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Local Limits Evaluation 2021

NEW Water, Wisconsin

The Brand Name of the Green Bay
Metropolitan Sewerage District

May 2022

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LIST OF ABBREVIATIONS

BOD	-	biological oxygen demand
BMP	-	Best Management Practices
CBOD	-	carbonaceous biological oxygen demand
CIU	-	Categorical Industrial User
GUWQCC	-	General Use Water Quality Chemical Constituent
IU	-	industrial user
MDL	-	method detection limit
NH_3	-	ammonia nitrogen
NPDES	-	National Pollutant Discharge Elimination System
POC	-	pollutants of concern
SIU	-	Significant Industrial User
TSS	-	total suspended solids
USEPA	-	United States Environmental Protection Agency
WDNR	-	Wisconsin Department of Natural Resources
WPDES	-	Wisconsin Pollutant Discharge Elimination System
WQS	-	Water Quality Standards

ABBREVIATIONS FOR LOCAL LIMIT DETERMINING CRITERIA

Acute WQS	-	Acute Water Quality Standard, NR 105.05
Chronic WQS	-	Chronic Water Quality Standard, NR 105.06
Digester Inhibition	-	USEPA Local Limit Guidance, 2004, Appendix G-3. Chapter 1, Section 307.1102
General Pretreatment Regulations	-	40 CFR 403.5(b)(2)
WPDES	-	Wisconsin Pollutant Discharge Elimination System Permit criteria
USEPA 503 Sludge	-	Sludge regulations 40 CFR 503, Table 1 (Ceiling) and Table 3 (Clean Sludge)

1. INTRODUCTION

A technical local limits re-evaluation was conducted in 2021 for NEW Water's Green Bay and De Pere Wastewater Treatment Facilities based on data from 2019 and 2020. These two facilities are regulated by Wisconsin Pollutant Discharge Elimination System (WPDES) Permit Number WI - 0065251-01-1 (soon to be regulated under WI-0065251-02-0) issued by the Wisconsin Department of Natural Resources (WDNR). The design average flow for each facility is:

- Green Bay Facility (GBF) = 49.2 MGD
- De Pere Facility (DPF) = 10 MGD

At the time of this local limits evaluation, the service area contains 20 federally regulated Categorical Industrial Users (CIU) and 25 Significant Industrial Users (SIU). The purpose of the evaluation is to ensure that local limits are established that have a technical basis and are responsive enough to address any changing conditions in order to facilitate or maintain optimal operating condition flexibility. Influent concentrations of toxic pollutants need to be minimized in order to:

- Protect worker health and safety;
- Prevent interference with the collection system and sewage treatment plant operations;
- Prevent pass-through of pollutants in the final effluent into the Fox River watershed; and
- Prevent impact of bio-solids/sludge disposal options.

New requirements for local limit evaluations were released by the United States Environmental Protection Agency (USEPA) in 2004; these requirements were used as the basis of this evaluation. The USEPA originally established the following 10 Pollutants of Concern (POC) for local limit evaluations: Arsenic, Cadmium, Chromium (Total), Copper, Cyanide, Lead, Mercury, Nickel, Silver, and Zinc. The 2004 Local Limits Development Guidance Manual added Molybdenum, Selenium, Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), and Ammonia Nitrogen (NH_3) to the POC list for evaluation.

In addition, the following POCs were included in the local limits evaluation: Acrylonitrile, Beryllium, Phosphorus, and Hexavalent Chromium to identify the impact of non-residential dischargers in relationship to waste treatment plant requirements.

- NEW Water currently has a local limit for Acrylonitrile, therefore, it is being included in the evaluation to determine if the local limit must remain.
- Beryllium was added because NEW Water incinerates their sludge and Beryllium is a 503 Air Emissions standard.
- The WDNR will be adding a six-month average Phosphorus limit to NEW Water's WPDES permit WI-0065251-02-0. The permit currently already has a monthly Phosphorus limit.

- Hexavalent Chromium is included because it is the more toxic form of the metal and has a WDNR Water Quality Standard. NEW Water currently does not have a local limit for Hexavalent Chromium, so an evaluation was performed to determine if a limit must be established.

The following environmental criteria were considered during the local limits evaluation:

- WPDES Standards
- Activated & Nitrification Sludge Inhibition
- Air Quality Standards
- Water Quality Standards
- Digester Inhibition

NEW Water's De Pere and Green Bay Facilities are not experiencing any issues regarding worker health and safety, wastewater treatment operations, or sludge disposal.

The USEPA Region 5 Local Limits Excel® Spreadsheet (released in September 1995) was used for evaluating local limits. The spreadsheet calculates maximum allowable headworks (plant) loadings and ensuing local limits. This spreadsheet was used and supplemented with information from the USEPA Local Limits Development Guidance, July 2004, hereafter referred to as 2004 Local Limits Guidance. A copy of the local limit calculation spreadsheet for the Green Bay and De Pere Facilities are included in this document in Appendices A-1 and A-2, respectively.

2. BACKGROUND

All dischargers are controlled by NEW Water's **Sewer Use Ordinance** and wastewater discharge permits, if applicable. The Ordinance contains the established uniform standards for all dischargers of wastes from non-residential sources. The following sections in this chapter summarize the sources of the data used in the local limits calculations.

2.1 Wastewater Treatment Facilities

2.1.1 Green Bay Facility

The Green Bay Facility serves the northern portion of NEW Water's service area, which includes a majority of the metropolitan area of Green Bay. Green Bay Packaging - Green Bay Mill Division and Procter & Gamble have direct connections to the Green Bay Facility. The design average flow is 49.2 MGD and the average plant influent flow for the years 2017-2020 was 32.36 MGD or 65.7% of the plant capacity. A summary of the influent flow information is provided in Appendix E-1.

The treatment provided at the Green Bay Facility consists of preliminary treatment, primary treatment, secondary treatment, and disinfection. Preliminary and primary treatment consists of mechanical trash racks and primary clarifiers. Grit and screenings are hauled to a landfill. This facility also receives septage and other hauled wastes, which are pumped to primary influent channels or directly to the headworks. The secondary treatment process consists of a conventional activated sludge process designed for enhanced biological phosphorus removal, nitrification to meet seasonal ammonia limits, and BOD removal. The secondary effluent is chlorinated from May through September with sodium hypochlorite and dechlorinated with sodium bisulfite. Final effluent is discharged into the Fox River near its mouth to the bay of Green Bay. A portion of the final effluent is sent to Green Bay Packaging – Green Bay Mill Division by a direct connection to be used in its process. A process flow diagram for the Green Bay Facility can be found in Appendix B.

2.1.2 De Pere Facility

The De Pere Facility serves the southern portion of NEW Water's service area. Sustana Fiber (formerly known as Fox River Fiber) has a direct connection to the De Pere Facility. NEW Water has the ability to transfer this flow to the Green Bay Facility. The design average flow is 10 MGD and the average plant influent flow for the years 2017-2020 was 8.10 MGD or 81% of the plant capacity. A summary of the influent flow information can be found in Appendix E-2.

The treatment provided at the De Pere Facility consists of preliminary treatment, secondary treatment, tertiary filtration, and disinfection. The preliminary treatment process consists of a pump station with six pumps, two fine screens and two preliminary treatment units. Primary sludge is sent for further treatment in the first stage aeration systems. Grit is dewatered with two hydro-cyclone grit washing and dewatering units and transferred to a landfill. Grease is trucked to the Green Bay Facility for processing. In the secondary treatment process, aeration basins are operated to achieve enhanced biological phosphorus removal, nitrification, and BOD removal. Tertiary filtration removes most of the remaining solids, and the final effluent is disinfected by a UV system. The effluent from this facility enters the Fox River east of the facility and upstream of the Green Bay Facility. This diversion occurs prior to any treatment at the De Pere Facility. A process flow diagram for the De Pere Facility can be found in Appendix B.

2.1.3 Biosolids Treatment

Primary sludge produced at the Green Bay Facility and waste activated sludge from both the Green Bay and De Pere Facilities are treated through a combined solids processing facility at the Green Bay Facility. Thickened solids, along with high-strength waste, are sent to anaerobic digestion, dried, and then incinerated using a fluidized bed incinerator. The incinerator exhaust is treated with a multiple-stage air pollution control train. Ash removed in the scrubber is dewatered and hauled to a landfill.

The Green Bay Facility also has the ability to haul anaerobically digested sludge cake or dried cake to a landfill. Hauling of the sludge cake only occurs when the incinerator is out of service. No sludge is land applied to agricultural land.

2.2 Industrial Contributions

NEW Water operates a federally approved Industrial Pretreatment Program that currently permits 20 CIUs and 25 SIUs for discharge to the Green Bay and De Pere Facilities. A summary of the CIUs and SIUs that discharge to each facility during 2019 – 2020 are provided in the following two tables.

TABLE 1

Green Bay Facility Permitted Industrial Users

Industry Name	Classification	Permit No.	Avg. Flow (mgd)
American Metal Finishing, Inc.	CIU - 40 CFR 433 Metal Finishing	SIU-082	0.010
Badger Sheet Metal Works	CIU – 40 CFR 433 Metal Finishing	SIU-066	0.0007
Bay Valley Foods, LLC	SIU – Pickled Foods	SIU-015	0.467
Cintas Corporation	SIU – Industrial Launderer	SIU-010	0.050
E.H. Wolf and Sons	SIU – Groundwater Remediation	LT-0310	0.002
Georgia Pacific Consumer Operations, LLC	SIU – Landfill	SIU-008	0.328
Green Bay Dressed Beef – Acme	SIU – Beef Slaughterhouse	SIU-013	0.618
Green Bay Dressed Beef – East River	SIU – Beef Processing	SIU-063	0.041
Green Bay Dressed Beef – Northland	SIU – Beef Processing	SIU-064	0.057
Green Bay Packaging – Shipping Container Division	SIU – Cardboard Printing & Gluing	SIU-016	0.012
Green Bay Packaging – Green Bay Mill Division	CIU – 40 CFR 430 Pulp, Paper & Paperboard	SIU-017	0.364
Industrial Engraving LLC	CIU – 40 CFR 433 Metal Finishing	SIU-047	0.0004
JBS Green Bay	SIU – Beef Slaughterhouse	SIU-028	1.306
KI	CIU – 40 CFR 433 Metal Finishing	SIU-020	0.027
Klemm Tank Lines	CIU – 40 CFR 442 Transportation Equipment Cleaning	SIU-050	0.002
Medalcraft Mint	CIU – 40 CFR 433 Metal Finishing	SIU-022	0.003

Industry Name	Classification	Permit No.	Avg. Flow (mgd)
Microstar Logistics	SIU – Beer Keg Cleaning	SIU-089	0.060
Nouryon Pulp & Performance Chemicals – Howard Silica	SIU – Colloidal Silica Mfg.	SIU-055	0.001
Packerland Whey	SIU – Whey Processing	SIU-092	0.171
Paper Converting Machine Company – Ashland Avenue	CIU – 40 CFR 433 Metal Finishing	SIU-051	0.001
PCMC – Northern Engraving	CIU – 40 CFR 433 Metal Finishing	SIU-026	0.001
ProActive Solutions USA	SIU – Cleaners/Chemical Mfg.	SIU-057	0.002
Procter & Gamble Paper Products Company	CIU – 40 CFR 430 Pulp, Paper & Paperboard	SIU-032	4.208
R-Tek Coatings	CIU – 40 CFR 433 Metal Finishing	SIU-090	0.001
Sanimax USA, LLC	SIU – Animal Byproduct Processing	SIU-001	0.407
Schreiber Foods	SIU – Cheese Processing	SIU-034	0.044
Schwabe North America	CIU – 40 CFR 439 Pharmaceutical Mfg	SIU-086	0.033
Tosca, Ltd.	SIU – Cheese Container Cleaning	SIU-045	0.029
Ultra Plating Corporation	CIU – 40 CFR 433 Metal Finishing	SIU-037	0.002
Valley Plating & Fabricating	CIU – 40 CFR 433 Metal Finishing	SIU-040	0.001

TABLE 2

De Pere Facility Permitted Industrial Users

Industry Name	Classification	Permit No.	Avg. Flow (mgd)
Ahlstrom-Munksjo	CIU – 40 CFR 430 Pulp, Paper & Paperboard	SIU-074	1.12
Astro Industries, Inc.	CIU – 40 CFR 433 Metal Finishing	SIU-002	0.001
Austin Straubel International Airport	SIU - Airport	SIU-062	0.203
Bay Towel	SIU – Industrial Launderer	SIU-003	0.102
Brown County Solid Waste – East Landfill	SIU – Landfill	SIU-005	0.020
Dean Dairy Fluid	SIU – Dairy Processing	SIU-023	0.090
Sustana Fiber	SIU – Wetlap Paper	SIU-072	0.742
Green Bay Anodizing, Inc.	CIU – 40 CFR 433 Metal Finishing	SIU-081	0.007
Green Bay Nonwovens, Plant 1	SIU – Nonwovens Manufacturing	SIU-060	0.128
Green Bay Nonwovens, Plant 2	SIU – Nonwovens Manufacturing	SIU-068	0.099
Green Bay Packaging – Coated Products Division	SIU – Coated Paper Products Manufacturing	SIU-011	0.019
Infinity Machine & Engineering	CIU – 40 CFR 433 Metal Finishing	SIU-094	0.0003
Pioneer Metal Finishing	CIU – 40 CFR 433 Metal Finishing	SIU-025	0.256
RR Donnelley – Broadway	SIU - Printing	SIU-033	0.007
RR Donnelley – Scheuring Road	SIU - Printing	SIU-088	0.017
U.S. Paper Mills Corporation - Sonoco	CIU – 40 CFR 430 Pulp, Paper, & Paperboard	SIU-073	0.143

The evaluation used for the industrial contributions is technically defined as Uniform Concentration Using Only Industrial Contributory Flow in Section 5.5 of the 2004 Local Limits Guidance. The industrial pollutant flows (Q_{ind}) used in the local limits calculations in Appendices A-1 and A-2 were determined by adding two components: the permitted industrial flow plus an additional base industrial flow for unpermitted industries.

The permitted industrial flow consists of an evaluation of 20 CIUs and 25 SIUs. Industrial flows were allocated when the industrial pollutant data was greater than the average residential data.

The additional base industrial flow was included to better allocate the pollutants and provide protection for those unregulated small firms in the service area that may contribute unspecified amounts to the pollutant loadings. An additional base industrial flow of 1% of the facility's influent flow was used for each pollutant except for Phosphorus, which was allocated 2%. There is a higher potential for Phosphorus discharges from the unregulated firms, therefore, a higher allocation was assessed. The additional base industrial flow is an extra safety factor and does not replace the 10% safety factor that is required in the local limits calculation spreadsheets.

While NEW Water's basic concern is the additive effect of a large number of small unregulated users, the additional base industrial flow will provide NEW Water with a limit that need not be modified, even if a firm with a significant pollutant loading moves into the service area that would be required to be classified as a permitted user. A summary of the contributory industrial flow for each pollutant is provided in the table below and the industrial pollutant flow allocation evaluation is provided in Appendix O-1 for the Green Bay Facility and Appendix O-2 for the De Pere Facility.

TABLE 3
NEW Water Industrial User Contributory Flow

Pollutant	Green Bay Facility (mgd)	De Pere Facility (mgd)
Arsenic	0.324	0.224
Beryllium	0.324	0.081
Cadmium	0.384	0.325
Chromium, Total	2.793	1.583
Chromium, Hexavalent	0.324	0.081
Copper	2.496	0.717
Cyanide	0.325	0.081
Lead	0.480	0.605
Manganese	0.324	0.081
Mercury	0.325	1.079
Molybdenum	0.324	0.081
Nickel	4.191	1.583
Phosphorus	3.609	1.375
Selenium	0.324	0.081
Silver	0.355	0.081
Zinc	3.731	1.444

2.3 Residential/Commercial Data

NEW Water has metering stations throughout their service area that are sampled on a monthly basis. The service area for each of the metering stations was reviewed to determine which stations were predominantly sources of residential and commercial (domestic) wastewater. The selected locations represent both new and older residential areas, as well as a mix of commercial and residential properties so that the unregulated population was equitably represented. The sampling location map is provided in Appendix H.

The following meter stations were used for the Green Bay Facility:

- MS-07 Village of Hobart
- MS-14 Town of Scott
- MS-14A Royal Scot Sanitary District

The following meter station was used for the De Pere Facility:

- MS-03 Town of Ledgeview & City of De Pere

Monthly sampling data from January 2017 to September 2020 was used for each of the metering stations. Pollutant data results that were below the method detection limit (MDL) were replaced at 50% of the MDL. A statistical analysis of the data set using the Interquartile Range Method was performed to determine if there were any outliers. The following formulas were used to determine an outlier:

- Any value below (Quartile 1) – 1.5*(Quartile 3 – Quartile 1)
- Any value above (Quartile 3) + 1.5*(Quartile 3 – Quartile 1)

The average concentration for each pollutant was entered into the Appendices A-1 and A-2 "Local Limits Spreadsheet" as the domestic/commercial concentration. All of the domestic data is provided in Appendix G-1 for the Green Bay Facility and Appendix G-2 for the De Pere Facility. Following is a summary of the data.

TABLE 4

NEW Water Residential/Commercial Sewage Data

Pollutant	Green Bay Facility Average (mg/L)	De Pere Facility Average (mg/L)
Arsenic	0.00280	0.00284
Beryllium	0.000052	0.000048
Cadmium	0.00042	0.00037
Chromium, Total	0.00290	0.00286
Chromium, Hexavalent[1]	0.005	0.005
Copper	0.0964	0.106
Cyanide[1]	0.005	0.005
Lead	0.00129	0.00127
Manganese	0.0435	0.0284
Mercury	0.000019	0.000023
Molybdenum	0.00113	0.00238
Nickel	0.00465	0.00509
Phosphorus	4.24	5.18
Selenium	0.00417	0.00419
Silver	0.00025	0.00025
Zinc	0.113	0.219

[1] No data available, therefore, MDL used since pollutant is typically not present in residential wastewater.

2.4 Stream Data

The Green Bay and De Pere Facilities both discharge to the Fox River. The Green Bay Facility's discharge is near the mouth of Green Bay. The De Pere Facility's discharge is approximately seven miles upstream of the Green Bay Facility's discharge. NEW Water conducts upstream sampling semi-annually. Seven data points from 2017-2020 for each facility were used to determine the pollutant background concentration in the Fox River. Data was screened in the same general manner as described in subsection 2.3. The stream data for both facilities are summarized in the below table and is provided in Appendix I-1 for the Green Bay Facility and Appendix I-2 for the De Pere Facility.

TABLE 5

NEW Water Stream Data

Pollutant	Green Bay Facility Average (mg/L)	De Pere Facility Average (mg/L)
Arsenic	0.00264	0.00264
Beryllium	0.000051	0.000058
Cadmium	0.000188	0.000203
Chromium, Total	0.00132	0.00139
Chromium, Hexavalent[1]	0.005	0.005
Copper	0.00128	0.00116
Cyanide	0.0044	0.0044
Lead	0.00129	0.00129
Manganese	0.0570	0.0464
Mercury	0.0000061	0.0000049
Molybdenum	0.00154	0.000764
Nickel	0.00257	0.00242
Phosphorus[2]	---	---
Selenium	0.00408	0.00408
Silver	0.000523	0.000262
Zinc	0.00351	0.00422

[1] No data available, therefore, MDL used since pollutant is typically not present in streams.
[2] No data available and no water quality standards for Phosphorus.

2.5 Removal Efficiencies

2.5.1 Green Bay & De Pere Facility Removal Efficiencies: Influent to Effluent

Pollutant removals were calculated for each POC using an evaluation of the influent and effluent data. The USEPA recommends in the 2004 Local Limits Guidance that 7-15 data points be used in the removal calculation. For the Green Bay Facility, 10 samples were taken in March and April 2021. For the De Pere Facility, 14 samples were taken in March and April 2021. In addition to this data, the De Pere Facility also had data for select pollutants from August 2018 that were used.

The wastewater treatment plant hydraulic retention time between the influent and effluent sampling points was accounted for in the sample collection. An influent sample was paired with a time lagged effluent sample to accurately reflect pollutant removal efficiency. By using hydraulic retention time paired samples, it was possible to calculate more precise removal rates on low level metal pollutant concentrations. The time lag for the Green Bay Facility is approximately 22.7 hours and the De Pere Facility is approximately 43.2 hours.

The influent sampling data at the Green Bay and De Pere Facilities took place at the following locations:

Green Bay Facility

- CS-P2: Raw Green Bay Facility Influent
- MS-PG: Procter & Gamble Influent
- SIU-017-01: Green Bay Packaging Green Bay Mill Division Influent
- SIU-072-01: Sustana Fiber Influent

De Pere Facility

- DP-INF: Raw De Pere Facility Influent
- SIU-072-01: Sustana Fiber Influent

Both facilities include the flow from Sustana Fiber. The wastewater from Sustana Fiber is discharged to the De Pere Facility, then a portion of the flow is diverted to the Green Bay Facility. Flow meter LM-B4 monitors the flow diverted to the Green Bay Facility, and meter LM-B5 monitors the flow remaining at the De Pere Facility.

The flow at each of these sampling locations was used in the combined wastestream formula to calculate the influent concentration for each pollutant.

The Green Bay Facility's effluent is split between two separate Chlorine Contact Basins prior to discharging at Outfall 001. Effluent sampling is performed after each basin at CS-B14 and CS-B15. The combined wastestream formula was used to calculate the effluent concentration for each pollutant. The effluent sampling at the De Pere Facility is collected at one location, therefore, the application of the combined wastestream formula is not required.

Data that was below the MDL was included at 50% of the MDL. Data was screened in the same general manner as the residential data described in subsection 2.3.

The results from the removal evaluation are listed below. The influent and effluent data and subsequent removal calculations are provided in Appendix F-1 for the Green Bay Facility and Appendix F-2 for the De Pere Facility.

The removal efficiency data was then entered into the local limit calculation spreadsheets in Appendices A-1 and A-2 (EPA Tables 1, 2, 5-9).

TABLE 6

Green Bay & De Pere Facilities Removal Efficiencies: Influent to Effluent

Pollutant	Green Bay Facility	De Pere Facility
Arsenic	23%	27%
Beryllium	17%	63%
Cadmium	85%	93%
Chromium, Total	87%	88%
Chromium, Hexavalent	71%	81%*
Copper	85%	93%
Cyanide	69%*	69%*
Lead	85%	83%
Manganese	14%	21%
Mercury	80%	97%
Molybdenum	13%	33%
Nickel	17%	68%
Phosphorus	91%	98%
Selenium	50%*	50%*
Silver	75%*	72%
Zinc	22%	79%
BOD	98%	99%
TSS	94%	99%
Acrylonitrile**	0%	---

* USEPA Median removal used from Appendix R-2 of the 2004 Local Limits Guidance.
** Acrylonitrile results at the Green Bay Facility were reported as non-detectable, therefore, no removal efficiency was calculated. There is no USEPA median removal for this pollutant. Acrylonitrile was not evaluated at the De Pere Facility.

2.5.2 Priority Pollutant Removal Efficiencies through Primary Treatment

The Green Bay Facility has primary treatment and the De Pere Facility has preliminary treatment. USEPA literature removal rates were used for primary treatment removal efficiencies in Appendices A-1 and A-2 EPA Table 3 for both the Green Bay and De Pere Facilities. The median value was the only data available and, therefore, was used. These removal efficiencies were found in Appendix R-1 of the 2004 Local Limits Guidance.

TABLE 7

Priority Pollutant Removal Efficiencies Through Primary Treatment

Pollutant	Percent
Arsenic	---
Beryllium	---
Cadmium	15
Chromium, Total	27
Chromium, Hexavalent	---
Copper	22
Cyanide	27
Lead	57
Manganese	---
Mercury	10
Molybdenum	---
Nickel	14
Phosphorus	---
Selenium	---
Silver	20
Zinc	27

2.5.3 Priority Pollutant Removal Efficiencies through Activated Sludge Treatment

USEPA literature removal rates were used for secondary removal efficiencies in Appendices A-1 and A-2 EPA Table 4 for both the Green Bay and De Pere Facilities. The median value from Appendix R-2 of the 2004 Local Limits Guidance was used for removal efficiencies rather than the second decile or the eighth decile removal rates.

TABLE 8

Priority Pollutant Removal Efficiencies Through Activated Sludge Treatment

Pollutant	Percent
Arsenic	45
Beryllium	---
Cadmium	67
Chromium, Total	82
Chromium, Hexavalent	---
Copper	86
Cyanide	69
Lead	61
Manganese	---
Mercury	60
Molybdenum	---
Nickel	42
Phosphorus	---
Selenium	50
Silver	75
Zinc	79

3. APPLICABLE ENVIRONMENTAL CRITERIA STANDARDS

The environmental criteria used to evaluate the current local limits require either standards or inhibition levels to be entered. Literature values of inhibition levels used were obtained in the 2004 Local Limit Guidance. The specific standards and inhibition criteria applicable to NEW Water follow below.

3.1 WPDES Effluent Limits (Appendix A EPA Tables 1 & 2 calculations)

Both the Green Bay and De Pere Facilities are permitted under NEW Water's WPDES Permit No. WI-0065251-02-0 (see Appendix C for draft permit). The following three tables outline the daily, weekly, and monthly effluent limits for both facilities.

TABLE 9

NEW Water WPDES Daily Effluent Limits

Pollutant	Green Bay Facility (ng/L)	De Pere Facility (mg/L)
Mercury	5.5	---
NH_3 – January-April	---	26
NH_3 – May-October	---	---
NH_3 – November-December	---	26

TABLE 10

NEW Water WPDES Weekly Effluent Limits

Pollutant	Green Bay Facility (mg/L)	De Pere Facility (mg/L)
$CBOD_5$	40	18
TSS	27	12
NH_3 – January-April	59	26
NH_3 – May-September	13	---
NH_3 – October	38	---
NH_3 – November-December	104	26

TABLE 11

NEW Water WPDES Monthly Effluent Limits

Pollutant	Green Bay Facility (mg/L)	De Pere Facility (mg/L)
$CBOD_5$	25	9.0
TSS	18	8.0
NH_3 – January-March	15	26
NH_3 – April	15	24
NH_3 – May-September	4.7	---
NH_3 – October	14	---
NH_3 – November-December	26	26
Phosphorus[1]	1.0	1.0

[1] A six-month average Adaptive Management Interim Phosphorus limit of 0.6 mg/L becomes effective November 1, 2021. The six-month average periods end on April 30th and October 31st annually.

Green Bay Facility's daily Mercury effluent limit was entered into Appendix A-1 EPA Table 1. The six-month average Phosphorus limit was entered into Appendices A-1 and A-2 EPA Table 2 for both facilities. The six-month average limit was used rather than the monthly limit because it is more restrictive.

Both facilities are able to meet the $CBOD_5$, TSS, NH_3 and Phosphorus effluent requirements in the WPDES Permit. NEW Water does not regulate the conventional pollutants ($CBOD_5$, TSS and NH_3) with a local limit, therefore, they were not evaluated further. Phosphorus was further evaluated because it is a newer pollutant of concern in NEW Water's WPDES Permit and the limit keeps on going lower each permit cycle. The evaluation is to determine whether the industries need to be regulated with a Phosphorus limit to help NEW Water maintain compliance with their Phosphorus limit.

3.2 Activated Sludge Inhibition Levels (Appendix A EPA Table 3 calculations)

The data entered for the Activated Sludge Inhibition Levels in Appendices A-1 and A-2 EPA Table 3 for both the Green Bay and De Pere Facilities are national EPA literature values from Appendix G-1 of the 2004 Local Limit Guidance. The minimum reported inhibition threshold was used to evaluate the greatest protection to the Green Bay and De Pere Facilities.

TABLE 12

Activated Sludge Inhibition Threshold Levels

Pollutant	mg/L
Arsenic	0.1
Beryllium	---
Cadmium	1
Chromium, Total	1
Chromium, Hexavalent	1
Copper	1
Cyanide	0.1
Lead	1
Manganese	---
Mercury	0.1
Molybdenum	---
Nickel	1
Phosphorus	---
Selenium	---
Silver	---
Zinc	0.3

3.3 Nitrification Inhibition Levels (Appendix A EPA Table 4 calculations)

National literature values were also used for the Nitrification Inhibition Levels (Appendices A-1 and A-2 EPA Table 4) for both the Green Bay and De Pere Facilities. These values were obtained from Appendix G-2 of the 2004 Local Limits Guidance. Median levels were used due to redundant treatment.

TABLE 13

Nitrification Inhibition Threshold Levels

Pollutant	mg/L
Arsenic	1.5
Beryllium	---
Cadmium	5.2
Chromium, Total	1.075
Chromium, Hexavalent	5.5
Copper	0.265
Cyanide	0.42
Lead	0.5
Manganese	---
Mercury	---
Molybdenum	---
Nickel	0.375
Phosphorus	---
Selenium	---
Silver	---
Zinc	0.29

3.4 USEPA 503 Sludge Regulations (Appendix A EPA Table 5 calculations)

Sludge generated at the Green Bay and De Pere Facilities is incinerated at the Green Bay Facility. Sludge is landfilled when the incinerator is not in operation. NEW Water does not land apply sludge and has no future plans to land apply sludge, therefore, the USEPA 503 Sludge Regulations were not evaluated.

