use only varies appreciably between communities (for example, average biochemical oxygen demand [BOD] ranges from <180 mg/L to >300 mg/L). Using best professional judgment, the most typical concentration used in local limits and ordinances is 250 mg/L for BOD and for TSS.
Emission Standards	Emission standards are legal requirements governing air pollutants released into the atmosphere.
General Limit(s)	Limits that are taken from the Puerto Rico Aqueduct and Sewer Authority Rules and Regulations for Supply of Water and Sewer Services.
Guidance Document	Unless otherwise denoted, indicates the use of the U.S. Environmental Protection Agency Office of Wastewater Management. 2004. *Local Limits Development Guidance*. EPA 833-R-04-002A. July.
Headworks	The point at which wastewater enters a wastewater treatment plant. The headworks may consist of bar screens, comminuter, wet wells, and/or pumps.
Implementation	Specification of how Technically Based Local Limits will be applied and which users will require routine monitoring.
Industrial Test Data	Monitoring data collected from the discharge point for each industry. For use in local limits, flow is also required to convert to the mass of pollutant contributed to the treatment system.
Industrial User	Any user who is involved in commercial business practice that discharges wastewater that was generated as part of the commercial process at a rate that sufficiently exceeds domestic strength or volume so as to require regulation to protect the treatment process.
Industry-specific Limit	A limit established in individual industrial permits to limit discharge of pollutants that could interfere with or use excessive capacity of the treatment plant. Industry-specific limits are placed directly into the industrial permit as specified in the Guidance Manual Table 6-2 row three and are based on a non-uniform allocation of the capacity or MAIL available to industry. Limits may be based on a range of rationale between implementation of best management practices to requirements to install treatment equipment sufficient to protect the wastewater plant. Ultimately, the POTW will want to allocate pollutant loadings in a fair and sensible way that does not favor any one industry or group of industries, considers the economic impacts, maintains compliance with the NPDES permit, and otherwise achieves the environmental goals of the program.

Inhibition	Inhibition occurs when pollutant levels in a POTW's wastewater or sludge cause operational problems for biological treatment processes involving secondary or tertiary wastewater treatment and alter the POTW's ability to adequately remove BOD, TSS, and other pollutants.
Interference (positive/negative)	Laboratory test methods are based on attribute(s) of the parameter being tested. Other materials or sample attributes can interfere with achieving an accurate assessment of the parameter being tested. When the result that is obtained is higher than the actual value, this is referred to positive interference. When the results are lower than the actual value, the interference is referred to as negative.
Land Application	Land application is the process of spreading treated wastewater sludge onto land for agricultural purposes, improving the lands nutrient and organic matter content. Land application is subject to regulatory requirements under 40 CFR 503.
Landfill Option	Disposal of sludge in an approved landfill. The landfilling of sludge is subject to regulations in 40 CFR 257.
Lower Explosive Limits (LEL)	The minimum concentration in air at which a gas or vapor will explode or burn in the presence of an ignition source.
Maximum Allowable Headworks Loading (MAHL)	The estimated maximum loading of a pollutant that can be received at a POTW's headworks without causing pass-through or interference. The most protective (lowest) of the AHLs (see definition) estimated for a pollutant.
Maximum Allowable Industrial Loading (MAIL)	The estimated maximum loading of a pollutant that can be received at a POTW's headworks from all permitted industrial users and other controlled sources without causing pass-through or interference. The MAIL is usually calculated by applying a safety factor to the MAHL and discounting for uncontrolled sources, hauled waste, and growth allowance.
Method Detection Limit (MDL)	The minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is present as determined by a specific laboratory method in 40 CFR Part 136, Appendix B.
Minimum Level	The term used by EPA instead of limit of quantitation (LOQ); it is defined as the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all of the method-specified sample weights, volumes, and processing steps have been followed.
Non-conservative Pollutant	Pollutants that are presumed to be destroyed, biodegraded, chemically transformed, or volatilized within the POTW to some degree.
Non-domestic Discharge	Any discharge to the collection system from a permitted source.
Other Permitted User	A source of discharge which has been given a discharge permit but does not fit the definition of categorical or significant industrial user.
Overall Removal Rate	The percent removal of a specific pollutant that occurs from the point of industrial waste discharge to the NPDES-specified wastewater treatment plant discharge point.
Partition Coefficient	The percent of a specific pollutant removed across a process or the system, synonymous with "Removal Factor" and "Removal Coefficient".
Physical Treatment	A treatment process that uses a physical process to reduce pollutants, make pollutants easier to treat, or render them less objectionable. Examples include settling of particles and shredding of rags and debris.