3.5 USEPA 503 Sludge Criteria for Clean Sludge (Appendix A EPA Table 6 calculations)

As mentioned in Section 3.4 above, NEW Water does not land apply sludge therefore, the USEPA 503 Sludge Criteria for Clean Sludge was not evaluated.

3.6 USEPA 503 Air Emissions (Appendix A EPA Table 6A calculations)

NEW Water incinerates the sludge generated at the Green Bay and De Pere Facilities at the Green Bay Facility. The EPA Local Limits calculation tables does not include an evaluation for air emissions from incineration, therefore, a new table was added as EPA Table 6A in Appendix A-1.

Air emission standards from incineration are regulated under 40 CFR 503 for Arsenic, Cadmium, Chromium (Total), Lead and Nickel and 40 CFR 61 for Beryllium and Mercury. The air emission standards are provided in the below table:

TABLE 14

40 CFR 503 Air Emission Standards

Pollutant	RSC[1] (ug/m^3)	NAAQS[2] (ug/m^3)	NESHAP[3] (grams/day)
Arsenic	0.023	---	---
Beryllium	---	---	10
Cadmium	0.057	---	---
Chromium, Total	0.23	---	---
Lead	---	1.5	---
Mercury	---	---	3200
Nickel	2.0	---	---

1 RSC = Risk Specific Concentration. The RSC value of 0.064 ug/m^3 used for Chromium in the 2019 Air Emissions report was incorrect. The value provided in this table is correct.
2 NAAQS = National Ambient Air Quality Standard
3 NESHAP = National Emissions Standards for Hazardous Air Pollutants

NEW Water prepares an annual Sewage Sludge Incineration Report to show compliance with the air emission regulations. This report includes an Air Emission Reporting Estimate that calculates the "daily concentration of applicable metal in sewage sludge" based on the above air emission standards and the operating efficiency of the incinerator. This value is known as C_{SLGSTD} in the Allowable Headworks Loading formula (Equation 5.9 from the 2004 Local Limits Guidance document.) For this analysis, NEW Water's 2019 report was used (see Appendix L).

Equation 5.9 from the 2004 Local Limits Guidance document was used to calculate the allowable headworks loading, which was added to the Appendix A-1 EPA Table 6A calculations.

$$AHL = [(8.34)(C_{SLGSTD})(PS/100)(Q_{SLDG})(G_{SLDG})]/R_{POTW}$$

AHL = Allowable Headworks Loading (lbs/day)
C_{SLGSTD} = Daily Concentration of Applicable Metal in Sewage Sludge
PS = Sludge Percent Solids
Q_{SLDG} = Sludge Flow to Disposal/Incinerator (mgd)
G_{SLDG} = Specific Gravity of Sludge (kg/L)
R_{POTW} = POTW Removal Rate of Pollutant, as a decimal (used most stringent removal between Green Bay and De Pere Facilities)

The allowable headworks loading calculations are provided in Appendix M. The sludge flow to incinerator is provided in Appendix N.

3.7 Chronic Water Quality Standards (Appendix A EPA Table 7 calculations)

The Green Bay and De Pere Facilities both discharge to the Fox River, which is located in the Frontal Green Bay Watershed in the Lower Fox River Basin, therefore, the same water quality standards (WQS) will apply to both facilities. The WDNR WQS are published in NR 105 Surface Water Quality Criteria and Secondary Values for Toxic Substances (see Appendix J). The Chronic WQS are located NR 105.06 Chronic Toxicity Criteria and Secondary Chronic Values for Fish and Aquatic Life.

The Fox River 7Q10 flow is 660 cfs (328 mgd) and hardness is 195 mg/l as $CaCO_3$ as reported in NEW Water's WDNR Water Quality Based Effluent Limitation (WQBEL) memo dated September 18, 2019 (see Appendix D-3). The hardness is based on the geometric mean of data from Georgia Pacific Day St. Mill WET testing from March 28, 2015, to May 16, 2017, which is located about half a mile upstream of the Green Bay Facility discharge. The Chronic WQS calculations are provided in Appendix K and summarized below. These values were used in Appendices A-1 and A-2 EPA Table 7.

TABLE 15

Chronic Water Quality Standards

Pollutant	Chronic WQS (mg/L)
Arsenic[2]	0.15
Beryllium	---
Cadmium[1]	0.00416
Chromium, Total[4]	0.239
Chromium, Hexavalent[2]	0.01098
Copper[3]	0.0183
Cyanide[2]	0.0115
Lead[3]	0.0534
Manganese	---
Mercury[2]	0.00044
Molybdenum	---
Nickel	0.0918
Phosphorus	---
Selenium[2]	0.005
Silver	---
Zinc[3]	0.216

1 WQS from NR 105 Table 4 – Chronic Toxicity Criteria for Substances With Toxicity Related to Water Quality.

2 WQS from NR 105 Table 5 – Chronic Toxicity Criteria Using Acute-Chronic Ratios for Substances with Toxicity Unrelated to Water Quality (Warm Water Sportfish).

3 WQS from NR Table 6 – Chronic Toxicity Using Acute-Chronic Ratios for Substances with Toxicity Related to Water Quality (Warm Water Sportfish).

4 Due to a lack of a standard for Total Chromium, the Trivalent Chromium WQS from NR 105 Table 6 and Hexavalent Chromium WQS from NR 105 Table 5 were added together to obtain a pseudo Total Chromium standard.

3.8 Acute Water Quality Standards (Appendix A EPA Table 8 calculations)

The Acute WQS are located NR 105.05 Acute Toxicity Criteria and Secondary Acute Values for Aquatic Life. The Acute WQS calculations are provided in Appendix L and summarized below. These values were used in Appendices A-1 and A-2 EPA Table 8.

TABLE 16

Acute Water Quality Standards

Pollutant	mg/L
Arsenic[1]	0.3398
Beryllium	---
Cadmium[2]	0.0222
Chromium, Total[3]	3.132
Chromium, Hexavalent[1]	0.01602
Copper[2]	0.029
Cyanide[1]	0.022
Lead[2]	0.204
Manganese	---
Mercury[1]	0.00083
Molybdenum	---
Nickel[2]	0.825
Selenium	---
Silver	---
Zinc[2]	0.216

[1] WQS from NR 105 Table 1 – Acute Toxicity Criteria for Substances With Toxicity Unrelated to Water Quality (Warm Water Sportfish).

[2] WQS from NR 105 Table 2 – Acute Toxicity Criteria for Substances With Toxicity Related to Water Quality (Warm Water Sportfish)

[3] Due to a lack of a standard for Total Chromium, the Trivalent Chromium WQS from NR 105 Table 2 and Hexavalent Chromium WQS from NR 105 Table 1 were added together to obtain a pseudo Total Chromium standard.

3.9 Anaerobic Digester Inhibition Level (Appendix A EPA Table 9 calculations)

Waste activated sludge from the De Pere Facility is sent to the Green Bay Facility for processing, therefore this criteria was not evaluated for the De Pere Facility. The Green Bay Facility has an anaerobic digester train to which this criterion is applicable.

The minimum national literature inhibition values obtained from Appendix G-3 of the 2004 Local Limits Guidance were used for this evaluation for the Green Bay Facility. The Total Chromium inhibition level was calculated by adding the Trivalent and Hexavalent Chromium inhibition levels.

TABLE 17

Anaerobic Threshold Inhibition Levels

Pollutant	mg/L
Arsenic	1.6
Beryllium	---
Cadmium	20
Chromium, Total	240
Chromium, Hexavalent	110
Copper	40
Cyanide	4
Lead	340
Manganese	---
Mercury	---
Molybdenum	---
Nickel	10
Phosphorus	---
Selenium	---
Silver	13
Zinc	400

4. LOCAL LIMITS EVALUATION

NEW Water currently has separate local limits for the De Pere and Green Bay Facilities. The local limits for each facility include both concentration and mass based limits. The mass based limits are based on the average industrial user contributory flow for each pollutant. In order for an industry to be in violation, they need to exceed both the concentration and mass based limits, which has previously been approved by WDNR. NEW Water received confirmation that this methodology is acceptable from Richard Douglas at WDNR by email on January 25, 2022. NEW Water will continue to maintain separate local limits for each facility.

Each local limit parameter was evaluated based on data calculated from the USEPA Region 5 local limits spreadsheets in Appendices A-1 and A-2. Mass limits were calculated based on the industrial user contributory flow provided in Section 2.2, Table 3 of this report (see Appendix P for mass limit calculations). The local limits were checked against NEW Water's current Local Limits to evaluate the impact of the proposed change. Limits, once adopted, are legally enforceable values that, when exceeded by an industrial user, will result in a violation.

Following is a review of the individual criteria in the order of occurrence in the Appendices A-1 and A-2 spreadsheets.

4.1 WPDES

The Green Bay and De Pere Facilities are currently regulated for the BOD, TSS, and ammonia (NH_3). These pollutants are all considered to be conventional, non-toxic pollutants. At this time, there is no apparent potential to exceed treatment capacity, therefore, NEW Water is not establishing a local limit for conventional pollutants BOD, TSS, and NH_3. Instead, NEW Water will work with the industries to prevent slug discharges for these pollutants.

NEW Water's draft WPDES permit has a monthly Phosphorus limit of 1.0 mg/l and a six-month average of 0.6 mg/l. The six-month average in the WPDES Permit was the determining criteria for Phosphorus for both the Green Bay and De Pere Facilities. The Green Bay Facility calculated the more stringent concentration local limit of 19 mg/l. At this time, NEW Water has decided to not implement a Phosphorus local limit since they are able to currently meet their WPDES Permit Phosphorus limit. NEW Water will work with industries to implement Best Management Practices to manage and control their Phosphorus discharges.

4.2 Interference with Plant Operations

4.2.1 Interference Levels for Activated Sludge

Interference levels for activated sludge (Appendices A-1 and A-2 EPA Table 3) operations were the determining factor for:

- Green Bay Facility – Chromium (Total) and Zinc
- De Pere Facility – Arsenic, Chromium (Total), Chromium (Hexavalent), Copper, Cyanide, Mercury, and Zinc

For the Green Bay Facility:

- The Chromium (Total) limit can be increased, however, NEW Water has decided to keep the current concentration local limit of 5.01 mg/l. The mass limit is being updated based on the current industrial contributory flow. The associated mass limit is 5.56 ppd.
- The limit calculated for Zinc was more stringent limit than NEW Water's current limit, therefore, the Zinc limit will be lowered from 5.66 mg/l to 2.34 mg/l. The associated mass limit is 3.04 ppd.

For the De Pere Facility:

- The Arsenic, Cadmium, Chromium (Total), and Copper limits can be increased, however, NEW Water has decided to keep the current concentration local limits.
    - The Arsenic limit will remain at 0.12 mg/l and the associated mass limit is 0.22 ppd.
    - The Cadmium limit will remain at 0.23 mg/l and the associated mass limit is 0.31 ppd.
    - The Chromium (Total) limit will remain at 3.54 mg/l and the associated mass limit is 3.90 ppd.
    - The Copper limit will remain at 2.16 mg/l and the associated mass limit is 1.43 ppd.
- Mercury limit will remain the same to maintain compliance with the Mercury minimization requirements in NEW Water's WPDES Permit. A mass based limit is not being established for Mercury. NEW Water also allows industries to develop and implement a BMP Plan to be in compliance with Mercury.
- The limit calculated for Zinc was more stringent limit than NEW Water's current limit, therefore, the Zinc limit will be lowered from 2.04 mg/l to 1.06 mg/l. The associated mass limit is 1.60 ppd.
- NEW Water will not establishing a local limit for Chromium (Hexavalent) and Cyanide because the calculated limits are too high to be meaningful, and the potential for the maximum allowable headworks loading to be exceeded is less than 5%.

4.2.2 Interference Levels for Nitrification Sludge

Interference levels for nitrification sludge (Appendices A-1 and A-2 EPA Table 4) operations was a determining factor for Lead for both the Green Bay and De Pere Facilities. The calculation shows that the Lead local limit can be increased, however, NEW Water has decided to keep the current Lead concentration local limits.

- For the Green Bay Facility, the Lead limit will remain at 4.03 mg/l, and the associated mass limit is 1.79 ppd.
- For the De Pere Facility, the Lead limit will remain at 0.66 mg/l, and the associated mass limit is 0.67 ppd.

This criteria was also the determining factor for Nickel at the De Pere Facility.

- The limit calculated for Nickel was more stringent than NEW Water's current limit; therefore, the Nickel limit will be lowered from 4.14 mg/l to 3.0 mg/l. The associated mass limit is 3.30 ppd.

4.2.3 Digester Inhibition

Digester inhibition levels (Appendices A-1 and A-2 EPA Table 9) were the determining factor for Arsenic, Cadmium, Copper, Cyanide, Nickel, and Silver at the Green Bay Facility.

- The Arsenic and Cadmium limits can be increased, however NEW Water has decided to keep the current concentration limits.
  - The Arsenic limit will remain at 0.38 mg/l, and the associated mass limit is 1.03 ppd.
  - The Cadmium limit will remain at 0.30 mg/l, and the associated mass limit is 0.14 ppd.
- The limits calculated for Copper Nickel were more stringent than NEW Water's current limits, therefore, they will need to be lowered.
  - Copper limit will be lowered from 3.26 mg/l to 2.65 mg/l. The associated mass limit is 2.90 ppd.
  - Nickel limit will be lowered from 4.24 mg/l to 2.56 mg/l. The associated mass limit is 3.09 ppd.
- NEW Water will not establishing a local limit for Cyanide because there is a low potential for the maximum allowable headworks loading to be exceeded at the Green Bay Facility.
- NEW Water will not be establishing a local limit for Silver because the calculated limit to too high to be meaningful, and the calculated potential for the maximum allowable headworks loading to be exceeded is 0.1%.

4.3 Federal 503 Sludge Regulations

NEW Water does not land apply their sludge and has no plans to land apply sludge in the future, therefore, the Federal 503 Sludge Regulations were not evaluated for this local limits evaluation.

4.4 Federal 503 Air Emissions Regulations

The Federal 503 Air Emissions Regulations (Appendix A-1 EPA Table 6A) was the determining factor for Beryllium. NEW Water will not be establishing a local limit for Beryllium because the calculated potential to exceed the maximum allowable headworks loading is 0.006%.

4.5 Water Quality Standards

4.5.1 Chronic Water Quality Standards

The Chronic Water Quality Standards (Appendices A-1 and A-2 EPA Table 7) was the determining criteria for Chromium (Hexavalent) and Selenium at the Green Bay Facility and Selenium at the De Pere Facility.

NEW Water will not be establishing a local limit for Chromium (Hexavalent) at the Green Bay Facility because the calculated limit is too high to be meaningful and the calculated potential for the maximum allowable headworks loading to be exceeded is 4%.

NEW Water will not be establishing a local limit for Selenium at either the Green Bay or De Pere Facilities because the calculated limit is too high to be meaningful coupled with the fact that few industries discharge this pollutant.

4.5.2 Acute Water Quality Standards

The Acute Water Quality Standards (Appendices A-1 and A-2 EPA Table 8) was not a determining criteria for any pollutants at the Green Bay and De Pere Facilities.

4.6 Worker Health and Safety

NEW Water has not been experiencing local concerns and problems that might impact the staff or treatment works, which includes the collection system. At the present time, there are no incidents that need to be specifically addressed.

The general pretreatment regulation [40 CFR 403.5 (b)] requires approved pretreatment programs to adopt a minimum of eight specific prohibitions that are narrative in its Sewer Use and Pretreatment Ordinance. Five of these prohibitions address concerns about protection to the treatment works, collection systems, and workers as documented in Chapter 8 of the 2004 Local Limits Guidance. The eight specific prohibitions exist in NEW Water's current Sewer Use Ordinance Chapter 6, Section 6.05 Prohibitions on Discharge. These prohibitions serve as the basis for the protection of the treatment works, including collection systems and workers. Please note that NEW Water could adopt a specific limit at a later date should an issue occur that is better regulated by a specific limit.

4.7 pH

The acceptable pH range will not change from the limits previously adopted.

4.8 Acrylonitrile

A technical evaluation of Acrylonitrile could not be performed because it was not detected in the influent sampling at the Green Bay and De Pere Facilities, therefore, a pollutant removal efficiency could not be calculated. Based on discussions with NEW Water staff, the main industrial source of Acrylonitrile is no longer discharging to the Green Bay Facility, and there are no sources of Acrylonitrile discharging to the De Pere Facility. This was confirmed from the influent testing showing Acrylonitrile was not present. During NEW Water's last local limits evaluation, Acrylonitrile was present in the Green Bay Facility influent. NEW Water will be removing the Acrylonitrile local limit at both facilities. If an industry is found to be using Acrylonitrile, then NEW Water will establish a local limit for that industry only.

5. RECOMMENDATIONS

5.1 Local Limits Recommendations

NEW Water will be establishing separate local limits for the Green Bay and De Pere Facilities. Each facility will have both concentration and mass based local limits. The following tables summarize the proposed local limits as stated in the narrative summary with the determining criteria.

TABLE 18

Green Bay Facility Proposed Local Limits

Pollutant	Current Local Limit (mg/l)	Current Local Limit (ppd)	Proposed Local Limit (mg/l)	Proposed Local Limit (ppd)	Local Limit Determining Criteria
Arsenic	0.38	0.70	0.38	1.03	Digester Inhibition
Beryllium	---	---	---	---	Air Emissions
Cadmium	0.30	0.61	0.30	0.14	Digester Inhibition
Chromium, Total	5.01	9.66	5.01	5.56	Activated Sludge Inhibition
Chromium, Hexavalent	---	---	---	---	Chronic WQS
Copper	3.26	2.19	2.65	2.90	Digester Inhibition
Cyanide	---	---	---	---	Anaerobic Digester
Lead	4.03	7.95	4.03	1.79	Nitrification Sludge Inhibition
Manganese	---	---	---	---	---
Mercury	0.0004	---	0.0004	---	WPDES Daily Limit
Molybdenum	---	---	---	---	---
Nickel	4.24	8.18	2.56	3.09	Digester Inhibition
Phosphorus	---	---	---	---	WPDES Monthly Limit
Selenium	---	---	---	---	Chronic WQS
Silver	---	---	---	---	Anaerobic Digester
Zinc	5.66	3.91	2.34	3.04	Activated Sludge Inhibition
Acrylonitrile	1.0	---	---	---	---
pH (pH Units)	5.0-11.0	---	5.0-11.0	---	General Pretreatment Regulations

TABLE 19

De Pere Facility Proposed Local Limits

Pollutant (mg/L)	Current Local Limit (mg/l)	Current Local Limit (ppd)	Proposed Local Limit (mg/l)	Proposed Local Limit (ppd)	Local Limit Determining Criteria
Arsenic	0.12	0.20	0.12	0.22	Activated Sludge Inhibition
Beryllium	---	---	---	---	---
Cadmium	0.23	0.29	0.23	0.31	Activated Sludge Inhibition
Chromium, Total	3.54	5.71	3.54	3.90	Activated Sludge Inhibition
Chromium, Hexavalent	---	---	---	---	Activated Sludge Inhibition
Copper	2.16	1.32	2.16	1.43	Activated Sludge Inhibition
Cyanide	---	---	---	---	Activated Sludge Inhibition
Lead	0.66	1.07	0.66	0.67	Nitrification Sludge Inhibition
Manganese	---	---	---	---	---
Mercury	0.0004	---	0.0004	---	Activated Sludge Inhibition
Molybdenum	---	---	---	---	---
Nickel	4.12	6.57	3.0	3.30	Nitrification Sludge Inhibition
Phosphorus	---	---	---	---	WPDES Monthly Limit
Selenium	---	---	---	---	Chronic WQS
Silver[1]	---	---	---	---	---
Zinc	2.04	1.12	1.06	1.60	Activated Sludge Inhibition
Acrylonitrile	1.0	---	---	---	---
pH (pH Units)	5.0-11.0	---	5.0-11.0	---	General Pretreatment Regulations

1 NEW Water will not establishing a local limit for Silver because the De Pere Facility can effectively treat this pollutant, and the calculated potential to exceed the maximum allowable headworks loading is 0.2%.

APPENDIX A – Master Local Limits Calculations

A-1: Green Bay Facility

A-2: De Pere Facility

NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

Literature Values

TABLE 1

Local Limits Determination Based on WPDES Daily Effluent Limits

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rpotw)	NPDES Daily Limit (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.324	32.361	23		0.002804	32.037	-	0.7493	-	-	10
Beryllium	0.324	32.361	17		0.000052	32.037	-	0.0139	-	-	10
Cadmium	0.384	32.361	85		0.00042	31.977	-	0.1121	-	-	10
Chromium (Total)	2.793	32.361	87		0.00290	29.568	-	0.7139	-	-	10
Chromium (Hex)	0.324	32.361	71		0.005	32.037	-	1.3359	-	-	10
Copper	2.496	32.361	85		0.0964	29.865	-	24.0074	-	-	10
Cyanide	0.325	32.361	69		0.005	32.036	-	1.3359	-	-	10
Lead	0.480	32.361	85		0.001294	31.881	-	0.3440	-	-	10
Manganese	0.324	32.361	14		0.0435	32.037	-	11.6303	-	-	10
Mercury	0.325	32.361	80	0.0000055	0.000019	32.036	0.007	0.0050	0.0015	0.00057	10
Molybdenum	0.324	32.361	13		0.00113	32.037	-	0.3010	-	-	10
Nickel	4.191	32.361	17		0.00465	28.170	-	1.0934	-	-	10
Phosphorus	3.609	32.361	91		4.24	28.752	-	1015.5656	-	-	10
Selenium	0.324	32.361	50		0.004172	32.037	-	1.1148	-	-	10
Silver	0.355	32.361	75		0.00025	32.006	-	0.0675	-	-	10
Zinc	3.731	32.361	22		0.113	28.630	-	26.9733	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rpotw) Removal efficiency across POTW as percent.
(Ccrit) NPDES daily maximum permit limit for a particular pollutant in mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 2

Local Limits Determination Based on WPDES Monthly Effluent Limits

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE — MAXIMUM LOADING — INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rpotw)	NPDES Monthly Limit (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.324	32.361	23		0.002804	32.037		0.749	-	-	10
Beryllium	0.324	32.361	17		0.000052	32.037		0.014	-	-	10
Cadmium	0.384	32.361	85		0.00042	31.977	-	0.112	-	-	10
Chromium (Total)	2.793	32.361	87		0.00290	29.568	-	0.714	-	-	10
Chromium (Hex)	0.324	32.361	71		0.005	32.037	-	1.336	-	-	10
Copper	2.496	32.361	85		0.096	29.865	-	24.007	-	-	10
Cyanide	0.325	32.361	69		0.005	32.036	-	1.336	-	-	10
Lead	0.480	32.361	85		0.001294	31.881	-	0.344	-	-	10
Manganese	0.324	32.361	14		0.0435	32.037	-	11.630	-	-	10
Mercury	0.325	32.361	80		0.000019	32.036	-	0.005	-	-	10
Molybdenum	0.324	32.361	13		0.00113	32.037	-	0.301	-	-	10
Nickel	4.191	32.361	17		0.00465	28.170	-	1.093	-	-	10
Phosphorus	3.609	32.361	91	0.6	4.24	28.752	1772.138	1015.566	579	19	10
Selenium	0.324	32.361	50		0.004172	32.037	-	1.115	-	-	10
Silver	0.355	32.361	75		0.00025	32.006	-	0.067	-	-	10
Zinc	3.731	32.361	22		0.113	28.630	-	26.973	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rpotw) Removal efficiency across POTW as percent.
(Ccrit) NPDES monthly maximum permit limit for a particular pollutant in mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 3

Local Limits Determination Based on Activated Sludge Inhibition Level

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rprim)	Activated Sludge Inhibition Level (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.324	32.361		0.1	0.002804	32.037	26.989	0.749	23.541	8.72	10
Beryllium	0.324	32.361			0.000052	32.037	-	0.014	-	-	10
Cadmium	0.384	32.361	15	1	0.00042	31.977	317.514	0.112	285.651	89.20	10
Chromium (Total)	2.793	32.361	27	1	0.00290	29.568	369.709	0.714	332.024	14.26	10
Chromium (Hex)	0.324	32.361		1	0.005	32.037	269.887	1.336	241.563	89.50	10
Copper	2.496	32.361	22	1	0.096	29.865	346.009	24.007	287.401	13.81	10
Cyanide	0.325	32.361	27	0.1	0.005	32.036	36.971	1.336	31.938	11.78	10
Lead	0.480	32.361	57	1	0.001294	31.881	627.645	0.344	564.536	141.15	10
Manganese	0.324	32.361			0.0435	32.037	-	11.630	-	-	10
Mercury	0.325	32.361	10	0.1	0.000019	32.036	29.987	0.005	26.984	9.97	10
Molybdenum	0.324	32.361			0.00113	32.037	-	0.301	-	-	10
Nickel	4.191	32.361	14	1	0.00465	28.170	313.822	1.093	281.347	8.05	10
Phosphorus	3.609	32.361			4.24	28.752	-	1015.566	-	-	10
Selenium	0.324	32.361			0.004172	32.037	-	1.115	-	-	10
Silver	0.355	32.361	20		0.00025	32.006	-	0.067	-	-	10
Zinc	3.731	32.361	27	0.3	0.113	28.630	110.913	26.973	72.848	2.34	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rprim) Removal efficiency across across primary treatment as percent.
(Ccrit) Activated sludge threshold inhibition level, mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rprim}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 4

Local Limits Determination Based on Nitrification Inhibition Level

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE — MAXIMUM LOADING — INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rsec)	Nitrification Inhibition Level (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.324	32.361	45	1.5	0.002804	32.037	736.056	0.749	661.701	245	10
Beryllium	0.324	32.361			0.000052	32.037	-	0.014	-	-	10
Cadmium	0.384	32.361	67	5.2	0.00042	31.977	4252.770	0.112	3827.381	1195	10
Chromium (Total)	2.793	32.361	82	1.075	0.00290	29.568	1611.827	0.714	1449.930	62.3	10
Chromium (Hex)	0.324	32.361		5.5	0.005	32.037	1484.380	1.336	1334.606	494	10
Copper	2.496	32.361	86	0.265	0.096	29.865	510.858	24.007	435.765	20.94	10
Cyanide	0.325	32.361	69	0.42	0.005	32.036	365.654	1.336	327.753	120.89	10
Lead	0.480	32.361	61	0.5	0.001294	31.881	346.009	0.344	311.064	77.8	10
Manganese	0.324	32.361			0.0435	32.037	-	11.630	-	-	10
Mercury	0.325	32.361	60		0.000019	32.036	-	0.005	-	-	10
Molybdenum	0.324	32.361			0.00113	32.037	-	0.301	-	-	10
Nickel	4.191	32.361	42	0.375	0.00465	28.170	174.496	1.093	155.953	4.46	10
Phosphorus	3.609	32.361			4.24	28.752	-	1015.566	-	-	10
Selenium	0.324	32.361	50		0.004172	32.037	-	1.115	-	-	10
Silver	0.355	32.361	75		0.00025	32.006	-	0.067	-	-	10
Zinc	3.731	32.361	79	0.29	0.113	28.630	372.702	26.973	308.458	9.91	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rsec) Removal efficiency across primary treatment and secodary treatment as percent.
(Ccrit) Nitrification threshold inhibition level, mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rsec}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 5

Local Limits Determination Based on USEPA 503 Sludge Regulations

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow (MGD) (Qsldg)	Percent Solids (%) (PS)	Removal Efficiency (%) (Rpotw)	503 Sludge Criteria (mg/kg) (Cslcrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic								0.0000	-	0.000	-	-	10
Beryllium								0.0000	-	0.000	-	-	10
Cadmium								0.0000	-	0.000	-	-	10
Chromium (Total)								0.0000	-	0.000	-	-	10
Chromium (Hex)								0.0000	-	0.000	-	-	10
Copper								0.0000	-	0.000	-	-	10
Cyanide								0.0000	-	0.000	-	-	10
Lead								0.0000	-	0.000	-	-	10
Manganese								0.0000	-	0.000	-	-	10
Mercury								0.0000	-	0.000	-	-	10
Molybdenum								0.0000	-	0.000	-	-	10
Nickel								0.0000	-	0.000	-	-	10
Phosphorus								0.0000	-	0.000	-	-	10
Selenium								0.0000	-	0.000	-	-	10
Silver								0.0000	-	0.000	-	-	10
Zinc								0.0000	-	0.000	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Qsldg) Sludge flow to disposal in MGD.
(PS) Percent solids of sludge to disposal.
(Rpotw) Removal efficiency across POTW as a percent.
(Cslcrit) 503 sludge criteria in mg/kg dry sludge.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Cslcrit * (PS/100) * Qsldg}{Rpotw}$$

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LOCAL LIMIT CALCULATIONS

TABLE 6
Local Limits Determination Based on 503 Clean Sludge Criteria
ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE — MAXIMUM LOADING — INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow (MGD) (Qsldg)	Percent Solids (%) (PS)	Removal Efficiency (%) (Rpotw)	State Sludge Criteria (mg/kg) (Cslcrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic								0.0000	-	0.000	-	-	10
Beryllium								0.0000	-	0.000	-	-	10
Cadmium								0.0000	-	0.000	-	-	10
Chromium (Total)								0.0000	-	0.000	-	-	10
Chromium (Hex)								0.0000	-	0.000	-	-	10
Copper								0.0000	-	0.000	-	-	10
Cyanide								0.0000	-	0.000	-	-	10
Lead								0.0000	-	0.000	-	-	10
Manganese								0.0000	-	0.000	-	-	10
Mercury								0.0000	-	0.000	-	-	10
Molybdenum								0.0000	-	0.000	-	-	10
Nickel								0.0000	-	0.000	-	-	10
Phosphorus								0.0000	-	0.000	-	-	10
Selenium								0.0000	-	0.000	-	-	10
Silver								0.0000	-	0.000	-	-	10
Zinc								0.0000	-	0.000	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Qsldg) Sludge flow to disposal in MGD.
(PS) Percent solids of sludge to disposal.
(Rpotw) Removal efficiency across POTW as a percent.
(Cslcrit) State sludge criteria in mg/kg dry sludge.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Cslcrit * (PS/100) * Qsldg}{Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 6A

Local Limits Determination Based on 503 Air Emissions
ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE

MAXIMUM LOADING INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow (MGD) (Qsldg)	Percent Solids (%) (PS)	Removal Efficiency (%) (Rpotw)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.547	40.461	0.0183	37.7	23	0.002804	39.913	2847.0	0.934	2561.4	561	10
Beryllium	0.405	40.461	0.0183	37.7	17	0.000052	40.056	446.7	0.017	402.1	119	10
Cadmium	0.709	40.461	0.0183	37.7	85	0.00042	39.751	115122	0.139	103609	17516	10
Chromium (Total)	4.376	40.461	0.0183	37.7	87	0.00290	36.085	98328.7	0.871	88494.9	2425	10
Chromium (Hex)	0.405	40.461	0.0183	37.7	71	0.005	40.056	-	1.670	-	-	10
Copper	3.212	40.461	0.0183	37.7	85	0.096	37.248	-	29.943	-	-	10
Cyanide	0.406	40.461	0.0183	37.7	69	0.005	40.055	-	1.670	-	-	10
Lead	1.084	40.461	0.0183	37.7	85	0.001294	39.376	223868	0.425	201481	22281	10
Manganese	0.405	40.461	0.0183	37.7	14	0.0435	40.056	-	14.541	-	-	10
Mercury	1.403	40.461	0.0183	37.7	80	0.000019	39.057	2224	0.006	2001.7	171	10
Molybdenum	0.405	40.461	0.0183	37.7	13	0.00113	40.056	-	0.376	-	-	10
Nickel	5.774	40.461	0.0183	37.7	17	0.00465	34.687	10753923	1.346	9678529	200985	10
Phosphorus	3.690	40.461	0.0183	37.7	91	4.24	36.771	-	1298.814	-	-	10
Selenium	0.405	40.461	0.0183	37.7	50	0.004172	40.056	-	1.394	-	-	10
Silver	0.436	40.461	0.0183	37.7	75	0.00025	40.025	-	0.084	-	-	10
Zinc	5.174	40.461	0.0183	37.7	22	0.113	35.286	-	33.244	-	-	10

(Qind)	Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw)	POTW's average influent flow in MGD.
(Qsldg)	Sludge flow to disposal in MGD.
(PS)	Percent solids of sludge to disposal.
(Rpotw)	Removal efficiency across POTW as a percent.
(Cslcrit)	State sludge criteria in mg/kg dry sludge.
(Qdom)	Domestic/commercial background flow in MGD.
(Cdom)	Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw)	Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom)	Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind)	Maximum allowable industrial loading to the POTW in pounds per day.
(Cind)	Industrial allowable local limit for a given pollutant in mg/l.
(SF)	Safety factor as a percent.
8.34	Unit conversion factor

NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 7

Local Limits Determination Based on Chronic Water Quality Standards

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Upstream Flow (MGD) (Qstr)	Upstream Conc. (mg/l) (Cstr)	Removal Efficiency (%) (Rpotw)	Chronic WQS (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	MAXIMUM LOADING Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	INDUSTRIAL Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.324	32.361	426.57	0.00264	23	0.15	0.002804	32.037	745.260	0.749	669.985	248.2	10
Beryllium	0.324	32.361	426.57	0.000051	17		0.000052	32.037	-	0.014	-	-	10
Cadmium	0.384	32.361	426.57	0.000188	85	0.00416	0.00042	31.977	99.873	0.112	89.774	28.03	10
Chromium (Total)	2.793	32.361	426.57	0.00132	87	0.239	0.00290	29.568	6968.458	0.714	6270.898	269.3	10
Chromium (Hex)	0.324	32.361	426.57	0.005	71	0.01098	0.005	32.037	83.276	1.336	73.612	27.3	10
Copper	2.496	32.361	426.57	0.00128	85	0.0183	0.096	29.865	442.118	24.007	373.899	17.96	10
Cyanide	0.325	32.361	426.57	0.0044	69	0.0115	0.005	32.036	91.122	1.336	80.674	29.76	10
Lead	0.480	32.361	426.57	0.00129	85	0.0534	0.001294	31.881	1374.514	0.344	1236.718	309.2	10
Manganese	0.324	32.361	426.57	0.0570	14		0.0435	32.037	-	11.630	-	-	10
Mercury	0.325	32.361	426.57	0.0000061	80	0.00044	0.000019	32.036	8.135	0.005	7.316	2.70	10
Molybdenum	0.324	32.361	426.57	0.00154	13		0.00113	32.037	-	0.301	-	-	10
Nickel	4.191	32.361	426.57	0.00257	17	0.0918	0.00465	28.170	413.831	1.093	371.354	10.63	10
Phosphorus	3.609	32.361	426.57		91		4.24	28.752	-	1015.566	-	-	10
Selenium	0.324	32.361	426.57	0.00408	50	0.005	0.004172	32.037	9.221	1.115	7.185	2.66	10
Silver	0.355	32.361	426.57	0.000523	75		0.00025	32.006	-	0.067	-	-	10
Zinc	3.731	32.361	426.57	0.00176	22	0.216	0.113	28.630	1046.740	26.973	915.092	29.41	10

(Qstr) Receiving stream (upstream) 7Q10 flow in MGD.
(Cstr) Receiving stream background level in mg/l.
(Rpotw) Removal efficiency across POTW as percent.
(Ccrit) State chronic water quality standard for a particular pollutant in mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * (Ccrit * (Qstr + Qpotw) - (Cstr * Qstr))}{1 - Rpotw}$$

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NEW WATER
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GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 8

Local Limits Determination Based on Acute Water Quality Standards

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Upstream Flow (MGD) (Qstr)	Upstream Conc. (mg/l) (Cstr)	Removal Efficiency (%) (Rpotw)	Acute WQS (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	MAXIMUM LOADING Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	INDUSTRIAL Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.324	32.361	328.13	0.00264	23	0.3398	0.002804	32.037	1318.986	0.749	1186.338	439.6	10
Beryllium	0.324	32.361	328.13	0.000051	17		0.000052	32.037	-	0.014	-	-	10
Cadmium	0.384	32.361	328.13	0.000188	85	0.0222	0.00042	31.977	433.168	0.112	389.739	121.7	10
Chromium (Total)	2.793	32.361	328.13	0.00132	87	3.132	0.00290	29.568	71985.630	0.714	64786.353	2781.7	10
Chromium (Hex)	0.324	32.361	328.13	0.0050	71	0.0160	0.005	32.037	118.470	1.336	105.287	39.0	10
Copper	2.496	32.361	328.13	0.00128	85	0.029	0.096	29.865	566.730	24.007	486.050	23.4	10
Cyanide	0.325	32.361	328.13	0.0044	69	0.046	0.005	32.036	405.344	1.336	363.473	134.1	10
Lead	0.480	32.361	328.13	0.00129	85	0.204	0.001294	31.881	4192.809	0.344	3773.184	943.4	10
Manganese	0.324	32.361	328.13	0.0570	14		0.0435	32.037	-	11.630	-	-	10
Mercury	0.325	32.361	328.13	0.0000061	80	0.00083	0.000019	32.036	12.130	0.005	10.912	4.03	10
Molybdenum	0.324	32.361	328.13	0.00154	13		0.00113	32.037	-	0.301	-	-	10
Nickel	4.191	32.361	328.13	0.00257	17	0.825	0.00465	28.170	2991.651	1.093	2691.392	77.0	10
Phosphorus	3.609	32.361	328.13		91		4.24	28.752	-	1015.566	-	-	10
Selenium	0.324	32.361	328.13	0.00408	50		0.004172	32.037	-	1.115	-	-	10
Silver	0.355	32.361	328.13	0.000523	75		0.00025	32.006	-	0.067	-	-	10
Zinc	3.731	32.361	328.13	0.00176	22	0.216	0.113	28.630	822.347	26.973	713.139	22.9	10

(Qind)	Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw)	POTW's average influent flow in MGD.
(Qstr)	Receiving stream (upstream) 1Q10 flow in MGD.
(Cstr)	Receiving stream background level in mg/l.
(Rpotw)	Removal efficiency across POTW as percent.
(Ccrit)	State acute water quality standard for a particular pollutant in mg/l.
(Qdom)	Domestic/commercial background flow in MGD.
(Cdom)	Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw)	Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom)	Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind)	Maximum allowable industrial loading to the POTW in pounds per day.
(Cind)	Industrial allowable local limit for a given pollutant in mg/l.
(SF)	Safety factor as a percent.
8.34	Unit conversion factor

$$Lhw = \frac{8.34 * (Ccrit * (Qstr + Qpotw) - (Cstr * Qstr))}{1 - Rpotw}$$

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NEW WATER
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GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

TABLE 9
Local Limits Determination Based on Anaerobic Digester Inhibition Level

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow to Digester (MGD) (Qdig)	Removal Efficiency (%) (Rpotw)	Digester Inhibition Level (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.547	40.461	0.286	23	1.6	0.002804	39.913	16.6	0.934	13.97	3.06	10
Beryllium	0.405	40.461	0.286	17		0.000052	40.056	-	0.017	-	-	10
Cadmium	0.709	40.461	0.286	85	20	0.00042	39.751	56.4	0.139	50.62	8.56	10
Chromium (Total)	4.376	40.461	0.286	87	240	0.00290	36.085	659.7	0.871	592.8	16.24	10
Chromium (Hex)	0.405	40.461	0.286	71	110	0.005	40.056	370.7	1.670	332.0	98.39	10
Copper	3.212	40.461	0.286	85	40	0.096	37.248	112.2	29.943	71.06	2.65	10
Cyanide	0.406	40.461	0.286	69	4	0.005	40.055	13.9	1.670	10.80	3.19	10
Lead	1.084	40.461	0.286	83	340	0.001294	39.376	974.8	0.425	876.9	97.0	10
Manganese	0.405	40.461	0.286	14		0.0435	40.056	-	14.541	-	-	10
Mercury	1.403	40.461	0.286	80		0.000019	39.057	-	0.006	-	-	10
Molybdenum	0.405	40.461	0.286	13		0.00113	40.056	-	0.376	-	-	10
Nickel	5.774	40.461	0.286	17	10	0.00465	34.687	138.3	1.346	123.11	2.56	10
Phosphorus	3.690	40.461	0.286	91		4.24	36.771	-	1298.814	-	-	10
Selenium	0.405	40.461	0.286	50		0.004172	40.056	-	1.394	-	-	10
Silver	0.436	40.461	0.286	72	13	0.00025	40.025	43.3	0.084	38.87	10.69	10
Zinc	5.174	40.461	0.286	22	400	0.113	35.286	4410.9	33.244	3936.55	91.22	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Qdig) Sludge flow to digester in MGD.
(Rpotw) Removal efficiency across POTW as percent.
(Ccrit) Anaerobic digester threshold inhibition level in mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qdig}{Rpotw}$$

NEW WATER
2021 LOCAL LIMITS EVALUATION
GREEN BAY FACILITY
LOCAL LIMIT CALCULATIONS

	IU Flow	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6	Table 6A	Table 7	Table 8	Table 9	Minimum	Notes
													Current
				Activated	Nitrification	503 Sludge	503	503	Chronic	Acute			
		WPDES	WPDES	Sludge	Sludge	Ceiling	Clean Sludge	Air	Water	Water	Digester		Local
		Daily	Monthly	Inhibition	Inhibition	Table 1	Table 3	Emissions	Quality	Quality	Inhibition		Limits
												(mg/l)	(mg/l)
Arsenic	0.324	-	-	8.7	245	-	-	561.2	248	440	3.1	3.1	0.38
Beryllium	0.324	-	-	-	-	-	-	119.2	-	-	-	119.2	
Cadmium	0.384	-	-	89.2	1195	-	-	17516	28	122	8.6	8.6	0.30
Chromium (Total)	2.793	-	-	14	62	-	-	2424.8	269	2782	16	14.3	5.01
Chromium (Hex)	0.324	-	-	90	494	-	-	-	27	39	98	27	
Copper	2.496	-	-	14	21	-	-	-	18	23	2.65	2.65	3.26
Cyanide	0.325	-	-	11.8	121	-	-	-	30	134	3.2	3.2	
Lead	0.480	-	-	141.2	78	-	-	22281	309	943	97	78	4.03
Manganese	0.324	-	-	-	-	-	-	-	-	-	-		
Mercury	0.325	0.00057	-	10.0	-	-	-	171.0	2.7	4.0	-	0.00057	0.0004
Molybdenum	0.324	-	-	-	-	-	-	-	-	-	-	0	
Nickel	4.191	-	-	8.1	4.5	-	-	200985	11	77	2.56	2.56	4.24
Phosphorus	3.609	-	19	-	-	-	-	-	-	-	-	19	
Selenium	0.324	-	-	-	-	-	-	-	2.7	-	-	2.7	
Silver	0.355	-	-	-	-	-	-	-	-	-	11	11	
Zinc	3.731	-	-	2.34	9.9	-	-	-	29	23	91	2.34	5.66

NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 1

Local Limits Determination Based on WPDES Daily Effluent Limits

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rpotw)	NPDES Daily Limit (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.2237	8.10	27		0.002839	7.8729	-	0.1864	-	-	10
Beryllium	0.0810	8.10	63		0.000048	8.0156	-	0.0032	-	-	10
Cadmium	0.3253	8.10	93		0.00037	7.7713	-	0.0238	-	-	10
Chromium (Total)	1.5837	8.10	88		0.00286	6.5128	-	0.1555	-	-	10
Chromium (Hex)	0.0810	8.10	81		0.005	8.0156	-	0.3342	-	-	10
Copper	0.7170	8.10	93		0.106	7.3796	-	6.5037	-	-	10
Cyanide	0.0810	8.10	69		0.005	8.0156	-	0.3342	-	-	10
Lead	0.6047	8.10	83		0.001273	7.4919	-	0.0795	-	-	10
Manganese	0.0810	8.10	21		0.0284	8.0156	-	1.9001	-	-	10
Mercury	1.0787	8.10	97		0.000023	7.0179	-	0.0014	-	-	10
Molybdenum	0.0810	8.10	33		0.00238	8.0156	-	0.1592	-	-	10
Nickel	1.5837	8.10	68		0.00509	6.5128	-	0.2762	-	-	10
Phosphorus	1.3753	8.10	98		5.18	6.7212	-	290.2226	-	-	10
Selenium	0.0810	8.10	50		0.004191	8.0156	-	0.2802	-	-	10
Silver	0.0810	8.10	72		0.00025	8.0156	-	0.0165	-	-	10
Zinc	1.4441	8.10	79		0.219	6.6524	-	12.1729	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rpotw) Removal efficiency across POTW as percent.
(Ccrit) NPDES daily maximum permit limit for a particular pollutant in mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 2

Local Limits Determination Based on WPDES Monthly Effluent Limits

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rpotw)	NPDES Monthly Limit (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.2237	8.10	27		0.002839	7.8729		0.186	-	-	10
Beryllium	0.0810	8.10	63		0.000048	8.0156		0.003	-	-	10
Cadmium	0.3253	8.10	93		0.00037	7.7713	-	0.024	-	-	10
Chromium (Total)	1.5837	8.10	88		0.00286	6.5128	-	0.156	-	-	10
Chromium (Hex)	0.0810	8.10	81		0.005	8.0156	-	0.334	-	-	10
Copper	0.7170	8.10	93		0.106	7.3796	-	6.504	-	-	10
Cyanide	0.0810	8.10	69		0.005	8.0156	-	0.334	-	-	10
Lead	0.6047	8.10	83		0.001273	7.4919	-	0.080	-	-	10
Manganese	0.0810	8.10	21		0.0284	8.0156	-	1.900	-	-	10
Mercury	1.0787	8.10	97		0.000023	7.0179	-	0.001	-	-	10
Molybdenum	0.0810	8.10	33		0.00238	8.0156	-	0.159	-	-	10
Nickel	1.5837	8.10	68		0.00509	6.5128	-	0.276	-	-	10
Phosphorus	1.3753	8.10	98	0.6	5.18	6.7212	1987.301	290.223	1498	131	10
Selenium	0.0810	8.10	50		0.004191	8.0156	-	0.280	-	-	10
Silver	0.0810	8.10	72		0.00025	8.0156	-	0.016	-	-	10
Zinc	1.4441	8.10	79		0.219	6.6524	-	12.173	-	-	10

(Qind)	Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw)	POTW's average influent flow in MGD.
(Rpotw)	Removal efficiency across POTW as percent.
(Ccrit)	NPDES monthly maximum permit limit for a particular pollutant in mg/l.
(Qdom)	Domestic/commercial background flow in MGD.
(Cdom)	Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw)	Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom)	Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind)	Maximum allowable industrial loading to the POTW in pounds per day.
(Cind)	Industrial allowable local limit for a given pollutant in mg/l.
(SF)	Safety factor as a percent.
8.34	Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 3

Local Limits Determination Based on Activated Sludge Inhibition Level

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rprim)	Activated Sludge Inhibition Level (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.2237	8.10		0.1	0.002839	7.8729	6.753	0.186	5.891	3.16	10
Beryllium	0.0810	8.10			0.000048	8.0156	-	0.003	-	-	10
Cadmium	0.3253	8.10	15	1	0.00037	7.7713	79.442	0.024	71.474	26.35	10
Chromium (Total)	1.5837	8.10	27	1	0.00286	6.5128	92.500	0.156	83.095	6.29	10
Chromium (Hex)	0.0810	8.10		1	0.005	8.0156	67.525	0.334	60.438	89.50	10
Copper	0.7170	8.10	22	1	0.106	7.3796	86.571	6.504	71.410	11.94	10
Cyanide	0.0810	8.10	27	0.1	0.005	8.0156	9.250	0.334	7.991	11.83	10
Lead	0.6047	8.10	57	1	0.001273	7.4919	157.036	0.080	141.252	28.01	10
Manganese	0.0810	8.10			0.0284	8.0156	-	1.900	-	-	10
Mercury	1.0787	8.10	10	0.1	0.000023	7.0179	7.503	0.001	6.751	0.75	10
Molybdenum	0.0810	8.10			0.00238	8.0156	-	0.159	-	-	10
Nickel	1.5837	8.10	14	1	0.00509	6.5128	78.518	0.276	70.390	5.33	10
Phosphorus	1.3753	8.10			5.18	6.7212	-	290.223	-	-	10
Selenium	0.0810	8.10			0.004191	8.0156	-	0.280	-	-	10
Silver	0.0810	8.10	20		0.00025	8.0156	-	0.016	-	-	10
Zinc	1.4441	8.10	27	0.3	0.219	6.6524	27.750	12.173	12.802	1.06	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rprim) Removal efficiency across across primary treatment as percent.
(Ccrit) Activated sludge threshold inhibition level, mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rprim}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 4

Local Limits Determination Based on Nitrification Inhibition Level

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Removal Efficiency (%) (Rsec)	Nitrification Inhibition Level (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.2237	8.10	45	1.5	0.002839	7.8729	184.160	0.186	165.557	89	10
Beryllium	0.0810	8.10			0.000048	8.0156	-	0.003	-	-	10
Cadmium	0.3253	8.10	67	5.2	0.00037	7.7713	1064.035	0.024	957.607	353	10
Chromium (Total)	1.5837	8.10	82	1.075	0.00286	6.5128	403.276	0.156	362.793	27.5	10
Chromium (Hex)	0.0810	8.10		5.5	0.005	8.0156	371.389	0.334	333.916	494	10
Copper	0.7170	8.10	86	0.265	0.106	7.3796	127.816	6.504	108.530	18.15	10
Cyanide	0.0810	8.10	69	0.42	0.005	8.0156	91.486	0.334	82.003	121.43	10
Lead	0.6047	8.10	61	0.5	0.001273	7.4919	86.571	0.080	77.834	15.4	10
Manganese	0.0810	8.10			0.0284	8.0156	-	1.900	-	-	10
Mercury	1.0787	8.10	60		0.000023	7.0179	-	0.001	-	-	10
Molybdenum	0.0810	8.10			0.00238	8.0156	-	0.159	-	-	10
Nickel	1.5837	8.10	42	0.375	0.00509	6.5128	43.659	0.276	39.017	2.95	10
Phosphorus	1.3753	8.10			5.18	6.7212	-	290.223	-	-	10
Selenium	0.0810	8.10	50		0.004191	8.0156	-	0.280	-	-	10
Silver	0.0810	8.10	75		0.00025	8.0156	-	0.016	-	-	10
Zinc	1.4441	8.10	79	0.29	0.219	6.6524	93.249	12.173	71.751	5.96	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Rsec) Removal efficiency across primary treatment and secodary treatment as percent.
(Ccrit) Nitrification threshold inhibition level, mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Ccrit * Qpotw}{1 - Rsec}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 5

Local Limits Determination Based on USEPA 503 Sludge Regulations
ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE

MAXIMUM LOADING INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow (MGD) (Qsldg)	Percent Solids (%) (PS)	Removal Efficiency (%) (Rpotw)	503 Sludge Criteria (mg/kg) (Cslcrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic								0.0000	-	0.000	-	-	10
Beryllium								0.0000	-	0.000	-	-	10
Cadmium								0.0000	-	0.000	-	-	10
Chromium (Total)								0.0000	-	0.000	-	-	10
Chromium (Hex)								0.0000	-	0.000	-	-	10
Copper								0.0000	-	0.000	-	-	10
Cyanide								0.0000	-	0.000	-	-	10
Lead								0.0000	-	0.000	-	-	10
Manganese								0.0000	-	0.000	-	-	10
Mercury								0.0000	-	0.000	-	-	10
Molybdenum								0.0000	-	0.000	-	-	10
Nickel								0.0000	-	0.000	-	-	10
Phosphorus								0.0000	-	0.000	-	-	10
Selenium								0.0000	-	0.000	-	-	10
Silver								0.0000	-	0.000	-	-	10
Zinc								0.0000	-	0.000	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Qsldg) Sludge flow to disposal in MGD.
(PS) Percent solids of sludge to disposal.
(Rpotw) Removal efficiency across POTW as a percent.
(Cslcrit) 503 sludge criteria in mg/kg dry sludge.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

$$Lhw = \frac{8.34 * Cslcrit * (PS/100) * Qsldg}{Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 6

Local Limits Determination Based on 503 Clean Sludge Criteria

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE | MAXIMUM LOADING | INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow (MGD) (Qsldg)	Percent Solids (%) (PS)	Removal Efficiency (%) (Rpotw)	State Sludge Criteria (mg/kg) (Cslcrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic								0.0000	-	0.000	-	-	10
Beryllium								0.0000	-	0.000	-	-	10
Cadmium								0.0000	-	0.000	-	-	10
Chromium (Total)								0.0000	-	0.000	-	-	10
Chromium (Hex)								0.0000	-	0.000	-	-	10
Copper								0.0000	-	0.000	-	-	10
Cyanide								0.0000	-	0.000	-	-	10
Lead								0.0000	-	0.000	-	-	10
Manganese								0.0000	-	0.000	-	-	10
Mercury								0.0000	-	0.000	-	-	10
Molybdenum								0.0000	-	0.000	-	-	10
Nickel								0.0000	-	0.000	-	-	10
Phosphorus								0.0000	-	0.000	-	-	10
Selenium								0.0000	-	0.000	-	-	10
Silver								0.0000	-	0.000	-	-	10
Zinc								0.0000	-	0.000	-	-	10

(Qind)	Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw)	POTW's average influent flow in MGD.
(Qsldg)	Sludge flow to disposal in MGD.
(PS)	Percent solids of sludge to disposal.
(Rpotw)	Removal efficiency across POTW as a percent.
(Cslcrit)	State sludge criteria in mg/kg dry sludge.
(Qdom)	Domestic/commercial background flow in MGD.
(Cdom)	Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw)	Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom)	Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind)	Maximum allowable industrial loading to the POTW in pounds per day.
(Cind)	Industrial allowable local limit for a given pollutant in mg/l.
(SF)	Safety factor as a percent.
8.34	Unit conversion factor

$$Lhw = \frac{8.34 * Cslcrit * (PS/100) * Qsldg}{Rpotw}$$

::

NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 7

Local Limits Determination Based on Chronic Water Quality Standards
ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE

MAXIMUM LOADING INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Upstream Flow (MGD) (Qstr)	Upstream Conc. (mg/l) (Cstr)	Removal Efficiency (%) (Rpotw)	Chronic WQS (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.2237	8.10	426.57	0.00264	27	0.15	0.002839	7.8729	747.764	0.186	672.802	360.7	10
Beryllium	0.0810	8.10	426.57	0.000058	63		0.000048	8.0156	-	0.003	-	-	10
Cadmium	0.3253	8.10	426.57	0.000203	93	0.00416	0.00037	7.7713	217.841	0.024	196.034	72.26	10
Chromium (Total)	1.5837	8.10	426.57	0.00139	88	0.239	0.00286	6.5128	7015.928	0.156	6314.180	478.0	10
Chromium (Hex)	0.0810	8.10	426.57	0.005	81	0.01098	0.005	8.0156	115.873	0.334	103.951	153.9	10
Copper	0.7170	8.10	426.57	0.00116	93	0.0183	0.106	7.3796	885.811	6.504	790.727	132.24	10
Cyanide	0.0810	8.10	426.57	0.00440	69	0.0115	0.005	8.0156	83.635	0.334	74.937	110.97	10
Lead	0.6047	8.10	426.57	0.00129	83	0.0534	0.001273	7.4919	1134.197	0.080	1020.698	202.4	10
Manganese	0.0810	8.10	426.57	0.0464	21		0.0284	8.0156	-	1.900	-	-	10
Mercury	1.0787	8.10	426.57	0.0000049	97	0.00044	0.000023	7.0179	50.060	0.001	45.053	5.01	10
Molybdenum	0.0810	8.10	426.57	0.000764	33		0.00238	8.0156	-	0.159	-	-	10
Nickel	1.5837	8.10	426.57	0.00242	68	0.0918	0.00509	6.5128	1003.529	0.276	902.900	68.36	10
Phosphorus	1.3753	8.10	426.57		98		5.18	6.7212	-	290.223	-	-	10
Selenium	0.0810	8.10	426.57	0.00408	50	0.005	0.004191	8.0156	7.198	0.280	6.198	9.18	10
Silver	0.0810	8.10	426.57	0.000262	72		0.00025	8.0156	-	0.016	-	-	10
Zinc	1.4441	8.10	426.57	0.00185	79	0.2159	0.219	6.6524	3646.343	12.173	3269.536	271.47	10

(Qstr)	Receiving stream (upstream) 7Q10 flow in MGD.
(Cstr)	Receiving stream background level in mg/l.
(Rpotw)	Removal efficiency across POTW as percent.
(Ccrit)	State chronic water quality standard for a particular pollutant in mg/l.
(Qdom)	Domestic/commercial background flow in MGD.
(Cdom)	Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw)	Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom)	Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind)	Maximum allowable industrial loading to the POTW in pounds per day.
(Cind)	Industrial allowable local limit for a given pollutant in mg/l.
(SF)	Safety factor as a percent.
8.34	Unit conversion factor

$$Lhw = \frac{8.34 * (Ccrit * (Qstr + Qpotw) - (Cstr * Qstr))}{1 - Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 8

Local Limits Determination Based on Acute Water Quality Standards

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE — MAXIMUM LOADING — INDUSTRIAL

Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Upstream Flow (MGD) (Qstr)	Upstream Conc. (mg/l) (Cstr)	Removal Efficiency (%) (Rpotw)	Acute WQS (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic	0.2237	8.10	328.13	0.00264	27	0.3398	0.002839	7.8729	1303.767	0.186	1173.204	628.9	10
Beryllium	0.0810	8.10	328.13	0.000058	63		0.000048	8.0156	-	0.003	-	-	10
Cadmium	0.3253	8.10	328.13	0.000203	93	0.0222	0.00037	7.7713	935.020	0.024	841.494	310.2	10
Chromium (Total)	1.5837	8.10	328.13	0.00139	88	3.132	0.00286	6.5128	71410.002	0.156	64268.847	4865.8	10
Chromium (Hex)	0.0810	8.10	328.13	0.005	81	0.01602	0.005	8.0156	164.417	0.334	147.641	218.6	10
Copper	0.7170	8.10	328.13	0.00116	93	0.029	0.106	7.3796	1116.174	6.504	998.053	166.9	10
Cyanide	0.0810	8.10	328.13	0.00440	69	0.022	0.005	8.0156	160.161	0.334	143.811	213.0	10
Lead	0.6047	8.10	328.13	0.00129	83	0.204	0.001273	7.4919	3409.970	0.080	3068.893	608.5	10
Manganese	0.0810	8.10	328.13	0.0464	21		0.0284	8.0156	-	1.900	-	-	10
Mercury	1.0787	8.10	328.13	0.0000049	97	0.00083	0.000023	7.0179	73.428	0.001	66.084	7.35	10
Molybdenum	0.0810	8.10	328.13	0.000764	33		0.00238	8.0156	-	0.159	-	-	10
Nickel	1.5837	8.10	328.13	0.00242	68	0.825	0.00509	6.5128	7142.258	0.276	6427.756	486.6	10
Phosphorus	1.3753	8.10	328.13		98		5.18	6.7212	-	290.223	-	-	10
Selenium	0.0810	8.10	328.13	0.00408	50		0.004191	8.0156	-	0.280	-	-	10
Silver	0.0810	8.10	328.13	0.000262	72		0.00025	8.0156	-	0.016	-	-	10
Zinc	1.4441	8.10	328.13	0.00185	79	0.216	0.219	6.6524	2820.686	12.173	2526.445	209.8	10