Plug Flow	Plug flow is the flow of materials through a pipe or processes that do not appreciably mix contents with flow that occurred earlier or later in time.
Pollutant of Concern (POC)	Any pollutant that might reasonably be expected to be discharged to the POTW in sufficient amounts to pass through or interfere with the works, contaminate its sludge, cause problems in its collection system, or jeopardize its workers.
Positive Interfering Material	A substance that causes a higher than accurate result in a laboratory tests.
Primary Removal Rate	The percent removal of a specific pollutant that occurs from the point of entry to the point of exit from a primary clarifier(s). For a system with multiple treatment processes, the primary removal rate is used in the calculation of inhibition of biological treatment.
Reference Values (Removal Rate)	Numeric values that have been determined in research studies to apply to similar processes. Most information is taken from EPA's 2004 *Guidance Manual on Development of Local Limits* (EPA 833-R-04-002A). See also, *Book Values*.
Removal Coefficient	The percent of a specific pollutant removed across a process or system; synonymous with "Removal Factor" and "Partition Coefficient."
Removal Factor	The percent of a specific pollutant removed across a process or system; synonymous with "Removal Coefficient" and "Partition Coefficient."
Scrubber Equipment	Equipment installed specifically to remove a pollutant from the waste stream; in the context of local limits, scrubber equipment is used to remove metals from emissions from incinerated waste.
Significant Industrial User (SIU)	As defined in 40 CFR 403.3, all users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR chapter I, subchapter N; and any other industrial user that discharges an average of 25,000 gallons per day or more of process wastewater to a POTW (excluding sanitary, non-contact cooling, and boiler blowdown wastewater); contributes a process waste stream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].
Site (system) Characterization	A description of the wastewater system including size, capacity, unit processes used, and industries that discharge to the system and receiving stream. The purpose of the site characterization is to create a record of what was present at the time of the limits development for future comparison when determining if new limits are needed.
Sludge Disposal Option	The method selected to dispose of the solid materials removed from wastewater. The most frequently used options include but are not limited to burial in a landfill site, application to land for agricultural purposes, incineration, or conversion to commercial fertilizer.
Sludge Removal Step	Any step in a wastewater treatment plant that removes solid or semi-solid materials from the waste stream.
Standard Calculations	Calculations that follow exact equations specified in the EPA's 2004 *Local Limits Development Guidance* (EPA Publication EPA 833-R-04-002A) for each of the treatment processes found within a wastewater plant.

Surfactant	Surfactants are compounds that lower the surface tension between two liquids or between a liquid and a solid. Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents, and dispersants. Surfactants may be anionic or cationic, with the vast majority being cationic. Surfactant limits are based on methylene blue active substances, which are anionic and are chiefly in the wastewater stream from detergents.
Surrogate	A value adopted to complete a calculation when a true value is not available because the test data are below the minimum limit (ML). EPA guidance indicates that the ML, one-half of the ML, or zero may be used. Unlike book values, surrogates are not based on previous studies or data and can cause very high differences in the removal rates calculated and, consequently, the final local limit. Surrogates are not used in this local limits derivation except when the effluent is below the ML, and the influent is high enough to indicate that a removal rate is present.
Time-Weighted Average Threshold Limit Value (TWA-TLV)	The concentration to which a worker can be exposed for 8 hours per day, 40 hours per week and not have any acute or chronic adverse health effects (commonly accepted exposure limits identified by the American Conference of Government Industrial Hygienists).
Total Metals	Total metals is a descriptor of metal content of a sample after all organic material has been digested using a vigorous acid digestion; it does not include metals that are tightly bound inside inorganic particles, such as grit and sand.
Toxicity Leaching Procedure	A laboratory procedure designed to predict whether a particular waste is likely to leach chemicals into groundwater at dangerous levels. Details are provided in 40 CFR Part 261.
True Color	Color is the preferential reflection or transmittance of a specific light frequency within the visible light range. True color is the color of water after filtration to remove any colored solid or colloidal materials.
Uniform Allocation	A method of developing local limits in which the mass of a pollutant that is available to industry is first determined and then allocated as the same concentration limit to all industries.