(Qind)	Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw)	POTW's average influent flow in MGD.
(Qstr)	Receiving stream (upstream) 1Q10 flow in MGD.
(Cstr)	Receiving stream background level in mg/l.
(Rpotw)	Removal efficiency across POTW as percent.
(Ccrit)	State acute water quality standard for a particular pollutant in mg/l.
(Qdom)	Domestic/commercial background flow in MGD.
(Cdom)	Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw)	Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom)	Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind)	Maximum allowable industrial loading to the POTW in pounds per day.
(Cind)	Industrial allowable local limit for a given pollutant in mg/l.
(SF)	Safety factor as a percent.
8.34	Unit conversion factor

$$Lhw = \frac{8.34 * (Ccrit * (Qstr + Qpotw) - (Cstr * Qstr))}{1 - Rpotw}$$

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NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

TABLE 9
Local Limits Determination Based on Anaerobic Digester Inhibition Level

ENVIRONMENTAL CRITERIA AND PROCESS DATA BASE								MAXIMUM LOADING		INDUSTRIAL		
Pollutant	IU Pollut. Flow (MGD) (Qind)	POTW Flow (MGD) (Qpotw)	Sludge Flow to Digester (MGD) (Qdig)	Removal Efficiency (%) (Rpotw)	Digester Inhibition Level (mg/l) (Ccrit)	Domestic and Conc. (mg/l) (Cdom)	Commercial Flow (MGD) (Qdom)	Allowable Headworks (lbs/day) (Lhw)	Domestic/ Commercial (lbs/day) (Ldom)	Allowable Loading (lbs/day) (Lind)	Local Limit (mg/l) (Cind)	Safety Factor (%) (SF)
Arsenic							0.000	-	0.0000	-	-	10
Beryllium							0.000	-	0.0000	-	-	10
Cadmium							0.000	-	0.0000	-	-	10
Chromium (Total)							0.000	-	0.0000	-	-	10
Chromium (Hex)							0.000	-	0.0000	-	-	10
Copper							0.000	-	0.0000	-	-	10
Cyanide							0.000	-	0.0000	-	-	10
Lead							0.000	-	0.0000	-	-	10
Manganese							0.000	-	0.0000	-	-	10
Mercury							0.000	-	0.0000	-	-	10
Molybdenum							0.000	-	0.0000	-	-	10
Nickel							0.000	-	0.0000	-	-	10
Phosphorus							0.000	-	0.0000	-	-	10
Selenium							0.000	-	0.0000	-	-	10
Silver							0.000	-	0.0000	-	-	10
Zinc							0.000	-	0.0000	-	-	10

(Qind) Industrial User total plant discharge flow in Million Gallons per Day (MGD) that contains a particular pollutant.
(Qpotw) POTW's average influent flow in MGD.
(Qdig) Sludge flow to digester in MGD.
(Rpotw) Removal efficiency across POTW as percent.
(Ccrit) Anaerobic digester threshold inhibition level in mg/l.
(Qdom) Domestic/commercial background flow in MGD.
(Cdom) Domestic/commercial background concentration for a particular pollutant in mg/l.
(Lhw) Maximum allowable headworks pollutant loading to the POTW in pounds per day (lbs/day).
(Ldom) Domestic/commercial background loading to the POTW for a particular pollutant in pounds per day (lbs/day).
(Lind) Maximum allowable industrial loading to the POTW in pounds per day.
(Cind) Industrial allowable local limit for a given pollutant in mg/l.
(SF) Safety factor as a percent.
8.34 Unit conversion factor

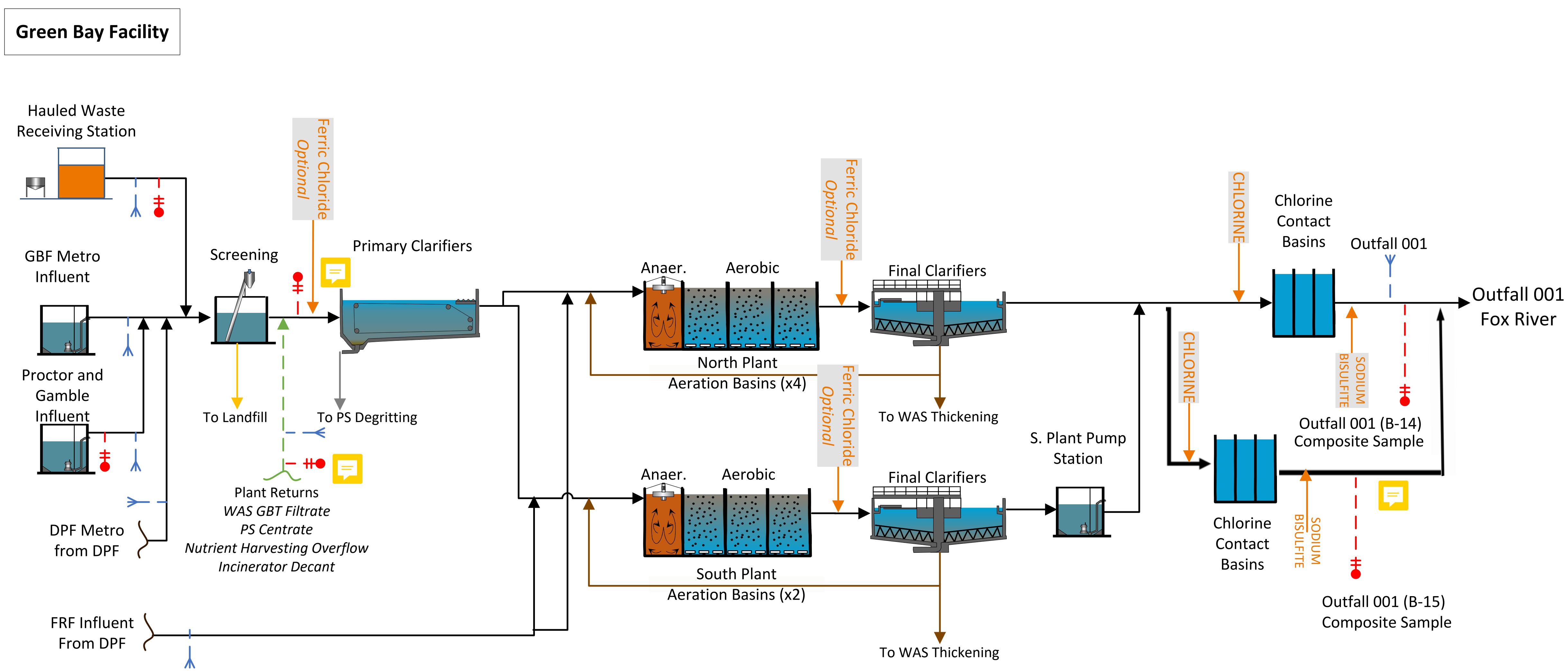
$$Lhw = \frac{8.34 * Ccrit * Qdig}{Rpotw}$$

NEW WATER
2021 LOCAL LIMITS EVALUATION
DE PERE FACILITY
LOCAL LIMITS CALCULATION

	IU Flow	Table 1 WPDES Daily	Table 2 WPDES Monthly	Table 3 Activated Sludge Inhibition	Table 4 Nitrification Sludge Inhibition	Table 5 503 Sludge Ceiling Table 1	Table 6 503 Clean Sludge Table 3	Table 7 Chronic Water Quality	Table 8 Acute Water Quality	Table 9 Digester Inhibition	Minimum (mg/l)	Notes Current Local Limits (mg/l)	
Arsenic	0.2237	-	-	3.2	89	-	-	361	629	-	3.2	0.12	Arsenic
Beryllium	0.0810	-	-	-	-	-	-	-	-	-			Beryllium
Cadmium	0.3253	-	-	26	353	-	-	72.3	310	-	26	0.23	Cadmium
Chromium (Total)	1.5837	-	-	6.3	27	-	-	478	4866	-	6.3	3.54	Chromium (Total)
Chromium (Hex)	0.0810	-	-	90	494	-	-	154	219	-	90		Chromium (Hex)
Copper	0.7170	-	-	11.9	18	-	-	132	167	-	11.9	2.16	Copper
Cyanide	0.0810	-	-	11.8	121	-	-	111	213	-	11.8		Cyanide
Lead	0.6047	-	-	28.0	15.4	-	-	202	609	-	15.4	0.66	Lead
Manganese	0.0810	-	-	-	-	-	-	-	-	-			Manganese
Mercury	1.0787	-	-	0.8	-	-	-	5.0	7.3	-	0.8	0.0004	Mercury
Molybdenum	0.0810	-	-	-	-	-	-	-	-	-			Molybdenum
Nickel	1.5837	-	-	5.3	3.0	-	-	68	487	-	3.0	4.12	Nickel
Phosphorus	1.3753	-	131	-	-	-	-	-	-	-	131		Phosphorus
Selenium	0.0810	-	-	-	-	-	-	9.2	-	-	9.2		Selenium
Silver	0.0810	-	-	-	-	-	-	-	-	-	0		Silver
Zinc	1.4441	-	-	1.1	6.0	-	-	271	210	-	1.1	2.04	Zinc

APPENDIX B – Green Bay & De Pere Facility Process Flow Diagrams

Green Bay Facility Liquids



Key

- Liquids Flow
- Biosolids
- Primary Sludge
- Landfill
- Recycles
- Chemical Feed
- Hauled Waste
- Gas/Exhaust
- Permit Sample Location
- Permit Flow Meter/Scale

Key

- Liquids Flow
- Biosolids
- Primary Sludge
- Landfill
- Recycles
- Chemical Feed
- Hauled Waste
- Gas/Exhaust
- Permit Sample Location
- Permit Flow Meter/Scale

Figure No. 02
2018 WPDES PERMIT APPLICATION
GREEN BAY FACILITY LIQUIDS PFD
GREEN BAY METROPOLITAN SEWERAGE DISTRICT
GREEN BAY, WI

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De Pere Facility Liquids

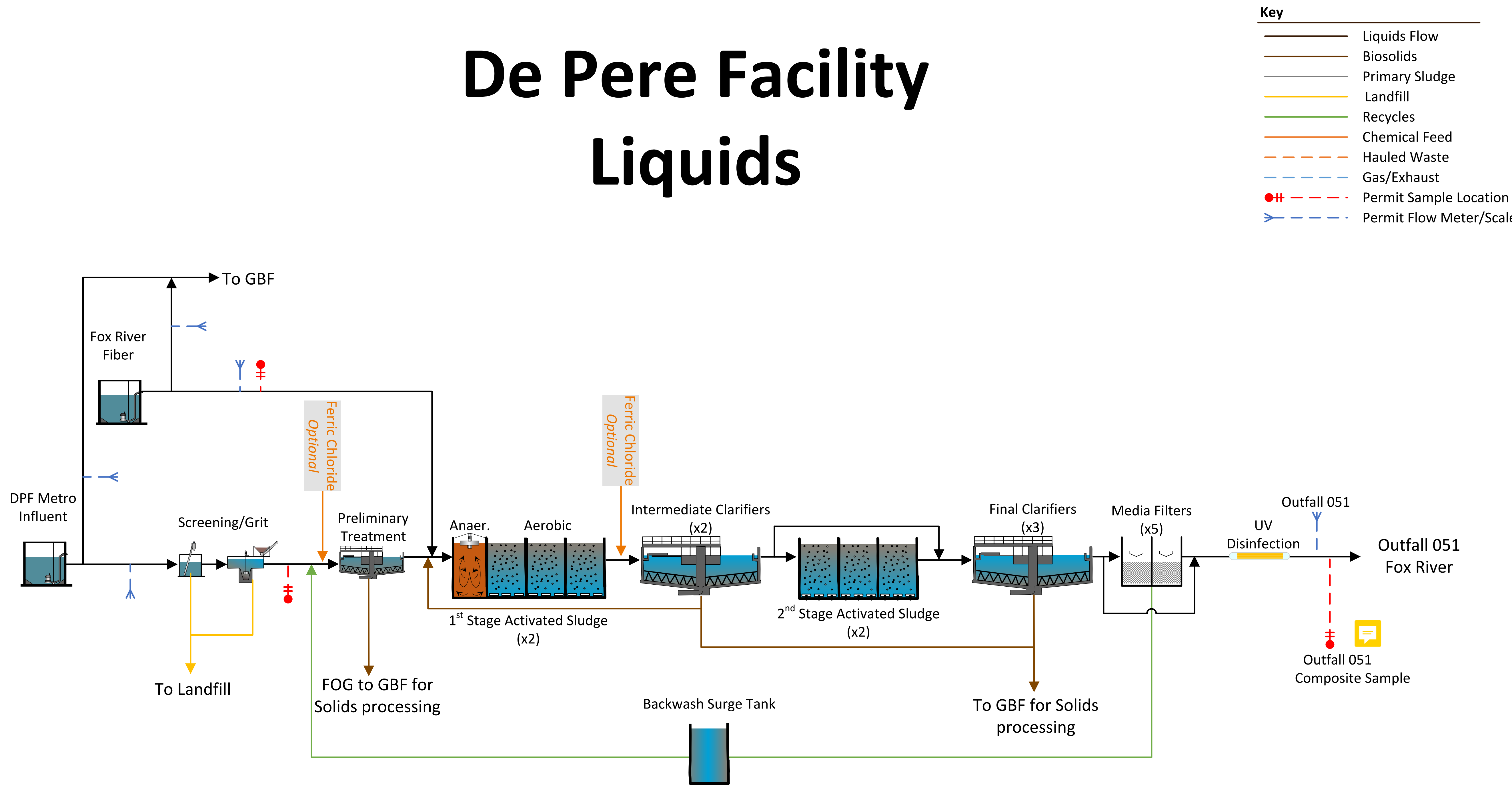

Figure No. 02
2018 WPDES PERMIT APPLICATION
DE PERE FACILITY LIQUIDS PFD
GREEN BAY METROPOLITAN SEWERAGE DISTRICT
GREEN BAY, WI

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Green Bay Facility Solids

Key

- Liquids Flow
- Biosolids
- Primary Sludge
- Landfill
- Recycles
- Chemical Feed
- Hauled Waste
- Gas/Exhaust
- Permit Sample Location
- Permit Flow Meter/Scale

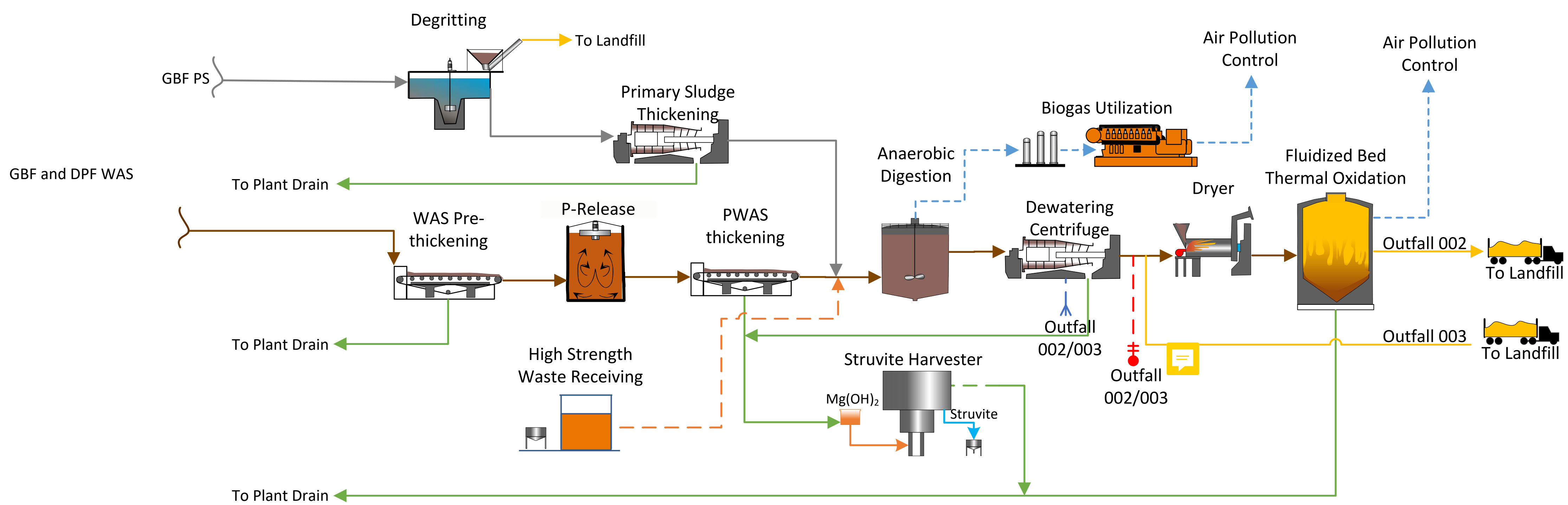

Figure No. 03
2018 WPDES PERMIT APPLICATION
GREEN BAY FACILITY SOLIDS PFD
GREEN BAY METROPOLITAN SEWERAGE DISTRICT
GREEN BAY, WI

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APPENDIX C – NEW Water WDPES Permit

WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

Green Bay Metropolitan Sewerage District

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from two facilities located in Brown County at
2231 North Quincy Street, Green Bay, Wisconsin (Green Bay Facility [GBF]), and
315 Leonard Street, De Pere, Wisconsin (De Pere Facility [DPF])
to
the Fox River (Water Body Identification Code Number 117900) in the East River Watershed (LF01) of the Lower Fox River Drainage Basin of the Lake Michigan Basin

GBF Outfall 001 – Lat: 44º 32’ 18” N / Lon: 88º 00’ 13” W

DPF Outfall 051 – Lat: 44º 29’ 13” N / Lon: 88º 02’ 11” W

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By ___________________________
Heidi Schmitt Marquez
Wastewater Supervisor, Northeast Region

____
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - July 01, 2021 **EXPIRATION DATE - June 30, 2026**

TABLE OF CONTENTS

1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
701	GBF Influent - Representative influent loading to the facility shall be calculated by combining the monitoring results from the separate influent streams to the facility. Results of chemical analyses shall be determined on a flow-weighted basis.
751	DPF Influent - Representative samples shall be taken at the raw sewage pump station prior to the addition of any sidestreams.

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 701 - GBF Influent

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
$CBOD_5$		mg/L	Daily	Calculated	
BOD_5, Total		mg/L	Daily	Calculated	
Suspended Solids, Total		mg/L	Daily	Calculated	
Cadmium, Total Recoverable		µg/L	Monthly	Calculated	See Sections 1.2.1.1 and 1.2.1.2.
Chromium, Total Recoverable		µg/L	Monthly	Calculated	See Sections 1.2.1.1 and 1.2.1.2.
Copper, Total Recoverable		µg/L	Monthly	Calculated	See Sections 1.2.1.1 and 1.2.1.2.
Lead, Total Recoverable		µg/L	Monthly	Calculated	See Sections 1.2.1.1 and 1.2.1.2.
Nickel, Total Recoverable		µg/L	Monthly	Calculated	See Sections 1.2.1.1 and 1.2.1.2.
Zinc, Total Recoverable		µg/L	Monthly	Calculated	See Sections 1.2.1.1 and 1.2.1.2.
Mercury, Total Recoverable		ng/L	Monthly	Calculated	See subsection 1.2.1.3 for Mercury Monitoring Requirements.

1.2.1.1 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

1.2.1.2 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit, unless not possible using the most sensitive approved method.

1.2.1.3 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

1.2.2 Sampling Point 751 - DPF Influent

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
$CBOD_5$		mg/L	5/Week	24-Hr Flow Prop Comp	
BOD_5, Total		mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	5/Week	24-Hr Flow Prop Comp	
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See Sections 1.2.2.1 and 1.2.2.2.
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See Sections 1.2.2.1 and 1.2.2.2.
Copper, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See Sections 1.2.2.1 and 1.2.2.2.
Lead, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See Sections 1.2.2.1 and 1.2.2.2.
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See Sections 1.2.2.1 and 1.2.2.2.
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	See Sections 1.2.2.1 and 1.2.2.2.
Mercury, Total Recoverable		ng/L	Monthly	24-Hr Flow Prop Comp	See subsection 1.2.2.3 for Mercury Monitoring Requirements.

1.2.2.1 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

1.2.2.2 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit, unless not possible using the most sensitive approved method.

1.2.2.3 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

2 In-Plant Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
101	GBF Field Blank - Sample point for reporting results of Mercury field blanks collected using standard sample handling procedures.
151	DPF Field Blank - Sample point for reporting results of Mercury field blanks collected using standard sample handling procedures.
021	Effluent to Green Bay Packaging for Reuse - Sample point to track flow of fully treated effluent to Green Bay Packaging. Flow from the chlorine contact basin at the Green Bay Facility enters reuse pump station and is transferred via force main to the valve vault located on the Green Bay Packaging property. This outfall is inactive. Notify the Department 30 days prior to providing effluent to Green Bay Packaging to activate this outfall.

2.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

2.2.1 Sampling Point 101 - GBF Field Blank and 151- DPF Field Blank

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Monthly	Blank	See subsection 2.2.1.1 for Mercury Monitoring requirements.

2.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

2.2.2 Sampling Point 021 - Effluent to GBP

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	

3 Surface Water Requirements

3.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
001	GBF Effluent - Representative samples shall be collected downstream of the Parshall flumes for the North and South Complexes. Results of chemical analyses shall be reported on a flow-weighted average between the North Plant and the South Plant. Escherichia coli (E. coli) samples shall be collected 20 feet upstream of the Parshall flume. Grab samples for mercury and continuous measurements for pH shall be collected after dechlorination.
601	River Monitoring for GBF WLA - Lower Fox River data as reported by the Lower Fox River Dischargers Association used in the determination of the daily $CBOD_5$ wasteload allocation.
007	GBF WLA Compliance Reporting - Sample point for determining compliance with $CBOD_5$ wasteload allocation for the discharge from sample point/outfall 001. These requirements are applicable from May through October, each year.
051	DPF Effluent - Representative composite samples and continuous measurements shall be taken from the final effluent channel, and grab samples shall be taken from the disinfection basin discharge.
076	Calculated Combined Effluent for TMDL Reporting - Sample point for determining compliance with the TMDL-based limits for Total Suspended Solids and Total Phosphorus, calculated as a combined discharge from the GBF and DPF. Loadings are calculated as the sum of the mass discharged at sample points 001 and 051.
602	In-stream Sampling Point 602: Representative surface water samples shall be collected from the Fox River. Sample point 602 is located down river from both the Green Bay Facility and the De Pere Facility at the I-43 Bridge Crossing at SWIMS Station ID 053707 (Lat: 44° 32' 0.34" N, Lon: 88° 0' 27.77" W).
603	In-stream Sampling Point 603: Representative water samples shall be collected from Ashwaubenon Creek. Sample point 603 is located at Ashwaubenon Creek at Grant Street at SWIMS Station ID 10016502 (Lat: 44° 26’ 41.81” N, Lon: 88° 5’ 55.77” W). Sample point 602 correlates with sample site A2 described in the approved AM Plan No. WQT-2020-0016 (October 2020).
604	In-stream Sampling Point 604: Representative water samples shall be collected from Dutchman Creek. Sample point 604 is located at Dutchman Creek at Hansen Road at SWIMS Station ID 10054013 (Lat: 44° 28’ 58.49” N, Lon: 88° 5’ 13.17” W). Sample point 604 correlates with sample site D1a described in the approved AM Plan No. WQT-2020-0016 (October 2020).

3.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Point (Outfall) 001 - GBF Effluent

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
$CBOD_5$	Weekly Avg	40 mg/L	Daily	24-Hr Flow Prop Comp	See Section 3.2.3 for reporting Waste Load Allocation mass limits, which apply from May through October.
$CBOD_5$	Monthly Avg	25 mg/L	Daily	24-Hr Flow Prop Comp	See Section 3.2.3 for reporting Waste Load Allocation mass limits, which apply from May through October.
Suspended Solids, Total	Weekly Avg	27 mg/L	Daily	24-Hr Flow Prop Comp	This is an Adaptive Management interim limit that applies on the permit effective date.
Suspended Solids, Total	Monthly Avg	18 mg/L	Daily	24-Hr Flow Prop Comp	This is an Adaptive Management interim limit that applies on the permit effective date.
Suspended Solids, Total		lbs/day	Daily	Calculated	Monitoring Only - See Section 3.2.5.1 for calculating combined effluent results for the GBF and DPF.
pH (Minimum)	Daily Min	6.0 su	Daily	Continuous	
pH (Maximum)	Daily Max	9.0 su	Daily	Continuous	
Chlorine, Total Residual	Daily Max	38 µg/L	Daily	Grab	Monitoring and limits apply May 1 through September 30 annually.
Chlorine, Total Residual	Weekly Avg	38 µg/L	Daily	Grab	Monitoring and limits apply May 1 through September 30 annually.
Chlorine, Total Residual	Monthly Avg	38 µg/L	Daily	Grab	Monitoring and limits apply May 1 through September 30 annually.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limits apply May 1 through September 30 annually.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
E. coli	% Exceedance	10 Percent	Weekly	Grab	Monitoring and limits apply May 1 through September 30 annually. See Section 3.2.1.4 for formula to calculate E. coli Percent Limit. Enter the result in the DMR on the last day of the month.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	59 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect January 1 through April 30 annually.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	13 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect May 1 through September 30 annually.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	38 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect the month of October annually.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	104 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect November 1 through December 31 annually.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	15 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect January 1 through April 30 annually.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	4.7 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect May 1 through September 30 annually.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	14 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect the month of October annually.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	26 mg/L	Daily	24-Hr Flow Prop Comp	Limit in effect November 1 through December 31 annually.
Phosphorus, Total	Monthly Avg	1.0 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	0.6 mg/L	Daily	24-Hr Flow Prop Comp	This is an Adaptive Management interim limit effective beginning November 1, 2021. See Section 3.2.1.7 for averaging periods and compliance determination. Future interim limit of 0.5 mg/L may be effective upon reissuance per Schedule 5.1.
Phosphorus, Total		lbs/day	Daily	Calculated	Monitoring Only - See Section 3.2.5.1 for calculating combined effluent results for the GBF and DPF.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.1.2 and 3.2.1.3.
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.1.2 and 3.2.1.3.
Copper, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.1.2 and 3.2.1.3.
Lead, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.1.2 and 3.2.1.3.
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.1.2 and 3.2.1.3.
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.1.2 and 3.2.1.3.
Mercury, Total Recoverable	Daily Max	5.5 ng/L	Monthly	Grab	This is an Alternative Mercury Effluent Limit. See Sections 3.2.1.10 for mercury monitoring requirements, 3.2.1.11 for mercury variance information and 5.3 for the Mercury Schedule.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Section 3.2.1.15 for Whole Effluent Toxicity (WET) testing dates and WET requirements.
Chronic WET	Monthly Avg	11 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Section 3.2.1.15 for Whole Effluent Toxicity (WET) testing dates and WET requirements.
Temperature Maximum	Weekly Avg	67 deg F	3/Week	Continuous	Monitor year-round beginning on the permit effective date. Limit in effect for the month of October annually beginning October 1, 2025. See the Temperature and Dissipative Cooling Sections below and section 5.2 for the temperature schedule.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Temperature Maximum	Weekly Avg	58 deg F	3/Week	Continuous	Monitor year-round beginning on the permit effective date. Limit in effect for the month of December annually beginning December 1, 2025. See the Temperature and Dissipative Cooling Sections below and section 5.2 for the temperature schedule.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	Monitoring Only.
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	Monitoring Only.
Nitrogen, Total		mg/L	Quarterly	Calculated	Monitoring Only. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

3.2.1.1 Annual Average Design Flow

The annual average design flow of the Green Bay Facility is 49.2 MGD.

3.2.1.2 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

3.2.1.3 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit, unless not possible using the most sensitive approved method.

3.2.1.4 *E. coli* Percent Limit

No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\boldsymbol{\#\ of\ Samples\ greater\ than\ 410\ \#/100}}{\boldsymbol{Total\ \#\ of\ samples}} \times \mathbf{100} = \%\ \boldsymbol{Exceedance}$$

3.2.1.5 Lower Fox River Basin Total Maximum Daily Load for Total Phosphorus and Total Suspended Solids

Green Bay Metropolitan Sewerage District Combined ("GBMSD") operates two separate regional wastewater treatment facilities—the Green Bay Facility ("GBF") and the De Pere Facility ("DPF")— that both discharge to the Lower Fox River Main Stem Sub-Basin of the Lower Fox River Basin Total Maximum Daily Load ("TMDL"). Due to the merger of the two facilities (GBF and DPF) under the same permit and the fact that both outfalls discharge to the Lower Fox River, GBMSD has combined TMDL wasteload allocations for phosphorus and TSS from both GBF and DPF. TMDL compliance shall be determined based on the combined allocations. The scope of the watershed adaptive management approach for GBMSD to achieve compliance with phosphorus water quality standards and the TMDL for TSS described below accounts for GBMSD's combined discharges from GBF and DPF.

3.2.1.6 Total Phosphorus and TSS Limitation(s) and Adaptive Management Requirements

Green Bay Metropolitan Sewerage District Combined (GBMSD), branded as NEW Water, has requested and the Department has approved a plan to implement a watershed adaptive management approach under s. NR 217.18, Wis. Adm. Code and s. 283.13(7) Wis. Stats., as a means for GBMSD to achieve compliance with the phosphorus water quality standard in s. NR 102.06, Wis. Adm. Code, and the Lower Fox River Basin TMDL for TSS. The total phosphorus and TSS limitations and conditions in this permit reflect the approved adaptive management plan WQT-2020-0016 (October 2020). Failure to implement the terms and conditions of this section is a violation of this permit. The permittee shall design and implement the actions identified in Section 3.2 of AM Plan No. WQT-2020-0016 (October 2020) in accordance with the goals and measures identified in the approved plan.

If total phosphorus loadings within the Dutchman and Ashwaubenon Creeks action area, as identified in AM Plan No. WQT-2020-0016 (October 2020), are not reduced by at least 4,727 pounds per year by June 30, 2026 the watershed adaptive management option may not be available to the permittee upon permit reissuance. If TSS loadings within the Dutchman and Ashwaubenon Creeks action areas, as identified in AM Plan No. WQT-2020-0016 (October 2020), are not reduced by at least 985,935 pounds per year by June 30, 2026 the watershed adaptive management option may not be available to the permittee upon permit reissuance.

Pursuant to s. NR 217.18(3)(e)2, Wis. Adm. Code, the total phosphorus adaptive management interim limitation is 0.6 mg/L, expressed as a six-month average. Additionally, a 1.0 mg/L phosphorus limitation expressed as a monthly average is required. These phosphorus effluent limitations apply to the GBF and DPF discharges independently (each facility must meet these phosphorus limits). The adaptive management TSS interim limits are 27 mg/L as a weekly average and 18 mg/L as a monthly average for GBF and 12 mg/L as a weekly average and 8 mg/L as a monthly average for DPF. The final TMDL water quality based effluent limitations for GBMSD for phosphorus on a combined basis (GBF plus DPF) are 68 lbs/day as a six-month average and 203 lbs/day as a monthly average. The final TMDL water quality based effluent limitations for GBMSD for TSS on a combined basis are 4,305 lbs/day as a weekly average and 2,404 lbs/day as a monthly average. These final limitations are based on TMDL wasteload allocations from the Lower Fox River Basin TMDL. These limitations may be recalculated based on changes in the in-stream data at the time of permit reissuance. These limits will become effective at the end of four permit terms (June 30, 2040) unless the adaptive management project is terminated per s. NR 217.18(3)(g), Wis. Adm. Code, in which case the limits may be imposed at an earlier date, or the applicable phosphorus water quality standard in s. NR 102.06, Wis. Adm. Code and Lower Fox River Basin TMDL for TSS have been achieved within the permittee's receiving water .

3.2.1.7 Total Phosphorus and TSS Interim Limits, Averaging Periods and Compliance Determination

The adaptive management total phosphorus interim limit of 0.6 mg/L goes into effect November 1, 2021 beginning with the averaging period from November 1, 2021 through April 30, 2022. The averaging periods are May through October and November through April. Compliance with the 6-month average limit is evaluated at the end of each 6-month period on April 30th and October 31st annually. Interim limits for TSS are effective immediately upon permit reissuance.

3.2.1.8 Adaptive Management Reopener Clause

Per s. NR 217.18(3)(g), Wis. Adm. Code, the Department may terminate the adaptive management option for a permittee through permit modification or at permit reissuance and require compliance with a phosphorus effluent limitation calculated under s. NR 217.13, Wis. Adm. Code, or a TSS mass limitation from a federally approved TMDL based on any of the following reasons:

1. Failure to implement the adaptive management actions in accordance with the approved adaptive management plan and compliance schedule established in the permit.
2. New information becomes available that changes the Department's determinations made under s. NR 217.18(2), Wis. Adm. Code, or pursuant to s. 283.13(7), Wis. Stats.
3. Circumstances beyond the permittee's control have made compliance with the applicable phosphorus criterion in s. NR 102.06, Wis. Adm. Code, or TSS load allocation based on the federally approved TMDL pursuant to the plan's goals and measures infeasible.
4. A determination by the Department that sufficient reductions have not been achieved to timely reduce the amount of total phosphorus or TSS to meet the criteria in s. NR 102.06, Wis. Adm. Code or the federally approved TMDL.

3.2.1.9 Adaptive Management Requirements - Optimization

The permittee shall continue to optimize performance to control phosphorus discharges in accordance with s. NR 217.18(3)(c), Wis. Adm. Code.

3.2.1.10 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3.2.1.11 Mercury Variance – Implement Pollutant Minimization Plan

This permit contains a variance to the water quality-based effluent limit (WQBEL) for mercury granted in accordance with s. 283.15, Stats. As conditions of this variance the permittee shall (a) maintain effluent quality at or below the interim effluent limitation specified in the table above, (b) follow the “Green Bay Metropolitan Sewerage District Mercury Pollutant Minimization Program” dated August 14, 2020 and (c) perform the actions listed in the schedule. (See the Schedules section herein.):

3.2.1.12 Effluent Temperature Monitoring

For monitoring temperature continuously, collect measurements in accordance with s. NR 218.04(13), Wis. Adm. Code. This means that discrete measurements shall be recorded at intervals of not more than 15 minutes during the 24-hour period. Report the maximum temperature measured during the day on the DMR.

3.2.1.13 Effluent Temperature Limitations

Limits for Temperature, Maximum: The effluent limitations for "Temperature, Maximum" become effective on **October 1, 2025** as specified in the Schedules section. Monitoring is required 3X/week upon permit reissuance. Daily maximum temperatures shall be reported so that applicable daily maximum limits can be compared to the reported daily maximum temperatures and applicable weekly average limits can be compared to the weekly averages of the reported daily maximum temperatures.

3.2.1.14 Dissipative Cooling Demonstration – POTW Weekly Average Limits

If weekly average effluent temperature limitations are needed, the permittee may submit all additional necessary information with a request that the Department account for dissipative cooling of the effluent pursuant to s. NR 106.59, Wis. Adm. Code. If the Department determines that weekly average effluent limitations for temperature are not necessary based on dissipative cooling the Department shall modify the permit to remove the weekly average effluent limitations pursuant to s. NR 106.59(4)(e). Monitoring frequency shall be 3X/Week and the remainder of the permit schedule for weekly average temperature limits shall be discontinued at that time. If after reviewing the data the Department determines that weekly average effluent limitations for temperature are still necessary because the thermal load from the effluent is not adequately dissipated, the requirement to meet the effluent limitations according to the permit schedule will not be removed and the monitoring frequency specified in the permit shall continue to apply. A re-evaluation of the limits may then be requested pursuant to NR 106 – 'Subchapters V & VI Effluent Limitations for Temperature' or NR 102.26 – Site Specific Ambient Temperature.

3.2.1.15 Whole Effluent Toxicity (WET) Testing

Primary Control Water: The primary control water shall be a standard laboratory water having approximately the same hardness as the Fox River, as specified in section 4.4.7 of the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual" (s. NR 219.04, Wis. Adm. Code).

Instream Waste Concentration (IWC): 9%

Acute Mixing Zone Concentration: N/A

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 30, 10, 3, 1% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

Acute:

- 4th Quarter (October 1 – December 31) 2021
- 3rd Quarter (July 1 – September 30) 2022
- 2nd Quarter (April 1 – June 30) 2023
- 1st Quarter (January 1 – March 31) 2024
- 2nd Quarter (April 1 – June 30) 2025

Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in 2nd Quarter (April 1 – June 30) 2026.

Chronic tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

Chronic:

- 4th Quarter (October 1 – December 31) 2021
- 3rd Quarter (July 1 – September 30) 2022
- 2nd Quarter (April 1 – June 30) 2023
- 1st Quarter (January 1 – March 31) 2024
- 2nd Quarter (April 1 – June 30) 2025

Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in 2nd Quarter (April 1 – June 30) 2026.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 11 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90 day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3.2.2 Sampling Point 601 - River Monitoring for GBF WLA

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WLA Previous Day River Flow		cfs	Daily	Gauge Station	Monitoring Only - May 1 through October 31.
WLA Previous Day River Temp		deg F	Daily	Measure	Monitoring Only - May 1 through October 31.
WLA Previous 4 Day Avg River Flow		cfs	Daily	Calculated	Monitoring Only - May 1 through October 31.

3.2.2.1 Reporting Requirements

See Section 3.2.3.1 for Definitions, Monitoring Requirements and Reporting Requirements applicable to River Monitoring performed for Sampling Point 601.

3.2.3 Sampling Point (Outfall) 007 - GBF WLA Compliance Reporting

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
WLA $CBOD_5$ Value		lbs/day	Daily	See Table	May 1 through October 31. Based on River Monitoring at Sample Point 601, use the "WLA Previous Day River Temp" and "WLA Previous 4-day Avg River Flow" to look up the "WLA $CBOD_5$ Value" from Tables 1 - 4 at Section 3.2.3.1.5.
WLA Adjusted Value		lbs/day	Daily	Calculated	May 1 through October 31. Multiply the "WLA $CBOD_5$ Value" times 1.34 and report the applicable limit in this DMR column.
WLA $CBOD_5$ Discharged	Daily Max - Variable	lbs/day	Daily	Calculated	May 1 through October 31. Enter the daily mass of CBOD5 discharged from Outfall 001. Compare to "WLA Adjusted Value" to determine compliance.
WLA 7 Day Sum of WLA Values		lbs/day	Daily	Calculated	May 1 through October 31. Enter the sum of the "WLA $CBOD_5$ Value" (allocation) for each 7-consecutive-day period (present day value plus 6 previous day's values) and report applicable limit in this DMR column.
WLA 7 Day Sum of $CBOD_5$ Discharged	Daily Max - Variable	lbs/day	Daily	Calculated	May 1 through October 31. Enter the daily mass of CBOD5 discharged from Outfall 001. Compare to "WLA Adjusted Value" to determine compliance.

3.2.3.1 Waste Load Allocation Requirements

Each year during the months of May through October, the discharge of $CBOD_5$ from sample point/outfall 001 is limited to the following wasteload allocated water quality related effluent limitations in addition to the effluent limitations contained in section 3.2.1.

3.2.3.1.1 Definitions

- *$CBOD_5$ Allocation*: Green Bay Metropolitan Sewerage District's GBF allocation of $CBOD_5$ (pounds per day $CBOD_5$), as listed in Tables 1 through 4 of Section 3.2.3.1.5, represent water quality related effluent limitations. The flow and temperature conditions used to determine the $CBOD_5$ allocation for a given day are defined below.
- *Flow*: A representative measurement of flow is the previous four days average flow value derived daily from continuous river flow monitoring data for the Fox River as reported by the Lower Fox River Dischargers Association.
- *Temperature*: A representative measurement of temperature is the daily average temperature value of the previous day derived from continuous river temperature monitoring data for the Fox River as reported by the Lower Fox River Dischargers Association.

3.2.3.1.2 Determination of Effluent Limitation

For purposes of determining compliance with the wasteload allocated water quality related $CBOD_5$ effluent limitations, the following conditions shall be met:

- The sum of the actual daily discharges of $CBOD_5$ for any 7-consecutive-day period shall not exceed the sum of the daily $CBOD_5$ allocation values from Tables 1 through 4 for the same 7-consecutive-day period.
- For any one-day period, the actual discharge of $CBOD_5$ shall not exceed 1.34 times the $CBOD_5$ allocation value from Tables 1 through 4 for that day.

3.2.3.1.3 Monitoring Requirements

The same 24-hour period shall be used for the collection of composite and continuous samples for river flow and temperature and all effluent characteristics listed in Table 3.2.1, including effluent flow and $CBOD_5$.

3.2.3.1.4 Reporting Requirements

During the months of May through October inclusive the permittee shall report the following information:

- The daily average river flow value in cfs (“WLA Previous Day River Flow”);
- The daily average river temperature value in °F (“WLA Previous Day River Temp”);
- The average of the previous 4 days river flow values in cfs (“WLA Previous 4 Day Avg River Flow”);
- The daily $CBOD_5$ allocation value in lbs $CBOD_5$ per day from Tables 1 through 4 (“WLA $CBOD_5$ Value”);
- The daily adjusted $CBOD_5$ allocation value – 1.34 x daily WLA $CBOD_5$ Value (“WLA Adjusted Value”);
- The actual discharge value of $CBOD_5$ in lbs $CBOD_5$ per day (“WLA $CBOD_5$ Discharged”);
- The sum of the daily $CBOD_5$ allocation values in lbs $CBOD_5$ for each 7-consecutive-day period (present day allocation plus the 6 previous day's allocation) (“WLA 7 Day Sum of WLA Values”); and
- The sum of the actual daily discharge values of $CBOD_5$ in lbs $CBOD_5$ for each 7-consecutive-day period (present day discharge plus the 6 previous days discharge) (“WLA 7 Day Sum of $CBOD_5$ Discharged”).

3.2.3.1.5 Tables 1 through 4 (Wasteload Allocation, May through October)

TABLE 1 - WASTELOAD ALLOCATED VALUES IN LBS PER DAY OF $CBOD_5$
(River mile 7.3 to 0.0)

MAY

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs)														
	750 OR LESS	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	7439	7439	7439	7439	7439	7439	7439	7439	9882	12967	18576	27844	35420	35420	35420
82 TO 85	7439	7439	7439	7439	7439	7439	7439	8441	10925	13901	19274	28104	35420	35420	35420
78 TO 81	7439	7439	7439	7439	7439	7439	8290	10323	12795	15701	20859	29201	35420	35420	35420
74 TO 77	7439	7439	7439	7439	7439	8479	10304	12514	15106	18071	23212	31330	35420	35420	35420
70 TO 73	7439	7439	7439	7439	8670	10528	12719	15241	18083	21243	26566	34724	35420	35420	35420
66 TO 69	7439	7439	7439	8524	10658	13073	15764	18726	21953	25439	31142	35420	35420	35420	35420
62 TO 65	7439	7439	7700	10354	13236	16342	19663	23198	26941	30885	35420	35420	35420	35420	35420
58 TO 61	7439	7439	9276	12868	16630	20557	24642	28885	33274	35420	35420	35420	35420	35420	35420
54 TO 57	7439	7439	11630	16290	21064	25946	30927	35420	35420	35420	35420	35420	35420	35420	35420
50 TO 53	7439	9186	14988	20849	26767	32731	35420	35420	35420	35420	35420	35420	35420	35420	35420
46 TO 49	7439	12380	19573	26769	33960	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
42 TO 45	10762	16894	25613	34274	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
≤41	15632	22958	33333	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420

TABLE 2 - WASTELOAD ALLOCATED EFFLUENT VALUES IN POUNDS PER DAY OF $CBOD_5$
(River mile 7.3 to 0.0)

JUNE

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs)														
	750 OR LESS	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	13818	12792	11646	10866	10434	10335	10557	11085	11901	12967	18576	27844	35420	35420	35420
82 TO 85	13068	12203	11285	10726	10512	10627	11057	11788	12804	13901	19274	28104	35420	35420	35420
78 TO 81	12057	11465	10929	10748	10901	11375	12158	13234	14585	15701	20859	29201	35420	35420	35420
74 TO 77	11281	10979	10851	11066	11613	12472	13630	15073	16785	18071	23212	31330	35420	35420	35420
70 TO 73	10738	10743	11047	11686	12646	13913	15472	17307	19403	21243	26566	34724	35420	35420	35420
66 TO 69	7439	7439	7439	8524	10658	13073	15764	18726	21953	25439	31142	35420	35420	35420	35420
62 TO 65	7439	7439	7700	10354	13236	16342	19663	23198	26941	30885	35420	35420	35420	35420	35420
58 TO 61	7439	7439	9276	12868	16630	20557	24642	28885	33274	35420	35420	35420	35420	35420	35420
54 TO 57	7439	7439	11630	16290	21064	25946	30927	35420	35420	35420	35420	35420	35420	35420	35420
50 TO 53	7439	9186	14988	20849	26767	32731	35420	35420	35420	35420	35420	35420	35420	35420	35420
46 TO 49	7439	12380	19573	26769	33960	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
42 TO 45	10762	16894	25613	34274	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
≤41	15632	22958	33333	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420

TABLE 3 - WASTELOAD ALLOCATED EFFLUENT VALUES IN POUNDS PER DAY OF $CBOD_5$
(River mile 7.3 to 0.0)

JULY - AUGUST

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs))														
	750 OR LESS	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	13818	12792	11646	10866	10434	10335	10557	11085	11901	12995	15116	18769	25774	35420	35420
82 TO 85	13068	12203	11285	10726	10512	10627	11057	11788	12804	14090	16493	20502	28007	35420	35420
78 TO 81	12057	11465	10929	10748	10901	11375	12158	13234	14585	16201	19083	23703	32066	35420	35420
74 TO 77	11281	10979	10851	11066	11613	12472	13630	15073	16785	18752	22149	27429	35420	35420	35420
70 TO 73	10738	10743	11047	11686	12646	13913	15472	17307	19403	21748	25693	31679	35420	35420	35420
66 TO 69	10432	10759	11517	12604	14005	15703	17684	19934	22439	25184	29715	35420	35420	35420	35420
62 TO 65	10361	11028	12264	13821	15684	17837	20267	22958	25894	29061	34215	35420	35420	35420	35420
≤61	10524	11547	13285	15337	17686	20318	23219	26373	29764	33380	35420	35420	35420	35420	35420

TABLE 4 - WASTELOAD ALLOCATED EFFLUENT VALUES IN POUNDS PER DAY OF $CBOD_5$
(River mile 7.3 to 0.0)

SEPTEMBER - OCTOBER

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs)														
	0 TO 750	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	7439	7439	7439	7439	8811	11224	13833	16613	19550	22620	27439	34151	35420	35420	35420
82 TO 85	7439	7439	7439	7561	9417	11486	13750	16186	18776	21502	25800	31819	35420	35420	35420
78 TO 81	7439	7439	7439	8667	10149	11844	13731	15793	18007	20356	24085	29342	35420	35420	35420
74 TO 77	7439	7547	8392	9486	10811	12347	14078	15979	18031	20219	23705	28635	35420	35420	35420
70 TO 73	7734	8208	9111	10267	11651	13245	15033	16991	19101	21342	24910	29946	35420	35420	35420
66 TO 69	7981	8649	9830	11259	12920	14790	16851	19083	21462	23977	27951	33524	35420	35420	35420
62 TO 65	8104	9118	10792	12717	14868	17229	19781	22500	25370	28373	33076	35420	35420	35420	35420
58 TO 61	8359	9870	12255	14887	17748	20816	24073	27500	31076	34781	35420	35420	35420	35420	35420
54 TO 57	8991	11151	14462	18019	21804	25797	29979	34326	35420	35420	35420	35420	35420	35420	35420
50 TO 53	10255	13215	17668	22368	27295	32427	35420	35420	35420	35420	35420	35420	35420	35420	35420
46 TO 49	12399	16309	22123	28179	34465	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
42 TO 45	15672	20686	28076	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
≤41	20328	26597	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420

3.2.4 Sampling Point (Outfall) 051 - DPF Effluent

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
$CBOD_5$	Weekly Avg	18 mg/L	5/Week	24-Hr Flow Prop Comp	
$CBOD_5$	Monthly Avg	9.0 mg/L	5/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	12 mg/L	Daily	24-Hr Flow Prop Comp	This is an Adaptive Management interim limit that applies on the permit effective date.
Suspended Solids, Total	Monthly Avg	8.0 mg/L	Daily	24-Hr Flow Prop Comp	This is an Adaptive Management interim limit that applies on the permit effective date.
Suspended Solids, Total		lbs/day	Daily	Calculated	Monitoring Only - See subsection 3.2.5.1 for calculating combined effluent results for the GBF and DPF.
pH (Minimum)	Daily Min	6.0 su	Daily	Continuous	
pH (Maximum)	Daily Max	9.0 su	Daily	Continuous	
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Monitoring and limits apply May 1 through September 30 annually.
E. coli	% Exceedance	10 Percent	Weekly	Grab	Monitoring and limits apply May 1 through September 30 annually. See section 3.2.4.4 for formula to calculate E. coli Percent Limit. Enter the result in the DMR on the last day of the month.
Phosphorus, Total	Monthly Avg	1.0 mg/L	Daily	24-Hr Flow Prop Comp	
Phosphorus, Total	6-Month Avg	0.6 mg/L	Daily	24-Hr Flow Prop Comp	This is an Adaptive Management interim limit effective starting November 1, 2021. See Section 3.2.4.6 for averaging periods and compliance determination. Future interim limit of 0.5 mg/L may be effective upon reissuance per Schedule 5.1.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Total		lbs/day	Daily	Calculated	Monitoring Only - See Section 3.2.5.1 for calculating combined effluent results for the GBF and DPF.
Nitrogen, Ammonia (NH_3-N) Total	Daily Max	26 mg/L	5/Week	24-Hr Flow Prop Comp	Limit in effect January 1 through April 30 and November 1 through December 31 annually.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	26 mg/L	5/Week	24-Hr Flow Prop Comp	Limit in effect January 1 through April 30 and November 1 through December 31 annually.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	26 mg/L	5/Week	24-Hr Flow Prop Comp	Limit in effect January 1 through March 31 and November 1 through December 31 annually.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	24 mg/L	5/Week	24-Hr Flow Prop Comp	Limit in effect April 1 through April 30 annually.
Nitrogen, Ammonia (NH3-N) Total		mg/L	5/Week	24-Hr Flow Prop Comp	Monitoring Only – May 1 through October 31 annually.
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.4.3 and 3.2.4.3.
Chromium, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.4.2 and 3.2.4.4.
Copper, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.4.2 and 3.2.4.3.
Lead, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.4.2 and 3.2.4.3.
Nickel, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.4.2 and 3.2.4.3.
Zinc, Total Recoverable		µg/L	Monthly	24-Hr Flow Prop Comp	Monitoring Only - See Sections 3.2.4.2 and 3.2.4.3.
Mercury, Total Recoverable		ng/L	Monthly	Grab	Monitoring Only - See Section 3.2.4.9 for mercury monitoring requirements.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Section 3.2.4.10 for Whole Effluent Toxicity (WET) testing dates and WET requirements.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chronic WET		TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See Section 3.2.4.10 for Whole Effluent Toxicity (WET) testing dates and WET requirements.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	Monitoring Only.
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	Monitoring Only.
Nitrogen, Total		mg/L	Quarterly	Calculated	Monitoring Only. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

3.2.4.1 Annual Average Design Flow

The annual average design flow of the De Pere Facility is 10 MGD.

3.2.4.2 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

3.2.4.3 Sample Analysis

Samples shall be analyzed using a method which provides adequate sensitivity so that results can be quantified at a level of quantitation below the calculated/potential effluent limit, unless not possible using the most sensitive approved method.

3.2.4.4 *E. coli* Percent Limit

No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ \textit{of Samples greater than}\ 410\ \#/100}{\textit{Total}\ \#\ \textit{of samples}} \times 100 = \%\ \textit{Exceedance}$$

3.2.4.5 Adaptive Management for Total Phosphorus and Total Suspended Solids

The De Pere Wastewater Treatment Facility (“DPF”) is owned and operated by Green Bay Metropolitan Sewerage District Combined (“GBMSD”). GBMSD also owns and operates the Green Bay Wastewater Treatment Facility (“GBF”). The GBF and DPF are both permitted under same WPDES permit held by GBMSD. GBMSD has requested and the Department has approved a plan to implement a watershed adaptive management approach as a means for GBMSD to achieve compliance with the total phosphorus water quality standard in s. NR 102.06, Wis. Adm. Code, and the Lower Fox River Basin Total Maximum Daily Load for TSS. Compliance is determined on a combined basis (GBF plus DPF). The scope of the watershed adaptive management approach for GBMSD to achieve total phosphorus and total suspended solids compliance accounts for GBMSD’s combined discharges from the GBF (Outfall 001) and the DPF (Outfall 051).

The requirements in Sections 3.2.1.5 and 3.2.1.6 of this permit for GBF's Outfall 001 and GBMSD's approved adaptive management plan WQT-2020-0016 (October 2020) all apply to DPF's Outfall 051.

Pursuant to s. NR 217.18(3)(e)2, Wis. Adm. Code, the total phosphorus adaptive management interim limitation for DPF is 0.6 mg/L, expressed as a six-month average. Additionally, a 1.0 mg/L phosphorus limitation expressed as a monthly average is required. The adaptive management TSS interim limits are 12 mg/L as a weekly average and 8 mg/L as a monthly average for DPF.

3.2.4.6 Total Phosphorus and TSS Interim Limits, Averaging Periods and Compliance Determination

The adaptive management total phosphorus interim limit of 0.6 mg/L goes into effect beginning the period from November 1, 2021 through April 30, 2022. The averaging periods are May through October and November through April. Compliance with the 6-month average limit is evaluated at the end of each 6-month period on April 30th and October 31st annually. Interim limits for TSS are effective immediately upon permit reissuance.

3.2.4.7 Adaptive Management Reopener Clause

Per s. NR 217.18(3)(g), Wis. Adm. Code, the Department may terminate the adaptive management option for a permittee through permit modification or at permit reissuance and require compliance with a phosphorus effluent limitation calculated under s. NR 217.13, Wis. Adm. Code, or a TSS mass limitation from a federally approved TMDL based on any of the following reasons:

5. Failure to implement the adaptive management actions in accordance with the approved adaptive management plan and compliance schedule established in the permit.
6. New information becomes available that changes the Department's determinations made under s. NR 217.18(2), Wis. Adm. Code, or pursuant to s. 283.13(7), Wis. Stats.
7. Circumstances beyond the permittee's control have made compliance with the applicable phosphorus criterion in s. NR 102.06, Wis. Adm. Code, or TSS load allocation based on the federally approved TMDL pursuant to the plan's goals and measures infeasible.
8. A determination by the Department that sufficient reductions have not been achieved to timely reduce the amount of total phosphorus or TSS to meet the criteria in s. NR 102.06, Wis. Adm. Code or the federally approved TMDL.

3.2.4.8 Adaptive Management Requirements - Optimization

The permittee shall continue to optimize performance to control phosphorus discharges in accordance with s. NR 217.18(3)(c), Wis. Adm. Code.

3.2.4.9 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The limit of quantitation (LOQ) used for the effluent and field blank shall be less than 1.3 ng/L, unless the samples are quantified at levels above 1.3 ng/L. The permittee shall collect at least one mercury field blank for each set of mercury samples (a set of samples may include combinations of intake, influent, effluent or other samples all collected on the same day). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3.2.4.10 Whole Effluent Toxicity (WET) Testing

Primary Control Water: The primary control water shall be a standard laboratory water having approximately the same hardness as the Fox River, as specified in section 4.4.7 of the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual" (s. NR 219.04, Wis. Adm. Code).

Instream Waste Concentration (IWC): 9%

Acute Mixing Zone Concentration: N/A

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 30, 10, 3, 1% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

Acute:

- 4th Quarter (October 1 – December 31) 2021
- 3rd Quarter (July 1 – September 30) 2022
- 2nd Quarter (April 1 – June 30) 2023
- 1st Quarter (January 1 – March 31) 2024
- 2nd Quarter (April 1 – June 30) 2025

Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in 2nd Quarter (April 1 – June 30) 2026.

Chronic tests shall be conducted once each year, in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

Chronic:

- 4th Quarter (October 1 – December 31) 2021
- 3rd Quarter (July 1 – September 30) 2022
- 2nd Quarter (April 1 – June 30) 2023
- 1st Quarter (January 1 – March 31) 2024
- 2nd Quarter (April 1 – June 30) 2025

Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in 2nd Quarter (April 1 – June 30) 2026.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 11 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90 day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3.2.5 Sampling Point (Outfall) 076 - Calculated Combined Effluent

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total		lbs/day	Daily	Calculated	Monitoring Only.
Phosphorus, Total		lbs/day	Daily	Calculated	Monitoring Only.

3.2.5.1 Calculation of Combined Effluent Results

Results reported under this sample point, for the combined daily mass of total suspended solids and total phosphorus discharged from the GBF and the DPF, shall be calculated as the sum of those respective parameters reported at sample points 001 and 051.

3.2.6 Sampling Point 602 - Fox River; 603 - Ashwaubenon Creek; 604 - Dutchman Creek

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow River		cfs	2/Month	Measure	Provide an estimate of river flow for each day that in-stream phosphorus and total suspended solids monitoring is performed May 1 through October 31 annually.
Flow River		cfs	Per Occurrence	Measure	Voluntary river flow estimates for each day that in-stream phosphorus and total suspended solids monitoring is performed November 1 through April 30 annually.
Phosphorus, Total		mg/L	2/Month	Grab	Collect samples 2/Month May 1 through October 31 annually. See Sections 3.2.6.1 through 3.2.6.3 for sampling and reporting requirements.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Total		mg/L	Per Occurrence	Grab	Voluntary monitoring November 1 through April 30 annually. See Sections 3.2.6.1 through 3.2.6.3 for sampling and reporting requirements.
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate and report total monthly phosphorus loads for the months of May through October annually. See Section 3.2.6.4 for calculation of total monthly loads.
Phosphorus, Total		lbs/month	Per Occurrence	Calculated	Calculated total monthly phosphorus loads may also be reported for the months of November through April, as data is available. See Section 3.2.6.4 for calculation of total monthly loads.
Suspended Solids, Total		mg/L	2/Month	Grab	Collect samples 2/Month May 1 through October 31 annually. See Sections 3.2.6.1 through 3.2.6.3 for sampling and reporting requirements.
Suspended Solids, Total		mg/L	Per Occurrence	Grab	Voluntary monitoring November 1 through April 30 annually. See Sections 3.2.6.1 through 3.2.6.3 for sampling and reporting requirements.
Suspended Solids, Total		lbs/month	Monthly	Calculated	Calculate and report total monthly total suspended solids loads for the months of May through October annually. See Section 3.2.6.4 for calculation of total monthly loads.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total		lbs/month	Per Occurrence	Calculated	Calculated total monthly total suspended solids loads may also be reported for the months of November through April, as data is available. See Section 3.2.6.4 for calculation of total monthly loads.

3.2.6.1 Surface Water Sampling for Total Phosphorus and Total Suspended Solids

Surface water sampling shall be performed in accordance with Adaptive Management Plan No. WQT-2020-0016 (October 2020). When sampling surface waters for total phosphorus and total suspended solids, sample collection and handling protocols as specified in Section 2.3 of AM Plan No. WQT-2020-0016 (October 2020) shall be followed along with the following Standard Requirements in this permit: “Monitoring Results”, “Sampling and Testing Procedures”, “Recording of Results” and “Reporting of Monitoring Results”.
When testing for total phosphorus and total suspended solids in surface water samples, use the test methods specified in Table 2-9 of AM Plan No. WQT-2020-0016 (October 2020). The methods and protocols listed in Table 2-9 were current at the time this adaptive management plan was approved. See ss. NR 218 and NR 219, Wis. Adm. Code, for up-to-date analytical methods. Analytical methods used shall enable the laboratory to quantitate total phosphorus at levels below the water quality criterion of 0.075 mg/L. If the required level of quantitation cannot be met by any of the methods available in ch. NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected.

When surface water samples are collected by Water Action Volunteers, the “The Volunteer Monitor's Guide to Quality Assurance Project Plans” shall be implemented. (Available at www.epa.gov; search for “The Volunteer Monitor's Guide to Quality Assurance Project Plans”).

3.2.6.2 Voluntary Surface Water Sampling for Total Phosphorus and Total Suspended Solids

Total phosphorus and total suspended solids monitoring may voluntarily be performed from November 1 through April 30 annually. When voluntary in-stream monitoring is completed monitoring results shall be reported on the monthly eDMR. Report river flow measurements for each day phosphorus and total suspended solids monitoring is performed.

3.2.6.3 Reporting Surface Water Sampling Results for Total Phosphorus, Total Suspended Solids and Flow

The permittee shall report total phosphorus and total suspended solids monitoring results and river flow measurements for surface water samples collected at Sampling Points 602, 603 and 604 on monthly eDMRs. The monitoring results shall be submitted by the date specified on the eDMR.

In addition, all total phosphorus and total suspended solids test results for surface water samples collected at Sampling Points 602, 603, 604 and all other surface water sampling points identified in Adaptive Management Plan No. WQT-2020-0016 (October 2020) shall be reported to the Department using the Department’s Laboratory Data Entry System (LDES). Test results for the year shall be submitted by January 21st of the following year. (Available at dnr.wi.gov; search “Laboratory Data Entry System”). Report river flow measurements for each day phosphorus and total suspended solids monitoring is performed.

3.2.6.4 Total Monthly Total Phosphorus (TP) and Total Suspended Solids (TSS) Loads

Use the following methods to calculate the total monthly phosphorus and total suspended solids loading in the receiving stream expressed as a mass in lbs/month:

1) Convert mg/L to lbs/day using the following equation:

   Daily TP/TSS loading (lbs/day) = TP/TSS concentration (mg/L) × [Daily Flow (cfs) ÷ 1.55] × 8.34

2) On a monthly basis, average the reported daily TP and TSS loadings, then multiply the averages by the number of days during the month and report the product as “Phosphorus, Total” or “Suspended Solids, Total” (in lbs/month) for the last day of the month on the eDMR.

   Phosphorus, Total (lbs/month) = Average of daily TP loading (lbs/day) × Number of days/month
   Suspended Solids, Total (lbs/month) = Average of daily TSS loading (lbs/day) × Number of days/month

4 Land Application Requirements

4.1 Sampling Point(s)

The discharge(s) shall be limited to land application of the waste type(s) designated for the listed sampling point(s) on Department approved land spreading sites or by hauling to another facility.

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
002	Combined Incinerated Cake - Incinerated cake from sludges from the GBF and DPF. Incineration of sludge is regulated under the jurisdiction of US EPA Region 5 and subject to the requirements of 40 CFR part 503. While the State of Wisconsin has not been delegated authority for sludge incineration, Form 3400-165 may be sent to the permittee each year and may be completed and returned to DNR, to satisfy federal reporting requirements. US EPA may also impose other 40 CFR part 503 requirements. For state reporting requirements submit form 3400-52 for other methods of disposal.
003	Combined Dewatered Cake - Dewatered cake from sludges from the GBF and DPF. Monitoring requirements and limitations are applicable during any year in which sludge is disposed in a landfill.
052	DPF Dewatered Cake - Monitoring requirements and limitations are applicable during any year in which sludge is disposed in a landfill.
004	Struvite Harvesting Process: Tons of product produced must be reported on an annual basis.

4.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

4.2.1 Sampling Point (Outfall) 003 - Combined Dewatered Cake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Monthly	Composite	
Arsenic Dry Wt		mg/kg	Monthly	Composite	
Cadmium Dry Wt		mg/kg	Monthly	Composite	
Copper Dry Wt		mg/kg	Monthly	Composite	
Lead Dry Wt		mg/kg	Monthly	Composite	
Mercury Dry Wt		mg/kg	Monthly	Composite	
Molybdenum Dry Wt		mg/kg	Monthly	Composite	
Nickel Dry Wt		mg/kg	Monthly	Composite	
Selenium Dry Wt		mg/kg	Monthly	Composite	
Zinc Dry Wt		mg/kg	Monthly	Composite	
PCB Total Dry Wt		mg/kg	Once	Composite	See Section 4.2.1.1. Monitor once in calendar year 2021 as part of the Priority Pollutant Scan.
Municipal Sludge Priority Pollutant Scan			Once	Composite	As specified in ch. NR 215.03 (1-4), Wis. Adm. Code. See Section 4.2.1.2.

4.2.1.1 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs one time during the first year sludge is landfilled. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code and the conditions specified in Standard Requirements of this permit. PCB results shall be submitted by January 31, following the specified year of analysis.

4.2.1.2 Priority Pollutant Scan

The permittee shall analyze the sludge for the priority pollutants as specified in s. NR 215.03 (1-4), Wis. Adm. Code one time during the first year sludge is landfilled. Results shall be reported on a dry weight basis. Results shall be submitted by January 31, following the year of analysis.

4.2.2 Sampling Point (Outfall) 052 - DPF Dewatered Cake

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Per Occurrence	Composite	See subsection 4.2.2.1 for applicable monitoring frequency.
Arsenic Dry Wt		mg/kg	Per Occurrence	Composite	
Cadmium Dry Wt		mg/kg	Per Occurrence	Composite	
Copper Dry Wt		mg/kg	Per Occurrence	Composite	
Lead Dry Wt		mg/kg	Per Occurrence	Composite	
Mercury Dry Wt		mg/kg	Per Occurrence	Composite	
Molybdenum Dry Wt		mg/kg	Per Occurrence	Composite	
Nickel Dry Wt		mg/kg	Per Occurrence	Composite	
Selenium Dry Wt		mg/kg	Per Occurrence	Composite	
Zinc Dry Wt		mg/kg	Per Occurrence	Composite	

4.2.2.1 Monitoring Frequency

When dewatered cake from this sampling point is landfilled, parameters required to be monitored on a “Per Occurrence” basis are required to be monitored at least once during any period of landfilling, with a minimum frequency during any continuous landfilling period of once per two months.

4.2.3 Sampling Point (Outfall) 004 - Struvite Harvesting

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Weight		tons/yr	Annual	Total Annual	

5 Schedules

5.1 Watershed Adaptive Management Option Annual Report Submittals

The permittee shall submit annual reports on the implementation of AM Plan No. WQT-2020-0016 (October 2020) as specified in Section 3.2.1.6 and the following schedule.

Required Action	Due Date
Annual Adaptive Management Report: Submit an annual adaptive management report. The annual adaptive management report shall: o Identify those actions from Section 3.2 of the approved adaptive management plan that were completed during the previous calendar year and those actions that are in progress; o Evaluate collected monitoring data; o Document progress in achieving the goals and measures identified in the approved adaptive management plan; o Describe the outreach and education efforts that occurred during the past calendar year; o Identify any corrections or adjustments to the adaptive management plan that are needed to achieve compliance with the phosphorus water quality standards specified in s. NR 102.06, Wis. Adm. Code, and the Lower Fox River Basin Total Maximum Daily Load ("TMDL") for Total Suspended Solids (“TSS”); o Describe any updates needed to Green Bay Metropolitan Sewerage District’s approved phosphorus optimization plan; o Submit all water chemistry results from all sample points outlined in AM Plan No. WQT-2020-0016 (October 2020) to the Department using the Department's Laboratory Data Entry System (LDES); and o Submit all biomonitoring results from all locations outlined in AM Plan WQT-2020-0016 (October 2020) to the Department using the Department's Laboratory Data Entry System (LDES).	03/31/2022
Annual Adaptive Management Report #2: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2023
Annual Adaptive Management Report #3: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2024
Annual Adaptive Management Report #4: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2025
Renewal of Adaptive Management Plan for Permit Reissuance: If the permittee intends to seek renewal of AM Plan No. WQT-2020-0016 (October 2020) per s. NR 217.18, Wis. Adm. Code, for phosphorus or per s. 281.13(7), Wis. Stats., for TSS for the reissued permit term, proposed AM goals and actions based on an updated AM plan shall be submitted to the Department for review and approval. The permittee may propose to adjust load reductions for phosphorus or TSS required by AM Plan No. WQT-2020-0016 (October 2020) either up or down at the beginning of each WPDES permit term to reflect changes in loads associated with point and non-point sources. This schedule may be modified to incorporate any changes in AM goals and actions, removed if the AM program is terminated per the “Adaptive Management Reopener Clause” permit section, or removed if the adaptive management plan has achieved water quality standards as determined by the Department within the AM action area.	12/31/2025

Final Adaptive Management Report for 1st Permit Term: Submit the final Adaptive Management (AM) report documenting progress made during the first permit term under AM in meeting the watershed phosphorus reduction target of 4,727 lbs/yr and the TSS reduction target of 985,935 lbs/yr, as well as the anticipated future reductions in phosphorus and TSS sources and effluent concentrations, which shall be measured in accordance with the AM Plan protocols. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM Plan No. WQT-2020-0016 (October 2020) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for phosphorus, and on both a weekly and monthly average basis for TSS, of phosphorus and TSS concentrations and mass effluent discharged. Additionally, there shall be an analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus, TSS and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings of phosphorus and TSS have changed over the permit term in comparison to implemented AM actions.	03/31/2026
Comply with Adaptive Management Interim Limit: For the second permit term under Adaptive Management the permittee shall comply with an Adaptive Management total phosphorus interim limit no higher than 0.5 mg/L as a 6-month average, in addition to the 1.0 mg/L monthly avg already effective.	07/01/2026
Annual Adaptive Management Report #6: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2027
Annual Adaptive Management Report #7: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2028
Annual Adaptive Management Report #8: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2029
Annual Adaptive Management Report #9: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2030
Renewal of Adaptive Management Plan for Permit Reissuance: If the permittee intends to seek renewal of AM Plan No. WQT-2020-0016 (October 2020) per s. NR 217.18, Wis. Adm. Code, for phosphorus or per s. 281.13(7), Wis. Stats., for TSS for the reissued permit term, proposed AM goals and actions based on an updated AM plan shall be submitted to the Department for review and approval. The permittee may propose to adjust load reductions for phosphorus or TSS required by AM Plan No. WQT-2020-0016 (October 2020) either up or down at the beginning of each WPDES permit term to reflect changes in loads associated with point and non-point sources. This schedule may be modified to incorporate any changes in AM goals and actions, removed if the AM program is terminated per the "Adaptive Management Reopener Clause" permit section, or removed if the adaptive management plan has achieved water quality standards as determined by the Department within the AM action area.	12/31/2030
Final Adaptive Management Report for 2nd Permit Term: Submit the final Adaptive Management (AM) report documenting progress made during the second permit term under AM in meeting the watershed phosphorus reduction target of 13,238 lbs/yr and the TSS reduction target of 2,760,618 lbs/yr, as well as the anticipated future reductions in phosphorus and TSS sources and effluent concentrations, which shall be measured in accordance with the AM Plan protocols. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM Plan No. WQT-2020-0016 (October 2020) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for phosphorus, and on both a weekly and monthly average basis for TSS, of phosphorus and TSS concentrations and mass effluent discharged. Additionally, there shall be an	03/31/2031

analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus, TSS and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings of phosphorus and TSS have changed over the permit term in comparison to implemented AM actions.	
Annual Adaptive Management Report #11: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2032
Annual Adaptive Management Report #12: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2033
Annual Adaptive Management Report #13: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2034
Annual Adaptive Management Report #14: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2035
Renewal of Adaptive Management Plan for Permit Reissuance: If the permittee intends to seek renewal of AM Plan No. WQT-2020-0016 (October 2020) per s. NR 217.18, Wis. Adm. Code, for phosphorus or per s. 281.13(7), Wis. Stats., for TSS for the reissued permit term, proposed AM goals and actions based on an updated AM plan shall be submitted to the Department for review and approval. The permittee may propose to adjust load reductions for phosphorus or TSS required by AM Plan No. WQT-2020-0016 (October 2020) either up or down at the beginning of each WPDES permit term to reflect changes in loads associated with point and non-point sources. This schedule may be modified to incorporate any changes in AM goals and actions, removed if the AM program is terminated per the "Adaptive Management Reopener Clause" permit section, or removed if the adaptive management plan has achieved water quality standards as determined by the Department within the AM action area.	12/31/2035
Final Adaptive Management Report for 3rd Permit Term: Submit the final Adaptive Management (AM) report documenting progress made during the third permit term under AM in meeting the watershed phosphorus reduction target of 17,965 lbs/yr and the TSS reduction target of 3,746,553 lbs/yr, as well as the anticipated future reductions in phosphorus and TSS sources and effluent concentrations, which shall be measured in accordance with the AM Plan protocols. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM Plan No. WQT-2020-0016 (October 2020) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for phosphorus, and on both a weekly and monthly average basis for TSS, of phosphorus and TSS concentrations and mass effluent discharged. Additionally, there shall be an analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus, TSS and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings of phosphorus and TSS have changed over the permit term in comparison to implemented AM actions.	03/31/2036
Annual Adaptive Management Report #16: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2037
Annual Adaptive Management Report #17: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2038
Annual Adaptive Management Report #18: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2039
Annual Adaptive Management Report #19: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2040

Final Adaptive Management Report: Submit the final Adaptive Management (AM) report documenting progress made throughout the AM project in meeting the watershed phosphorus reduction target of 18,911 lbs/yr and the TSS reduction target of 3,943,740 lbs/yr, and in-stream water quality standards specified in s. NR 102.06, Wis. Adm. Code, for phosphorus and TSS reductions from the Lower Fox River Basin TMDL. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM Plan No. WQT-2020-0016 (October 2020) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for phosphorus, and on both a weekly and monthly average basis for TSS, of phosphorus and TSS concentrations and mass effluent discharged. Additionally, there shall be an analysis of any improvements to the quality of surface waters in the Adaptive Management Action Area focusing on phosphorus, TSS and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings of phosphorus and TSS have changed over the permit term in comparison to implemented AM actions.	03/31/2041
Achieve Water Quality Standards and Adaptive Management Plan Success: The permittee's receiving water identified as the in-stream sampling point located at the I-43 Bridge Crossing of the Lower Fox River (sample point 602) shall comply with phosphorus water quality standards specified in s. NR 102.06, Wis. Adm. Code, and theTSS concentration limit of 18 mg/L (summer median) as defined in the Lower Fox River Basin TMDL. The permittee shall continue to comply with applicable phosphorus effluent limits required under s. 217.18(3)(e)3, Wis. Adm. Code, expressed as a 6-month average and 1.0 mg/L as a monthly average, and TSS effluent limits in effect. Continued monitoring of surface waters identified within AM Plan WQT-2020-0016 (October 2020) at a minimum of monthly May through October for phosphorus and TSS is required.	06/30/2041

5.2 Temperature Limits Compliance & Dissipative Cooling Evaluation (GBF Outfall 001)

This schedule requires the permittee to achieve compliance by the specified date

Required Action	Due Date
Preliminary Compliance Report: Submit a preliminary compliance report indicating alternatives to achieve the final temperature limits. Informational Note: Refer to the Surface Water subsection titled 'Dissipative Cooling Demonstration - POTW Weekly Average Limits' regarding requests for Department consideration of dissipative cooling per s. NR 106.59, Wis. Adm. Code, as well as re-evaluation of the limits pursuant to NR 106 Subchapters V & VI or NR 102.26, Wis. Adm. Code.	07/01/2022
Action Plan: Submit an action plan for complying with all applicable effluent temperature limits.	07/01/2023
Construction Plans: Submit construction plans (if construction is required for complying with effluent temperature limits) and include plans and specifications with the submittal.	01/01/2024
Initiate Actions: Initiate actions identified in the plan.	07/01/2025
Complete Actions: Complete actions necessary to achieve compliance with effluent temperature limits.	10/01/2025

5.3 Mercury Pollutant Minimization Program (GBF Outfall 001)

As a condition of the variance to the water quality based effluent limitation(s) for mercury granted in accordance with s. NR 106.145(6), Wis. Adm. Code, the permittee shall perform the following actions.

Required Action	Due Date

Annual Mercury Progress Reports: Submit an annual mercury progress report. The annual mercury progress report shall: Indicate which mercury pollutant minimization activities or activities outlined in the approved Pollutant Minimization Plan have been implemented; Include an analysis of trends in monthly and annual total effluent mercury concentrations based on mercury sampling; and Include an analysis of how influent and effluent mercury varies with time and with significant loading of mercury such as loads from industries into the collection system. The first annual mercury progress report is to be submitted by the Due Date.	03/31/2022
Annual Mercury Progress Report #2: Submit a mercury progress report as defined above.	03/31/2023
Annual Mercury Progress Report #3: Submit a mercury progress report as defined above.	03/31/2024
Annual Mercury Progress Report #4: Submit a mercury progress report as defined above.	03/31/2025
Final Mercury Report: Submit a final report documenting the success in reducing mercury concentrations in the effluent, as well as the anticipated future reduction in mercury sources and mercury effluent concentrations. The report shall summarize mercury pollutant minimization activities that have been implemented during the current permit term and state which, if any, pollutant minimization activities from the approved pollutant minimization plan were not pursued and why. The report shall include an analysis of trends in monthly and annual total effluent mercury concentrations based on mercury sampling during the current permit term. The report shall also include an analysis of how influent and effluent mercury varies with time and with significant loading of mercury such as loads from industries into the collection system. If the permittee intends to reapply for a mercury variance per s. NR 106.145, Wis. Adm. Code, for the reissued permit, a detailed pollutant minimization plan outlining the pollutant minimization activities proposed for the upcoming permit term shall be submitted along with the final report.	12/31/2025
Annual Mercury Reports After Permit Expiration: In the event that this permit is not reissued on time, the permittee shall continue to submit annual mercury reports each year covering pollutant minimization activities implemented and mercury concentration trends.	

5.4 Sludge Management Plan

A management plan is required for the sludge management system.

Required Action	Due Date
Sludge Management Plan Submittal: Submit a sludge management plan for Department approval to optimize the sludge management system performance and demonstrate compliance with ch. NR 204, Wis. Adm. Code, by the Due Date. This management plan shall address: 1) specify information on treatment processes, 2) sludge characteristics, 3) outfall descriptions, 4) sludge transport, 5) availability of storage, 6) disposal options, 7) monitoring procedures, 8) record keeping and reporting, 9) contingency plans, and 10) any other pertinent information. Once approved, all sludge management activities must be completed in accordance with the plan. Any changes to the plan must be approved by the Department prior to implementing the changes.	06/30/2022

6 Standard Requirements

NR 205, Wisconsin Administrative Code: The conditions in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(2).

6.1 Reporting and Monitoring Requirements

6.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

6.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

6.1.3 Pretreatment Sampling Requirements

Sampling for pretreatment parameters (cadmium, chromium, copper, lead, nickel, zinc, and mercury) shall be done during a day each month when industrial discharges are occurring at normal to maximum levels. The sampling of the influent and effluent for these parameters shall be coordinated. All 24 hour composite samples shall be flow proportional.

6.1.4 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;

- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

6.1.5 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.

- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.

- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD_5 and Total Suspended Solids shall be considered to be limits of quantitation

- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a “0” (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.

- If no discharge occurs through an outfall, flow related parameters (e.g. flow rate, hydraulic application rate, volume, etc.) should be reported as “0” (zero) at the required sample frequency specified for the outfall. For example: if the sample frequency is daily, “0” would be reported for any day during the month that no discharge occurred.

6.1.6 Compliance Maintenance Annual Reports

Compliance Maintenance Annual Reports (CMAR) shall be completed using information obtained over each calendar year regarding the wastewater conveyance and treatment system. The CMAR shall be submitted and certified by the permittee in accordance with ch. NR 208, Wis. Adm. Code, by June 30, each year on an electronic report form provided by the Department.

In the case of a publicly owned treatment works, a resolution shall be passed by the governing body and submitted as part of the CMAR, verifying its review of the report and providing responses as required. Private owners of wastewater treatment works are not required to pass a resolution; but they must provide an Owner Statement and responses as required, as part of the CMAR submittal.

The CMAR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The certification verifies that the electronic report is true, accurate and complete.

6.1.7 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application. All pertinent sludge information, including permit application information and other documents specified in this permit or s. NR 204.06(9), Wis. Adm. Code shall be retained for a minimum of 5 years.

6.1.8 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

6.1.9 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

6.2 System Operating Requirements

6.2.1 Noncompliance Reporting

Sanitary sewer overflows and sewage treatment facility overflows shall be reported according to the 'Sanitary Sewer Overflows and Sewage Treatment Facility Overflows' section of this permit.

The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.

NOTE: Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources

immediately of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill**. **To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003.**

6.2.2 Flow Meters

Flow meters shall be calibrated annually, as per s. NR 218.06, Wis. Adm. Code.

6.2.3 Raw Grit and Screenings

All raw grit and screenings shall be disposed of at a properly licensed solid waste facility or picked up by a licensed waste hauler. If the facility or hauler are located in Wisconsin, then they shall be licensed under chs. NR 500-555, Wis. Adm. Code.

6.2.4 Sludge Management

All sludge management activities shall be conducted in compliance with ch. NR 204 "Domestic Sewage Sludge Management", Wis. Adm. Code.

6.2.5 Prohibited Wastes

Under no circumstances may the introduction of wastes prohibited by s. NR 211.10, Wis. Adm. Code, be allowed into the waste treatment system. Prohibited wastes include those:

- which create a fire or explosion hazard in the treatment work;
- which will cause corrosive structural damage to the treatment work;
- solid or viscous substances in amounts which cause obstructions to the flow in sewers or interference with the proper operation of the treatment work;
- wastewaters at a flow rate or pollutant loading which are excessive over relatively short time periods so as to cause a loss of treatment efficiency; and
- changes in discharge volume or composition from contributing industries which overload the treatment works or cause a loss of treatment efficiency.

6.2.6 Bypass

This condition applies only to bypassing at a sewage treatment facility that is not a scheduled bypass, approved blending as a specific condition of this permit, a sewage treatment facility overflow or a controlled diversion as provided in the sections titled ‘Scheduled Bypass’, ‘Blending’ (if approved), ‘SSO’s and Sewage Treatment Facility Overflows’ and ‘Controlled Diversions’ of this permit. Any other bypass at the sewage treatment facility is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and
- The bypass was reported in accordance with the Noncompliance Reporting section of this permit.

6.2.7 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written request for Department approval of a scheduled bypass shall demonstrate that the conditions for bypassing specified in the above section titled 'Bypass' are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

6.2.8 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation. Sewage treatment facilities that have multiple treatment units to treat variable or seasonal loading conditions may shut down redundant treatment units when necessary for efficient operation. The following requirements shall be met during controlled diversions:

- Effluent from the sewage treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion does not include blending as defined in s. NR 210.03(2e), Wis. Adm. Code, and as may only be approved under s. NR 210.12. A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in sewage treatment facility records and such records shall be available to the department on request.

6.2.9 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

6.2.10 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. The designated operator-in-charge shall be certified at the level and in all subclasses of the treatment plant, except laboratory. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

6.3 Sewage Collection Systems

6.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows

6.3.1.1 Overflows Prohibited

Any overflow or discharge of wastewater from the sewage collection system or at the sewage treatment facility, other than from permitted outfalls, is prohibited. The permittee shall provide information on whether any of the following conditions existed when an overflow occurred:

- The sanitary sewer overflow or sewage treatment facility overflow was unavoidable to prevent loss of life, personal injury or severe property damage;
- There were no feasible alternatives to the sanitary sewer overflow or sewage treatment facility overflow such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or preventative maintenance activities;
- The sanitary sewer overflow or the sewage treatment facility overflow was caused by unusual or severe weather related conditions such as large or successive precipitation events, snowmelt, saturated soil conditions, or severe weather occurring in the area served by the sewage collection system or sewage treatment facility; and
- The sanitary sewer overflow or the sewage treatment facility overflow was unintentional, temporary, and caused by an accident or other factors beyond the reasonable control of the permittee.

6.3.1.2 Permittee Response to Overflows

Whenever a sanitary sewer overflow or sewage treatment facility overflow occurs, the permittee shall take all feasible steps to control or limit the volume of untreated or partially treated wastewater discharged, and terminate the discharge as soon as practicable. Remedial actions, including those in NR 210.21 (3), Wis. Adm. Code, shall be implemented consistent with an emergency response plan developed under the CMOM program.

6.3.1.3 Permittee Reporting

Permittees shall report all sanitary sewer overflows and sewage treatment overflows as follows:

- The permittee shall notify the department by telephone, fax or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow;
- The permittee shall, no later than five days from the time the permittee becomes aware of the overflow, provide to the department the information identified in this paragraph using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within 5 days as required in this paragraph and an updated report submitted following cessation of the overflow. At a minimum, the following information shall be included in the report:

  ◦The date and location of the overflow;
  ◦The surface water to which the discharge occurred, if any;
  ◦The duration of the overflow and an estimate of the volume of the overflow;
  ◦A description of the sewer system or treatment facility component from which the discharge occurred such as manhole, lift station, constructed overflow pipe, or crack or other opening in a pipe;
  ◦The estimated date and time when the overflow began and stopped or will be stopped;
  ◦The cause or suspected cause of the overflow including, if appropriate, precipitation, runoff conditions, areas of flooding, soil moisture and other relevant information;
  ◦Steps taken or planned to reduce, eliminate and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
  ◦A description of the actual or potential for human exposure and contact with the wastewater from the overflow;

◦Steps taken or planned to mitigate the impacts of the overflow and a schedule of major milestones for those steps;
◦To the extent known at the time of reporting, the number and location of building backups caused by excessive flow or other hydraulic constraints in the sewage collection system that occurred concurrently with the sanitary sewer overflow and that were within the same area of the sewage collection system as the sanitary sewer overflow; and
◦The reason the overflow occurred or explanation of other contributing circumstances that resulted in the overflow event. This includes any information available including whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.

NOTE: A copy of form 3400-184 for reporting sanitary sewer overflows and sewage treatment facility overflows may be obtained from the department or accessed on the department's web site at http://dnr.wi.gov/topic/wastewater/SSOreport.html. As indicated on the form, additional information may be submitted to supplement the information required by the form.

- The permittee shall identify each specific location and each day on which a sanitary sewer overflow or sewage treatment facility overflow occurs as a discrete sanitary sewer overflow or sewage treatment facility overflow occurrence. An occurrence may be more than one day if the circumstances causing the sanitary sewer overflow or sewage treatment facility overflow results in a discharge duration of greater than 24 hours. If there is a stop and restart of the overflow at the same location within 24 hours and the overflow is caused by the same circumstance, it may be reported as one occurrence. Sanitary sewer overflow occurrences at a specific location that are separated by more than 24 hours shall be reported as separate occurrences; and
- A permittee that is required to submit wastewater discharge monitoring reports under NR 205.07 (1) (r) shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

6.3.1.4 Public Notification

The permittee shall notify the public of any sanitary sewer and sewage treatment facility overflows consistent with its emergency response plan required under the CMOM (Capacity, Management, Operation and Maintenance) section of this permit and s. NR 210.23 (4) (f), Wis. Adm. Code. Such public notification shall occur promptly following any overflow event using the most effective and efficient communications available in the community. At minimum, a daily newspaper of general circulation in the county(s) and municipality whose waters may be affected by the overflow shall be notified by written or electronic communication.

6.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program

- The permittee shall have written documentation of the Capacity, Management, Operation and Maintenance (CMOM) program components in accordance with s. NR 210.23(4), Wis. Adm. Code. Such documentation shall be available for Department review upon request. The Department may request that the permittee provide this documentation or prepare a summary of the permittee's CMOM program at the time of application for reissuance of the WPDES permit.
- The permittee shall implement a CMOM program in accordance with s. NR 210.23, Wis. Adm. Code.
- The permittee shall at least annually conduct a self-audit of activities conducted under the permittee's CMOM program to ensure CMOM components are being implemented as necessary to meet the general standards of s. NR 210.23(3), Wis. Adm. Code.

6.3.3 Sewer Cleaning Debris and Materials

All debris and material removed from cleaning sanitary sewers shall be managed to prevent nuisances, run-off, ground infiltration or prohibited discharges.

- Debris and solid waste shall be dewatered, dried and then disposed of at a licensed solid waste facility.
- Liquid waste from the cleaning and dewatering operations shall be collected and disposed of at a permitted wastewater treatment facility.
- Combination waste including liquid waste along with debris and solid waste may be disposed of at a licensed solid waste facility or wastewater treatment facility willing to accept the waste.

6.4 Surface Water Requirements

6.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

6.4.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

Weekly/Monthly/Six-Month/Annual Average Concentration = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

Six-Month Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Annual Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

Total Monthly Discharge: = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

Total Annual Discharge: = sum of total monthly discharges for the calendar year.

12-Month Rolling Sum of Total Monthly Discharge: = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

6.4.3 Effluent Temperature Requirements

Weekly Average Temperature – The permittee shall use the following formula for calculating effluent results to determine compliance with the weekly average temperature limit (as applicable): Weekly Average Temperature = the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

Cold Shock Standard – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock. ‘Cold Shock’ means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

Rate of Temperature Change Standard – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state.

6.4.4 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

6.4.5 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

d) Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

6.4.6 Percent Removal

During any 30 consecutive days, the average effluent concentrations of $CBOD_5$ and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively. This requirement does not apply to removal of total suspended solids if the permittee operates a lagoon system and has received a variance for suspended solids granted under NR 210.07(2), Wis. Adm. Code.

6.4.7 Fecal Coliform

The monthly limit for fecal coliform shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

6.4.8 *E. coli*

The monthly limit for *E. coli* shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

6.4.9 Seasonal Disinfection

Disinfection shall be provided from May 1 through September 30 of each year. Monitoring requirements and the limitations for Fecal Coliform (interim) and *E. coli* apply only during the period in which disinfection is required. Whenever chlorine is used for disinfection or other uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used.

6.4.10 Total Residual Chlorine Requirements (When De-Chlorinating Effluent)

Test methods for total residual chlorine, approved in ch. NR 219 - Table B, Wis. Adm. Code, normally achieve a limit of detection of about 20 to 50 micrograms per liter and a limit of quantitation of about 100 micrograms per liter. Reporting of test results and compliance with effluent limitations for chlorine residual and total residual halogens shall be as follows:

- Sample results which show no detectable levels are in compliance with the limit. These test results shall be reported on Wastewater Discharge Monitoring Report Forms as "< 100 µg/L". (Note: 0.1 mg/L converts to 100 µg/L)

- Samples showing detectable traces of chlorine are in compliance if measured at less than 100 µg/L, unless there is a consistent pattern of detectable values in this range. These values shall also be reported on Wastewater Discharge Monitoring Report Forms as "<100 µg/L." The facility operating staff shall record actual readings on logs maintained at the plant, shall take action to determine the reliability of detected results (such as re-sampling and/or calculating dosages), and shall adjust the chemical feed system if necessary to reduce the chances of detects.

- Samples showing detectable levels greater than 100 µg/L shall be considered as exceedances, and shall be reported as measured.

- To calculate average or mass discharge values, a "0" (zero) may be substituted for any test result less than 100 µg/L. Calculated values shall then be compared directly to the average or mass limitations to determine compliance.

6.4.11 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the *Ceriodaphnia dubia* and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

6.4.12 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;

- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including some or all of the following actions:

  (a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
  (b) Identify the compound(s) causing toxicity
  (c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)

(d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)

- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;
- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

6.4.13 Reopener Clause

Pursuant to s. 283.15(11), Wis. Stat. and 40 CFR 131.20, the Department may modify or revoke and reissue this permit if, through the triennial standard review process, the Department determines that the terms and conditions of this permit need to be updated to reflect the highest attainable condition of the receiving water.

6.5 Pretreatment Program Requirements

The permittee is required to operate an industrial pretreatment program as described in the program initially approved by the Department of Natural Resources including any subsequent program modifications approved by the Department, and including commitments to program implementation activities provided in the permittee's annual pretreatment program report, and that complies with the requirements set forth in 40 CFR Part 403 and ch. NR 211, Wis. Adm. Code. To ensure that the program is operated in accordance with these requirements, the following general conditions and requirements are hereby established:

6.5.1 Inventories

The permittee shall implement methods to maintain a current inventory of the general character and volume of wastewater that industrial users discharge to the treatment works and shall provide an updated industrial user listing annually and report any changes in the listing to the Department by March 31 of each year as part of the annual pretreatment program report required herein.

6.5.2 Regulation of Industrial Users

6.5.2.1 Limitations for Industrial Users:

The permittee shall develop, maintain, enforce and revise as necessary local limits to implement the general and specific prohibitions of the state and federal General Pretreatment Regulations.

6.5.2.2 Control Documents for Industrial Users (IUs)

The permittee shall control the discharge from each significant industrial user through individual discharge permits as required by s. NR 211.235, Wis. Adm. Code and in accordance with the approved pretreatment program procedures and the permittee's sewer use ordinance. The discharge permits shall be modified in a timely manner during the stated term of the discharge permits according to the sewer use ordinance as conditions warrant. The discharge permits shall include at a minimum the elements found in s. NR 211.235(1), Wis. Adm. Code and references to the approved pretreatment program procedures and the sewer use ordinance.

6.5.2.3 Review of Industrial User Reports, Inspections and Compliance Monitoring

The permittee shall require the submission of, receive, and review self-monitoring reports and other notices from industrial users in accordance with the approved pretreatment program procedures. The permittee shall randomly sample and analyze industrial user discharges and conduct surveillance activities to determine independent of information supplied by the industrial users, whether the industrial users are in compliance with pretreatment standards and requirements. The inspections and monitoring shall also be conducted to maintain accurate knowledge of local industrial processes, including changes in the discharge, pretreatment equipment operation, spill prevention control plans, slug control plans, and implementation of solvent management plans.

The permittee shall inspect and sample the discharge from each significant industrial user as specified in the permittee's approved pretreatment program or as specified in NR 211.235(3). The permittee shall evaluate whether industrial users identified as significant need a slug control plan according to the requirements of NR 211.235(4). If a slug control plan is needed, the plan shall contain at a minimum the elements specified in s. NR 211.235(4)(b), Wis. Adm. Code.

6.5.2.4 Enforcement and Industrial User Compliance Evaluation & Violation Reports

The permittee shall enforce the industrial pretreatment requirements including the industrial user discharge limitations of the permittee's sewer use ordinance. The permittee shall investigate instances of noncompliance by collecting and analyzing samples and collecting other information with sufficient care to produce evidence admissible in enforcement proceedings or in judicial actions. Investigation and response to instances of noncompliance shall be in accordance with the permittee's sewer use ordinance and approved Enforcement Response Plan.

The permittee shall make a semiannual report on forms provided or approved by the Department. The semiannual report shall include an analysis of industrial user significant noncompliance (i.e. the Industrial User Compliance Evaluation, also known as the SNC Analysis) as outlined in s.NR 211.23(1)(j), Wis. Adm. Code, and a summary of the permittee's response to all industrial noncompliance (i.e. the Industrial User Violation Report). The Industrial User Compliance Evaluation Report shall include monitoring results received from industrial users pursuant to s. NR 211.15(1)-(5), Wis. Adm. Code. The Industrial User Violation Report shall include copies of all notices of noncompliance, notices of violation and other enforcement correspondence sent by the permittee to industrial users, together with the industrial user's response. The Industrial User Compliance Evaluation and Violation Reports for the period January through June shall be provided to the Department by September 30 of each year and for the period July through December shall be provided to the Department by March 31 of the succeeding year, unless alternate submittal dates are approved.

6.5.2.5 Publication of Violations

The permittee shall publish a list of industrial users that have significantly violated the municipal sewer use ordinance during the calendar year, in the largest daily newspaper in the area by March 31 of the following year pursuant to s. NR 211.23(1)(j), Wis. Adm. Code. A copy of the newspaper publication shall be provided as part of the annual pretreatment report specified herein.

6.5.2.6 Multijurisdictional Agreements

The permittee shall establish agreements with all contributing jurisdictions as necessary to ensure compliance with pretreatment standards and requirements by all industrial users discharging to the permittee's wastewater treatment system. Any such agreement shall identify who will be responsible for maintaining the industrial user inventory, issuance of industrial user control mechanisms, inspections and sampling, pretreatment program implementation, and enforcement.

6.5.3 Annual Pretreatment Program Report

The permittee shall evaluate the pretreatment program, and submit the Pretreatment Program Report to the Department on forms provided or approved by the Department by March 31 annually, unless an alternate submittal date is approved. The report shall include a brief summary of the work performed during the preceding calendar year, including the numbers of discharge permits issued and in effect, pollution prevention activities, number of inspections and monitoring surveys conducted, budget and personnel assigned to the program, a general discussion of program progress in meeting the objectives of the permittee's pretreatment program together with summary comments and recommendations.

6.5.4 Pretreatment Program Modifications

- Future Modifications: The permittee shall within one year of any revisions to federal or state General Pretreatment Regulations submit an application to the Department in duplicate to modify and update its approved pretreatment program to incorporate such regulatory changes as applicable to the permittee. Additionally, the Department or the permittee may request an application for program modification at any time where necessary to improve program effectiveness based on program experience to date.

- Modifications Subject to Department Approval: The permittee shall submit all proposed pretreatment program modifications to the Department for determination of significance and opportunity for comment in accordance with the requirements and conditions of s. NR 211.27, Wis. Adm. Code. Any substantial proposed program modification shall be subject to Department public noticing and formal approval prior to implementation. A substantial program modification includes, but is not limited to, changes in enabling legal authority to administer and enforce pretreatment conditions and requirements; significant changes in program administrative or operational procedures; significant reductions in monitoring frequencies; significant reductions in program resources including personnel commitments, equipment, and funding levels; changes (including any relaxation) in the local limitations for substances enforced and applied to users of the sewerage treatment works; changes in treatment works sludge disposal or management practices which impact the pretreatment program; or program modifications which increase pollutant loadings to the treatment works. The Department shall use the procedures outlined in s. NR 211.30, Wis. Adm. Code for review and approval/denial of proposed pretreatment program modifications. The permittee shall comply with local public participation requirements when implementing the pretreatment program.

6.5.5 Program Resources

The permittee shall have sufficient resources and qualified personnel to carry out the pretreatment program responsibilities as listed in ss. NR 211.22 and NR 211.23, Wis. Adm. Code.

6.6 Land Application Requirements

6.6.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations

In the event that new federal sludge standards or regulations are promulgated, the permittee shall comply with the new sludge requirements by the dates established in the regulations, if required by federal law, even if the permit has not yet been modified to incorporate the new federal regulations.

6.6.2 General Sludge Management Information

The General Sludge Management Form 3400-48 shall be completed and submitted prior to any significant sludge management changes.

6.6.3 Sludge Samples

All sludge samples shall be collected at a point and in a manner which will yield sample results which are representative of the sludge being tested, and collected at the time which is appropriate for the specific test.

6.6.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400-49 and Lab Report. The Characteristic Report Form 3400-49 shall be submitted electronically by January 31 following each year of analysis.

Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report is true, accurate and complete. The Lab Report must be sent directly to the facility's DNR sludge representative or basin engineer unless approval for not submitting the lab reports has been given.

The permittee shall use the following convention when reporting sludge monitoring results: Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 1.0 mg/kg, report the pollutant concentration as < 1.0 mg/kg .

All results shall be reported on a dry weight basis.

6.6.5 Calculation of Water Extractable Phosphorus

When sludge analysis for Water Extractable Phosphorus is required by this permit, the permittee shall use the following formula to calculate and report Water Extractable Phosphorus:
Water Extractable Phosphorus (% of Total P) =
[Water Extractable Phosphorus (mg/kg, dry wt) ÷ Total Phosphorus (mg/kg, dry wt)] x 100

6.6.6 Monitoring and Calculating PCB Concentrations in Sludge

When sludge analysis for "PCB, Total Dry Wt" is required by this permit, the PCB concentration in the sludge shall be determined as follows.

Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with the following provisions and Table EM in s. NR 219.04, Wis. Adm. Code.

- EPA Method 1668 may be used to test for all PCB congeners. If this method is employed, all PCB congeners shall be delineated. Non-detects shall be treated as zero. The values that are between the limit of detection and the limit of quantitation shall be used when calculating the total value of all congeners. All results shall be added together and the total PCB concentration by dry weight reported. **Note**: It is recognized that a number of the congeners will co-elute with others, so there will not be 209 results to sum.
- EPA Method 8082A shall be used for PCB-Aroclor analysis and may be used for congener specific analysis as well. If congener specific analysis is performed using Method 8082A, the list of congeners tested shall include at least congener numbers 5, 18, 31, 44, 52, 66, 87, 101, 110, 138, 141, 151, 153, 170, 180, 183, 187, and 206 plus any other additional congeners which might be reasonably expected to occur in the particular sample. For either type of analysis, the sample shall be extracted using the Soxhlet extraction (EPA Method 3540C) (or the Soxhlet Dean-Stark modification) or the pressurized fluid extraction (EPA Method 3545A). If Aroclor analysis is performed using Method 8082A, clean up steps of the extract shall be performed as necessary to remove interference and to achieve as close to a limit of detection of 0.11 mg/kg as possible. Reporting protocol, consistent with s. NR 106.07(6)(e), should be as follows: If all Aroclors are less than the LOD, then the Total PCB Dry Wt result should be reported as less than the highest LOD. If a single Aroclor is detected then that is what should be reported for the Total PCB result. If multiple Aroclors are detected, they should be summed and reported as Total PCBs. If congener specific analysis is done using Method 8082A, clean up steps of the extract shall be performed as necessary to remove interference and to achieve as close to a limit of detection of 0.003

mg/kg as possible for each congener. If the aforementioned limits of detection cannot be achieved after using the appropriate clean up techniques, a reporting limit that is achievable for the Aroclors or each congener for the sample shall be determined. This reporting limit shall be reported and qualified indicating the presence of an interference. The lab conducting the analysis shall perform as many of the following methods as necessary to remove interference:

3620C – Florisil	3611B - Alumina
3640A - Gel Permeation	3660B - Sulfur Clean Up (using copper shot instead of powder)
3630C - Silica Gel	3665A - Sulfuric Acid Clean Up

6.6.7 Annual Land Application Report

Land Application Report Form 3400-55 shall be submitted electronically by January 31, each year whether or not non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code. Following submittal of the electronic Annual Land Application Report Form 3400-55, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

6.6.8 Other Methods of Disposal or Distribution Report

The permittee shall submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

6.6.9 Approval to Land Apply

Bulk non-exceptional quality sludge as defined in s. NR 204.07(4), Wis. Adm. Code, may not be applied to land without a written approval letter or Form 3400-122 from the Department unless the Permittee has obtained permission from the Department to self approve sites in accordance with s. NR 204.06 (6), Wis. Adm. Code. Analysis of sludge characteristics is required prior to land application. Application on frozen or snow covered ground is restricted to the extent specified in s. NR 204.07(3) (l), Wis. Adm. Code.

6.6.10 Soil Analysis Requirements

Each site requested for approval for land application must have the soil tested prior to use. Each approved site used for land application must subsequently be soil tested such that there is at least one valid soil test in the four years prior to land application. All soil sampling and submittal of information to the testing laboratory shall be done in accordance with UW Extension Bulletin A-2100. The testing shall be done by the UW Soils Lab in Madison or Marshfield, WI or at a lab approved by UW. The test results including the crop recommendations shall be submitted to the DNR contact listed for this permit, as they are available. Application rates shall be determined based on the crop nitrogen recommendations and with consideration for other sources of nitrogen applied to the site.

6.6.11 Land Application Site Evaluation

For non-exceptional quality sludge, as defined in s. NR 204.07(4), Wis. Adm. Code, a Land Application Site Request Form 3400-053 shall be submitted to the Department for the proposed land application site. The Department will evaluate the proposed site for acceptability and will either approve or deny use of the proposed site. The permittee may obtain permission to approve their own sites in accordance with s. NR 204.06(6), Wis. Adm. Code.

6.6.12 Landfilling of Sludge

General: Sewage sludge may not be disposed of in a municipal solid waste landfill unless the landfill meets the requirements of chs. NR 500 to 536, Wis. Adm. Code, and is an approved facility as defined in s. 289.01(3), Wis. Stats. Any facility accepting sewage sludge shall be approved by the Department in writing to accept sewage sludge. Disposal of sewage sludge in a municipal solid waste landfill shall be in accordance with ss. NR 506.13 and 506.14. Sewage sludge may not be disposed of in a surface disposal unit as defined in s. NR 204.03(62).

Approval: The permittee shall obtain approval from the Department prior to the disposal of sludge at a Wisconsin licensed landfill.

6.6.13 Sludge Landfilling Reports

The permittee shall report the volume of sludge disposed of at any landfill facility on Form 3400-52. The permittee shall include the name and address of the landfill, the Department license number or other state's designation or license number for all landfills used during the report period and a letter of acceptability from the landfill owner. In addition, any permittee utilizing landfills as a disposal method shall submit to the Department any test results used to indicate acceptability of the sludge at a landfill. Form 3400-52 shall be submitted annually by January 31, each year whether or not sludge is landfilled.

6.6.14 Sludge Incineration Reports

The permittee shall report the volume of sludge combusted at an on-site incinerator on Form 3400-52. Submittal of Form 3400-52 is required annually by January 31, each year whether or not sludge is incinerated.

7 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report	March 31, 2022	30
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #2	March 31, 2023	30
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #3	March 31, 2024	30
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #4	March 31, 2025	30
Watershed Adaptive Management Option Annual Report Submittals - Renewal of Adaptive Management Plan for Permit Reissuance	December 31, 2025	30
Watershed Adaptive Management Option Annual Report Submittals -Final Adaptive Management Report for 1st Permit Term	March 31, 2026	31
Watershed Adaptive Management Option Annual Report Submittals - Comply with Adaptive Management Interim Limit	July 1, 2026	31
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #6	March 31, 2027	31
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #7	March 31, 2028	31
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #8	March 31, 2029	31
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #9	March 31, 2030	31
Watershed Adaptive Management Option Annual Report Submittals - Renewal of Adaptive Management Plan for Permit Reissuance	December 31, 2030	31
Watershed Adaptive Management Option Annual Report Submittals -Final Adaptive Management Report for 2nd Permit Term	March 31, 2031	32
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #11	March 31, 2032	32
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #12	March 31, 2033	32
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #13	March 31, 2034	32
Watershed Adaptive Management Option Annual Report Submittals - Annual Adaptive Management Report #14	March 31, 2035	32
Watershed Adaptive Management Option Annual Report Submittals - Renewal of Adaptive Management Plan for Permit Reissuance	December 31, 2035	32

Watershed Adaptive Management Option Annual Report Submittals -Final Adaptive Management Report for 3rd Permit Term	March 31, 2036	32
Watershed Adaptive Management Option Annual Report Submittals -Annual Adaptive Management Report #16	March 31, 2037	32
Watershed Adaptive Management Option Annual Report Submittals -Annual Adaptive Management Report #17	March 31, 2038	32
Watershed Adaptive Management Option Annual Report Submittals -Annual Adaptive Management Report #18	March 31, 2039	32
Watershed Adaptive Management Option Annual Report Submittals -Annual Adaptive Management Report #19	March 31, 2040	32
Watershed Adaptive Management Option Annual Report Submittals -Final Adaptive Management Report	March 31, 2041	33
Watershed Adaptive Management Option Annual Report Submittals -Achieve Water Quality Standards and Adaptive Management Plan Success	June 30, 2041	33
Temperature Limits Compliance & Dissipative Cooling Evaluation (GBF Outfall 001) -Preliminary Compliance Report	July 1, 2022	33
Temperature Limits Compliance & Dissipative Cooling Evaluation (GBF Outfall 001) -Action Plan	July 1, 2023	33
Temperature Limits Compliance & Dissipative Cooling Evaluation (GBF Outfall 001) -Construction Plans	January 1, 2024	33
Temperature Limits Compliance & Dissipative Cooling Evaluation (GBF Outfall 001) -Initiate Actions	July 1, 2025	33
Temperature Limits Compliance & Dissipative Cooling Evaluation (GBF Outfall 001) -Complete Actions	October 1, 2025	33
Mercury Pollutant Minimization Program (GBF Outfall 001) -Annual Mercury Progress Reports	March 31, 2022	34
Mercury Pollutant Minimization Program (GBF Outfall 001) -Annual Mercury Progress Report #2	March 31, 2023	34
Mercury Pollutant Minimization Program (GBF Outfall 001) -Annual Mercury Progress Report #3	March 31, 2024	34
Mercury Pollutant Minimization Program (GBF Outfall 001) -Annual Mercury Progress Report #4	March 31, 2025	34
Mercury Pollutant Minimization Program (GBF Outfall 001) -Final Mercury Report	December 31, 2025	34
Mercury Pollutant Minimization Program (GBF Outfall 001) -Annual Mercury Reports After Permit Expiration	See Permit	34
Sludge Management Plan -Sludge Management Plan Submittal	June 30, 2022	34
Compliance Maintenance Annual Reports (CMAR)	by June 30, each year	35
Industrial User Compliance Evaluation and Violation Reports	Semiannual	45

Pretreatment Program Report	Annually	45
General Sludge Management Form 3400-48	prior to any significant sludge management changes	46
Characteristic Form 3400-49 and Lab Report	by January 31 following each year of analysis	47
Land Application Report Form 3400-55	by January 31, each year whether or not non-exceptional quality sludge is land applied	48
Other Methods of Disposal or Distribution Report Form 3400-52	by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied	48
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	34

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non industrial wastewater systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:
Northeast Region, 2984 Shawano Avenue, Green Bay, WI 54313-6727

APPENDIX D – Water Quality Based Effluent Memos (WQBEL)

D-1: Original Dated September 18, 2019

D-2: Mercury Addendum Dated August 7, 2020

D-3: Phosphorus Addendum Dated March 8, 2021

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: September 18, 2019

TO: Phillip Spranger – Fitchburg

FROM: Wade Strickland – WY/3 Diane Figiel for WS

SUBJECT: Water Quality-Based Effluent Limitations for the Green Bay Metropolitan Sewerage District Combined WPDES Permit No. WI-0065251-02

This is in response to your request for an evaluation of the need for water quality-based effluent limitations using Chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Green Bay Metropolitan Sewerage District (GBMSD) Combined wastewater treatment facility in Brown County. GBMSD owns and operates two regional wastewater treatment facilities, the Green Bay Facility – GBF and the De Pere Facility – DPF which both discharge to the Lower Fox River. Both municipal wastewater treatment facilities (WWTF) are located in the Fox River – Frontal Green Bay Watershed in the Lower Fox River Basin. These discharges are included in the Lower Fox River TMDL as approved by EPA. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis:

Outfall 001 Green Bay Facility (GBF) Effluent

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
$CBOD_5$			40 mg/L	25 mg/L		1,2
TSS AM Interim Limits			27 mg/L	18 mg/L		3,4
pH	9.0 s.u.	6.0 s.u.				1
Ammonia Nitrogen January – April May – September October November – December			 **59 mg/L** 13 mg/L 38 mg/L **104 mg/L**	 15 mg/L 4.7 mg/L 14 mg/L 26 mg/L		5
Fecal Coliforms May – September			**656#/100 mL geometric mean**	400#/100 mL geometric mean		5
Residual Chlorine	38 µg/L		**38 µg/L**	**38 µg/L**		5
Phosphorus AM Interim Limits				1.0 mg/L	0.6 mg/L	3,6
Mercury				1.3 ng/L		7
Acute WET						8
Chronic WET				11 TUc		8,9

Footnotes:

1. No changes from the current permit.
2. During the months of May through October, the discharge of $CBOD_5$ must comply with the $CBOD_5$ Waste Load Allocation (WLA) and concentration limits outlined in Attachment #2.
3. TSS and Phosphorus TMDL mass limits are implemented as the cumulative discharge of Outfalls 001 and 051 reported as Sample Point 076.
4. Under the TSS Adaptive Management (AM) Plan, the interim weekly average limit of 27 mg/L and interim monthly average limit of 18 mg/L should be effective upon permit reissuance.

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5. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7) are included in bold.
6. Under the phosphorus Adaptive Management (AM) Plan, the interim limits (and technology-based limit (TBL)) of 1.0 mg/L as a monthly average and 0.6 mg/L as a six-month average should be effective upon permit reissuance.
7. This is the water quality-based effluent limitation for mercury. If this limit is included in the permit, mass limits would also need to be included. An alternative effluent limitation of **4.4 ng/L, equal to the 1-day P_{99} of representative data, as a daily maximum** may be included in the permit in place of the water quality-based effluent limit if the mercury variance application that was submitted is approved by EPA.
8. In accordance to ch NR 106.56(12), temperature limits are recommended to be included in the reissued permit along with monitoring requirements and a compliance schedule. The reissued permit should include a condition that allows for the discontinuation of temperature WQBELs if monitoring data indicates no reasonable potential to exceed the calculated temperature limits pursuant to s. NR 106.56(2) and s. NR 106.56(3). The following temperature limits are recommended to be included in the permit:

Month	Weekly Average Limit (°F)	Daily Maximum Limit (°F)
January	76	
Feburary	88	
March	73	
April	70	
May	74	99
June	81	
July	97	
August	94	
September	80	103
October	68	
November	71	
December	56	97

9. Following the guidance provided in the Department's WET Program Guidance Document (revision #11, dated November 1, 2016), annual acute and chronic WET tests are recommended at Outfall **001**. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing shall continue after the permit expiration date (until the permit is reissued).
10. According to the requirements specified in s. NR 106.08, Wis. Adm. Code, a chronic WET limit is required. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Chronic testing shall be performed using a dilution series of 100%, 30%, 10%, 3% & 1%. The Instream Waste Concentration to assess chronic test results is 9.1%. The primary control and dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the Fox River or standard laboratory water. Tests should be done in rotating quarters, to collect seasonal information about this discharge and shall continue after the permit expiration date (until the permit is reissued).

Outfall 051 De Pere Facility Effluent

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
$CBOD_5$			18 mg/L	9.0 mg/L		1
TSS AM Interim Limits			12 mg/L	8.0 mg/L		2,3
pH	9.0 s.u.	6.0 s.u.				1
Ammonia Nitrogen January – March April November – December	 26 mg/L 26 mg/L 26 mg/L		 **26 mg/L** **26 mg/L** **26 mg/L**	 **26 mg/L** 24 mg/L **26 mg/L**		4
Fecal Coliforms May – September			**656#/100 mL** **geometric mean**	400#/100 mL geometric mean		4
Phosphorus AM Interim Limits				1.0 mg/L	0.6 mg/L	2,5
Acute WET						6
Chronic WET						6,7

Footnotes:

1. No changes from current permit.
2. TSS and Phosphorus TMDL limits are implemented as the cumulative discharge of Outfalls 001 and 051 reported with Sample Point 076.
3. Under the TSS Adaptive Management (AM) Plan, the interim weekly average limit of 12 mg/L and interim monthly average limit of 8.0 mg/L should be effective upon permit issuance.
4. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7) are included in bold.
5. Under the phosphorus Adaptive Management (AM) Plan, the interim limits (and technology-based limit (TBL)) of 1.0 mg/L, monthly average and 0.6 mg/L, six-month average should be effective upon permit reissuance.
6. Following the guidance provided in the Department's WET Program Guidance Document (revision #11, dated November 1, 2016), annual acute and chronic WET tests are recommended for **Outfall 051**. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing shall continue after the permit expiration date (until the permit is reissued).
7. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Chronic testing shall be performed using a dilution series of 100%, 30%, 10%, 3% & 1%. The Instream Waste Concentration to assess chronic test results is 8.5%. The primary control and dilution water used in WET tests conducted on Outfall 051 shall be a grab sample collected from the Fox River or standard laboratory water. Tests should be done in rotating quarters, to collect seasonal information about this discharge and shall continue after the permit expiration date (until the permit is reissued).

Sample Point 076: Calculated Combined Effluent for TMDL Reporting

Parameter	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Phosphorus		203 lbs/day	68 lbs/day	1
TSS	4,305 lbs/day	2,404 lbs/day		1

Footnotes:

1. A compliance schedule is in effect to meet the TMDL limits by 06/30/2023.

Monitoring of total recoverable cadmium, chromium, copper, lead, nickel and zinc is also required at Outfalls 001 and total recoverable cadmium, chromium, copper, lead, nickel, zinc and mercury at 051 due to the fact that these are pretreatment facilites with design flows greater than 5.0 MGD (ch. NR 211).

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Shaun Shields at (920) 662-5103 (Shaun.Shields@wisconsin.gov) or Diane Figiel at (608) 264-6274 (Diane.Figiel@wisconsin.gov).

Attachments (4) – Narrative, $CBOD_5$ WLA Tables, Thermal Tables, & Map

PREPARED BY: Shaun Shields – Water Resources Engineer

APPROVED BY: Diane Figiel Date: 9/18/19
Diane Figiel, PE,
Water Resources Engineer

E-cc: Gary Kincaid, Wastewater Engineer – Green Bay
Alexis Peter, Acting Regional Wastewater Supervisor – Green Bay
Diane Figiel, Water Resources Engineer – WY/3
Dave Haas, Wastewater Specialist – Green Bay
Kari Fleming, Environmental Toxicologist – WY/3

Attachment #1

Water Quality-Based Effluent Limitations for Green Bay Metropolitan Sewerage District Combined

WPDES Permit No. WI-0065251-02

Prepared by: Shaun Shields

PART 1 – BACKGROUND INFORMATION

Facility Description:

Overview

The Green Bay Metropolitan Sewerage District (GBMSD) owns and operates two regional wastewater treatment facilities (Green Bay Facility – GBF and De Pere Facility – DPF) that serve 15 municipal customers with a combined population of approximately 232,000, which is spread over 285 square miles. The facilities provide liquid treatment for current average flows of approximately 32 MGD (GBF) and 9 MGD (DPF). Solids produced at each facility are treated in a common solids processing facility that is located at the GBF. The solids processes are currently undergoing significant modifications through the Resource Recovery and Electrical Energy (R2E2) project.

Green Bay Facility Liquids:

The liquid treatment process at the GBF is rated for a design flow of 49.2 MGD and is comprised of preliminary treatment, primary treatment, secondary treatment, and disinfection. The GBF consists of the North Plant and the South Plant. The South Plant was constructed to provide for biological treatment of projected flows and loadings in excess of the North Plant's capacity.

Preliminary and primary treatment consists of two influent mechanical trash racks, separate pumping of municipal and paper mill wastewater using six centrifugal pumps with adjustable speed drives and one constant speed pump, four step screens with 0.25-inch openings, four square primary clarifiers with corner sweeps, and de-gritting of primary sludge using four grit separators and two snails. Grit and screenings are hauled to landfill. De-gritted primary sludge is pumped to thickening for further treatment. The GBF receives septage and other hauled wastes at its septage receiving facility. These hauled wastes are screened and then pumped to the primary influent channels or directly to headworks.

The secondary treatment process consists of a conventional activated sludge process designed for enhanced biological phosphorus removal, nitrification to meet seasonal ammonia limits, and BOD removal. The North Plant consists of four aeration basins, eight square final clarifiers with corner sweeps and two chlorine contact basins. The South Plant has two aeration basins and two circular final clarifiers. South Plant secondary effluent is pumped to the North Plant secondary effluent channel prior to disinfection. Aeration basins in both plants have mechanically mixed selector zones designed for filament control and enhanced biological phosphorus removal. Air is delivered through fine bubble membrane diffusers from centrifugal blowers. Return activated sludge (RAS) from the final clarifiers is returned to the unaerated zones to promote biological phosphorus removal. Waste activated sludge (WAS) from the North and South Plants is pumped to gravity belt thickeners or a centrifuge.

The secondary effluent is chlorinated from May through September with Sodium Hypochlorite and dechlorinated with sodium bisulfite. Final effluent is discharged into the Fox River near its mouth to the Green Bay.

De Pere Facility Liquids:
The liquids facility is rated for an annual design average of 10 MGD and consists of preliminary treatment, secondary treatment, tertiary filtration, and disinfection. Since the 2007 consolidation with GBMSD, modifications have been made to allow diversion of a portion of the municipal and/or industrial wastewater to the GBF. Up to 5 MGD of the municipal wastewater flow and 100 percent of the Fox River Fiber Company flow can be diverted from the DPF to the GBF. Municipal and industrial wastewater flows to be diverted from the DPF to the GBF are determined and adjusted by the operation staff to maximize treatment efficiency.

Preliminary treatment consists of a pump station with six municipal waste pumps, two fine screens, and two preliminary treatment units. The De Pere Facility does not remove primary sludge from its preliminary treatment units but instead sends that material for further treatment in the first-stage aeration systems. The units do, however, remove grit and grease. Grit is dewatered with two hydro-cyclone grit washing and dewatering units and transferred to a landfill, while the grease is trucked to the GBF for processing. GBMSD maintains a septage receiving facility at the DPF: however, septage is normally hauled to the GBF for treatment.

The secondary treatment process consists of two first-stage aeration basins with selector zones, two intermediate clarifiers, two second-stage aeration basins (no selector zones), and three final clarifiers. The first-stage aeration basins are operated to achieve enhanced biological phosphorus removal, nitrification, and BOD removal. Dissolved oxygen probes in the aeration system are used by the five high-speed centrifugal turbine blowers to maintain proper air flow and distribution. The two intermediate clarifiers separate RAS from the mixed liquor flow and the RAS is then sent back to the selector zone at the head end of the aeration basins. The second-stage aeration basins are not utilized under normal operations but can be used if loadings increase beyond what can be handled by the first stage. The three final clarifiers are utilized to further polish the secondary effluent before entering the filtration building. WAS from the DPF is pumped to the GBF for processing.

Tertiary filtration consists of five granular media filters. The tertiary filters remove most of the remaining solids and the final effluent proceeds on to the UV system for disinfection. The UV system disinfects all effluent flows up to 31 MGD. When flows are greater than 31 MGD, excess flow is diverted around the UV disinfection and combined with the UV-disinfected effluent prior to discharge from the facility. The DPF effluent enters the Fox River east of the facility.

Green Bay Facility Solids:
Primary sludge produced at the GBF and WAS from both the GBF and DPF is treated through a combined solids processing facility at the GBF. The solids processes underwent improvements through the R2E2 project. R2E2 solids modifications consist of modifications to sludge thickening and the addition of anaerobic digestion, dewatering centrifuges, fluidized bed incineration, nutrient recovery, and energy recovery through co-digestion and biogas energy generation.

Primary sludge from the GBF and WAS from both facilities are thickened independently by separate thickening processes, including gravity thickeners, gravity belt thickeners, or a thickening centrifuge. The thickening process to be utilized for each solids waste stream is determined by the operating staff based on waste characteristics. Thickened WAS (TWAS) is mixed with the WAS and directed to a phosphorus release tank. In the phosphorus release tank, biologically stored phosphorus is released, which improves the efficiency of the nutrient recovery system. WAS from the phosphorus release tank (PWAS) is then sent for additional thickening and the thickened PWAS (TPWAS) is combined with the thickened de-gritted primary sludge (TPSD) and sent to anaerobic digestion, which consists of two silo dewatering centrifuges, dried to about 38 percent dry solids in a multiple-disc dryer, and incinerated using a fluidized bed incinerator. The incinerator exhaust is treated with a multiple-stage air pollution control train. Ash removed in the scrubber is dewatered in ash dewatering cells and hauled to a landfill. The GBF also has the ability to haul anaerobically digested dewatered sludge cake or dried cake to a landfill. Hauling of the sludge cake only occurs when the incinerator is out of service.

The solids process includes provisions to recover energy and nutrients from the waste streams. Biogas produced in the anaerobic digestion process is collected and treated using iron sponges and activated carbon for hydrogen sulfide and siloxanes prior to being utilized in biogas engines for energy production. The facility includes provision to receive high-strength waste directly to digestion to increase biogas production. When combined, filtrate from the PWAS thickening and centrate from digested sludge dewatering are high in both phosphorus and ammonia. Phosphorus is recovered from these combined side streams through the intentional formation of struvite. The controlled formation of struvite reduces nutrient recycle loading on the secondary treatment process and limits detrimental struvite production on digestion and dewatering equipment. Recovered struvite is sold to the nutrient recovery system supplier and further processed for beneficial reuse as fertilizer.

Attachment #4 is a map of the area showing the approximate location of Outfalls 001 and 051.

Existing Permit Limitations: The current permit, which expired on 06/30/2019, includes the following effluent limitations and monitoring.

Outfall 001: GBF Effluent

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
$CBOD_5$			40 mg/L	25 mg/L	1
TSS			45 mg/L	30 mg/L	2
pH	9.0 s.u.	6.0 s.u.			
Ammonia Nitrogen January – April May – September October November – December			 13 mg/L 38 mg/L	 15 mg/L 4.7 mg/L 14 mg/L 26 mg/L	
Fecal Coliforms May – September				400#/100 mL geometric mean	
Residual Chlorine	38 µg/L				
Phosphorus Interim				 1.0 mg/L	 2
Mercury	6.6 ng/L				3
E. Coli					4
Cadmium, Total Recoverable					5
Chromium, Total Recoverable					5
Copper, Total Recoverable					5
Lead, Total Recoverable					5

Attachment #1

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Nickel, Total Recoverable					5
Zinc, Total Recoverable					5
Acute WET					6
Chronic WET					6

Footnotes:

1. During the months of May through October, the discharge of $CBOD_5$ must comply with the $CBOD_5$ Waste Load Allocation (WLA) and concentration limits outlined in Attachment #2.
2. This is a TBL and interim limit. See effluent limits for Sample Point 076 for combined GBF and DPF TMDL limits.
3. Alternative effluent limit for Mercury.
4. Monitoring only.
5. Monthly monitoring only.
6. Annual WET testing

Outfall 051: DPF Effluent

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
$CBOD_5$			18 mg/L	9 mg/L	
TSS			20 mg/L	10 mg/L	1
pH	9.0 s.u.	6.0 s.u.			
Ammonia Nitrogen January – March April November – December	 34 mg/L 34 mg/L 34 mg/L			 27 mg/L 24 mg/L 31 mg/L	2
Fecal Coliforms May – September				400#/100 mL geometric mean	
Residual Chlorine	38 μg/L				3
Phosphorus Interim				 1.0 mg/L	1
Cadmium, Total Recoverable					4
Chromium, Total Recoverable					4
Copper, Total Recoverable					4
Lead, Total Recoverable					4
Nickel, Total Recoverable					4
Zinc, Total Recoverable					4
Mercury, Total Recoverable					4
Acute WET					5
Chronic WET					5

Footnotes:

1. This is a TBL and interim limit. See effluent limits for Sample Point 076 for combined GBF and DPF TMDL limits.
2. Monitoring only in the months of May – October

3. Limit and monitoring required only when chlorine is used as a disinfectant. The DPF has since discontinued the use of chlorine for disinfection.
4. Monthly monitoring
5. Annual WET testing

Sample Point 076: Calculated Combined Effluent for TMDL Reporting

Parameter	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Phosphorus		203 lbs/day	68 lbs/day	1
TSS	4,305 lbs/day	2,404 lbs/day		1

Footnotes:

1. Compliance with final TMDL limits by 06/30/2023. Final compliance date may change if adaptive management is implemented.

Receiving Water Information:

- Name:
  - **Outfall 001:** Lower Fox River at mouth of the Fox River where it flows into Green Bay
  - **Outfall 051:** Lower Fox River, approximately six miles upstream from the mouth of the Fox River and one mile downstream of the De Pere Dam.
- Classification: Warm water sport fish community, non-public water supply. (Cold Water and Public Water Supply criteria would be used for bioaccumulating compounds of concern, because the discharge is within the Great Lakes basin.)
- Low Flow
  - **Outfall 001:** A 10:1 mixing ratio was determined to be appropriate based on a mixing zone study by Dr. Kwang Lee, UW-Milwaukee in 1984.
  - **Outfall 051**: The following 7-Q_{10} and 7-Q_2 values are from USGS for Station 040851385, near where Outfall 001 is located. The harmonic mean was estimated using daily mean stream flows from 1989 – 2017.
    7-Q_{10} = 660 cfs (cubic feet per second)
    7-Q_2 = 1400 cfs
    Harmonic Mean Flow = 2052 cfs

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7-Q_{10} (cfs)	2481	1911	2087	1848	1510	1445	1147	1126	869	1055	1632	2231

- Hardness = 195 mg/L as $CaCO_3$. This value represents the geometric mean of data from Georgia Pacific Day St. Mill WET testing (03/28/2015 – 05/16/2017) located approximately half a mile upstream of Outfall 001.
- % of low flow used to calculate limits: 25% (DPF only)
- Source of background concentration data: Metals data from Fox River at De Pere is used for this evaluation. The numerical values are shown in the tables below. If no data is available, the background concentration is assumed to be negligible and a value of zero is used in the computations. Fox River mercury concentrations are derived from intake monitoring conducted by WPDES # 0001261 from the last 5 years. Background data for calculating effluent limitations for ammonia nitrogen are described later.
- Multiple dischargers: There are several other dischargers to the Fox River . WPS-Pulliam has

discontinued thermal discharges, and therefore the thermal mixing zone is not expected to overlap with the GBF. Watershed or water quality modeling has been developed to enact limits for protection of water quality in regard to dissolved oxygen, phosphorus, and TSS. The mixing zones from other dischargers are not expected to interact in regard to other pollutants. Therefore, the other dischargers do not impact this evaluation.

- Impaired water status: The Lower Fox River and Lower Green Bay are listed as impaired due to TSS, TP, and PCBs.

Effluent Information:

- Design Flow Rate(s):
  - **Outfall 001**: Annual average = 49.2 MGD (Million Gallons per Day)
  - **Outfall 051**: Annual Average = 10 MGD

  For reference, between 07/01/2014 and 07/31/2019, the average flow from Outfall 001 was 32.5 MGD and the average flow from outfall 051 was 7.69 MGD.
- Hardness
  - 288 mg/L as $CaCO_3$ **(Outfall 001)**
  - 272 mg/L as $CaCO_3$ **(Outfall 051)**

  These values represent the geometric mean of permit application monitoring from 08/14/2018 to 11/01/2018 (n=4).
- Acute dilution factor used: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water Source: Lake Michigan (Municipal water), municipal wells, and private wells. Withdrawal factor for both outfalls is zero.
- Additives: The GBF utilizes chlorine and sodium bisulfite for disinfection and dechlorination respectively. Both facilities utilize ferric chloride for phosphorus control.
- Effluent characterization: This facility is categorized as a major municipal discharger, so the permit application required effluent sample analyses for all the "priority pollutants" except for the Dioxins and Furans.

Outfall 001: GBF Facility Outfall

Sample Date	Chloride – mg/L
09/02/2018	260
09/06/2018	340
10/29/2018	285
11/02/2018	245
Average	**282**

07/15/2014-11/01/2018	Lead - µg/L
Mean	0.02
Range	<1.2 - 1.3
Sample Size	61

"<" means that the pollutant was not detected at the indicated level of detection. The mean concentration was calculated using zero in place of the non-detected results.
* Geometric mean

Attachment #1

07/15/2014 - 07/18/2019	Copper µg/L	Zinc µg/L	Nickel µg/L	Chromium µg/L	Cadmium µg/L	Mercury* ng/L
1-day P_{99}	24.0	72.5	43.5	1.4	0.6	4.4
4-day P_{99}	15.7	50.3	24.3	0.8	0.3	2.8
30-day P_{99}	10.46	38.69	14.33	0.47	0.19	2.00
Mean	8.06	33.01	10.04	0.23	0.09	1.63
Std	4.57	12.54	8.76	0.22	0.10	0.81
Sample size	61	61	61	61	61	61
Range	<3.34 - 21.26	15.7 - 71.26	3.24 - 57.17	<0.4 - 1.53	<0.08 - 0.66	0.81 - 4.66

*Four field blanks showed detectable levels of mercury at a level of 0.26 ng/L or less.

Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2 below, in the column titled "MEAN EFFL. CONC.".

The following table presents the average concentrations and loadings at **Outfall 001** from 07/01/2014 to 07/31/2019 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

	Average Measurement	Average Mass Discharged
$CBOD_5$	2.15 mg/L*	582 lbs/day
TSS	5.71 mg/L	1549 lbs/day
pH maximum pH minimum	7.27 s.u. 7.11 s.u.	
Phosphorus	0.34 mg/L	90 lbs/day
Fecal Coliform	43 #/100mL**	
Mercury	1.63 ng/L	
Chlorine	0 µg/L***	
Ammonia Nitrogen	0.46 mg/L*	

*Results below the level of detection (LOD) were included as zeroes in calculation of average.
**Geometric mean
*** All 704 samples below the LOD

Outfall 051: DPF Facility Outfall

Sample Date	Chloride – mg/L
09/09/2018	190
09/13/2018	220
10/29/2018	220
11/02/2018	230
Average	**215**

Attachment #1

07/15/2014 - 07/30/2019	Lead µg/L	Diethyl Phthalate µg/L	Cadmium µg/L
Mean	0.04	0.43	0.0525
Range	<1.2-2.46	<0.45-1.72	<0.08-0.48
Sample Size	61	4	61

7/15/2014 - 7/30/2019	Copper µg/L	Zinc µg/L	Nickel µg/L	Chromium µg/L	Mercury* ng/L
1-day P_{99}	20.6	55.9	82.8	4.8	1.5
4-day P_{99}	12.9	39.4	53.3	3.2	1.0
30-day P_{99}	8.32	30.82	38.36	2.33	0.68
Mean	6.25	26.55	31.28	1.90	0.54
Std	4.02	9.46	15.35	0.86	0.28
Sample size	61	61	61	61	61
Range	<3.34 - 19.4	10.7 - 58.8	9.07 - 86.8	<0.68 - 4.43	<0.14 - 1.9

*Five field blanks showed detectable levels of mercury at concentrations of 0.25 ng/L or less.

The following table presents the average concentrations and loadings at **Outfall 051** from 07/01/2014 to 07/31/2019 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

	Average Measurement	Average Mass Discharged
$CBOD_5$	1.04 mg/L*	
TSS	0.75 mg/L	39 lbs/day
pH maximum pH minimum	7.26 s.u. 7.19 s.u.	
Phosphorus	0.19 mg/L	12 lbs/day
Fecal Coliform	3.8 #/100mL**	
Ammonia Nitrogen	0.84 mg/L*	

*Results below the level of detection (LOD) were included as zeroes in calculation of average.
**Geometric mean

The following table presents the average loadings at Sample Point 076 from 07/01/2014 to 07/31/2019 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

	Average Mass Discharged
TSS	1618 lbs/day
Phosphorus	102 lbs/day

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

In general, permit limits for toxic substances are recommended whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P_{99}) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Acute Limits based on 1-Q_{10}

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Adm. Code (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q_{10} receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

WQC =Acute toxicity criterion or secondary acute value according to ch. NR 105

Qs = average minimum 1-day flow which occurs once in 10 years (1-day Q_{10})
if the 1-day Q_{10} flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q_{10}).

Qe = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d)

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

Cs = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e).

As a rule of thumb, if the receiving water is effluent dominated under low stream flow conditions, the 1-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for Green Bay Metropolitan Sewerage District Combined at either outfall.

The following tables list the water quality-based effluent limitations for this discharge along with the results of effluent sampling for all the detected substances. All concentrations are expressed in term of micrograms per Liter (µg/L), except for hardness and chloride (mg/L) and mercury (ng/L).

Attachment #1

Daily Maximum Limits based on Acute Toxicity Criteria (ATC) for Outfall 001
RECEIVING WATER FLOW = 10:1 Dilution

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day Max Conc
Chlorine		19.0		38.1	7.61			
Arsenic		340		680	136	<5.728		
Cadmium	288	34.7	0.02	69.4			0.60	0.66
Chromium (+3)	288	4288	0.78	8576			1.40	1.53
Copper	288	42.1	1.67	84.2			24.0	21.3
Lead	288	297	0.93	594	119	0.02		1.30
Mercury (ng/L)		830	3.70	830			4.40	4.66
Nickel	268	1080		2161			43.5	57.2
Zinc	288	304	5.49	607			72.5	71.3
Chloride (mg/L)		757	25.5	1514	303	282		340

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105 over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.
**Limits set equal to 2 times the ATC.

Daily Maximum Limits based on Acute Toxicity Criteria (ATC) for Outfall 051
RECEIVING WATER FLOW = 528 cfs, (1-Q_{10} (estimated as 80% of 7-Q_{10})).

SUBSTANCE	REF. HARD.* mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day Max Conc
Arsenic		340		6780	136	<5.728		
Cadmium	272	32.5	0.02	65.0	13.0	0.052		0.48
Chromium (+3)	272	4092	0.78	8184			4.80	4.43
Copper	272	39.9	1.67	79.8			20.6	19.4
Lead	272	281	0.93	562	112.5	0.02		2.46
Mercury (ng/L)		830	3.7	830			1.50	1.90
Nickel	268	1080		2161			82.8	86.8
Zinc	272	289	5.49	578			55.9	58.8
Chloride (mg/L)		757	25.5	1514	303	214		230

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105 over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.
* * The 2 x ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q_{10} flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC) for Outfall 001

RECEIVING WATER FLOW = 10:1 Dilution

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Chlorine		7.28		80.1	16.0		
Arsenic		152		1674	335	<5.728	
Cadmium	175	3.82	0.02	41.8			0.30
Chromium (+3)	195	228	0.78	2503			0.80
Copper	195	18.3	1.67	185			15.7
Lead	195	53.4	0.93	578	116	0.02	
Mercury (ng/L)		440	3.7	440			2.80
Nickel	195	91.8		1010			24.3
Zinc	195	216	5.49	2320			50.3
Chloride (mg/L)		395	25.5	4090	818	282	

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC) for Outfall 051

RECEIVING WATER FLOW = 165 cfs (¼ of the 7-Q_{10})

SUBSTANCE	REF. HARD.* mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Arsenic		152		1775	355	<5.728	
Cadmium	175	3.82	0.02	44.4	8.9	0.052	
Chromium (+3)	195	228	0.78	2654			3.20
Copper	195	18.3	1.67	196			12.9
Lead	195	53.4	0.93	613	123	0.02	
Mercury (ng/L)		440	3.7	440			1.00
Nickel	195	91.8		1071			53.3
Zinc	195	216	5.49	2459			39.4
Chloride (mg/L)		395	25.5	4335	867	214	

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Monthly Average Limits based on Wildlife Criteria (WC) for Outfall 001

RECEIVING WATER FLOW = 10:1 Dilution

SUBSTANCE	WC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	30-day P_{99}
Mercury (ng/L)	1.3	3.7	1.3	**2.00**

Attachment #1

Monthly Average Limits based on Wildlife Criteria (WC) for Outfall 051

RECEIVING WATER FLOW = 315 cfs (¼ of the 90-Q_{10})

SUBSTANCE	WC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	30-day P_{99}
Mercury (ng/L)	1.3	3.7	1.3	0.68

Monthly Average Limits based on Human Threshold Criteria (HTC) for Outfall 001

RECEIVING WATER FLOW = 10:1 Dilution

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370	0.02	4070			0.19
Chromium (+3)	3818000	0.78	41998000			0.47
Lead	140	0.93	1531	306	0.02	
Mercury (ng/L)	1.5	3.70	1.5			**2.00**
Nickel	43000		473000			14.3

Monthly Average Limits based on Human Threshold Criteria (HTC) for Outfall 051

RECEIVING WATER FLOW = 513 cfs (¼ of the Harmonic Mean)

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370	0.02	12637	2527	0.052	
Chromium (+3)	3818000	0.78	130400000			2.33
Lead	140	0.93	4751	950	0.02	
Mercury (ng/L)	1.5	4.19	1.5			0.68
Nickel	43000		1470000			38.4
Diethyl Phthalate	68000		2320000	464000	0.43	

Monthly Average Limits based on Human Cancer Criteria (HCC) for Outfall 001

RECEIVING WATER FLOW = 10:1 Dilution

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13.3		146	29.3	<5.728
Chloroform	1960		21560	4312	0.9

Monthly Average Limits based on Human Cancer Criteria (HCC) for Outfall 051

RECEIVING WATER FLOW = 513 cfs (¼ of the Harmonic Mean)

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13.3		454	90.8	<5.728
Chloroform	1960		66940	13390	0.87

In addition to evaluating the need for limits for each individual substance for which HCC exist, s. NR 106.06(8) requires the evaluation of the cumulative cancer risk. Because only one substance for which Human Cancer Criteria exists was detected, determination of the cumulative cancer risk is not needed per s. NR 106.06(8), Wis. Adm. Code.

Conclusions and Recommendations: Based on a comparison of the effluent data and calculated effluent limitations, effluent limitations are apparently needed for Mercury for Outfall 001.

Outfall 001

Mercury – The previous permit included an alternative effluent limit, (or "variance"), from the calculated WQBEL for Mercury, of 6.6 ng/L as a daily maximum for **Outfall 001**. A review of data from 07/15/2014 to 07/18/2019 indicates the 30-day P_{99} is 2.00 ng/L, which is above the Wildlife Criterion of 1.3 ng/L. Therefore, **a mercury effluent limit is recommended for Green Bay Metropolitan Sewerage District Combined at Outfall 001.**

Section NR 106.145(4) allows for eligibility for an alternative mercury effluent limitation if the permittee applies for an alternative mercury limit, which includes the submittal of a pollutant minimization plan. Green Bay Metropolitan Sewerage District Combined has submitted this application. Section NR 106.145(5) specifies that an alternative limitation shall equal the 1-day P_{99} of the effluent data and shall be expressed as a daily maximum concentration. Therefore, **if** a variance is granted and approved by US Environmental Protection Agency **an alternative mercury limitation of 4.4 ng/l, daily maximum, is recommended for** Green Bay Metropolitan Sewerage District Combined at Outfall 001.

Total Residual Chlorine – Because chlorine is added as a disinfectant at Outfall 001, effluent limitations are recommended to assure proper operation of the de-chlorination system. Section NR 210.06(2)(b) states, "When chlorine is used for disinfection, the daily maximum total residual chlorine concentration of the discharge may not exceed 0.10 mg/L." Because the water quality-based effluent limitations are more restrictive, the water quality-based limits are recommended instead. Specifically, a daily maximum limit of 38 µg/L (38.06, rounded to two significant figures) is recommended at this outfall. Due to revisions to s. NR 106.07(2) mass limitations are no longer required. Weekly average limitations are not needed based on reasonable potential procedures, as the daily maximum limitations will provide adequate protection of the resource. Additional limits to comply with expression of limit requirements are outlined in Part 8 of this document.

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TSS BASED ON THE TMDL

Due to the merger of the two facilities (GBF and DPF) under the same permit and both outfalls discharge to the Lower Fox River, Green Bay Metropolitan Sewerage District Combined has a combined TMDL allocation for phosphorus and TSS from both DPF and GBF.

Green Bay Metropolitan Sewerage District Combined has been allocated a TSS waste load allocation of 405,158 lbs/year as a combined discharge from the De Pere facility (50,297 lbs/year = 138lbs/day) and Green Bay Facility (354,861 lbs/year = 972 lbs/day) allocations. TSS TMDL Limits were calculated using methodology and data outlined in the 06/18/2015 memo titled "Alternative Approach for Calculating TMDL-Based Mass Limits for Total Suspended Solids at Green Bay MSD (WPDES Permit #

WI-0065251)". TSS effluent data collected from 01/01/2009 to 12/31/2013 was used for TSS effluent data statistics. A value of 2.327 standard deviations was used for estimating the 99th percentile in a normally distributed data set.

For the De Pere Facility:

Average TSS discharge: 110.321 lbs/day
Standard Deviation (SD) of TSS Discharge: 104.282 lbs/day
Coefficient of Variation (CV): 0.95
CV x 2.327 = 2.20
TMDL Multiplier based on 2.327 x CV and daily monitoring:
Monthly Average: 2.28
Weekly Average: 4.15
TMDL Mass Limits = Allocation (138 lbs/day) x TMDL Multiplier
Monthly Average: 314 lbs/day
Weekly Average: 572 lbs/day

For the Green Bay Facility:

Average TSS discharge: 1421.7 lbs/day
Standard Deviation (SD) of TSS Discharge: 1234.865 lbs/day
Coefficient of Variation (CV): 0.87
CV x 2.327 = 2.02
TMDL Multiplier based on 2.327 x CV and daily monitoring:
Monthly Average: 2.15
Weekly Average: 3.84
TMDL Mass Limits = Allocation (972 lbs/day) x TMDL Multiplier
Monthly Average: 2,090 lbs/day
Weekly Average: 3,733 lbs/day

Final TMDL TSS limits to comply with the TMDL implementation are expressed as 4,305 lbs/day as a weekly average and 2,404 lbs/day as a monthly average.

Effluent monitoring results from 07/01/2014 to 07/31/2019 is presented in the table below:

	Outfall 001	Outfall 051	Combined - 076
	TSS – mg/L	TSS – mg/L	TSS – lbs/day
1-day P_{99}	10.7	15.3	5211
4-day P_{99}	7.93	8.33	3139
30-day P_{99}	6.46	3.97	2094
Mean	5.71	2.21	1618
99th Percentile*	11.4	5.14	3749
Std	1.67	3.3	1009
Sample size	1857	1857	1857
Range	2.00 - 26.1	1.00 - 114	515 - 30327

*Calculated assuming normal distribution

The estimated discharge of TSS from the combined outfalls is presented in the table below:

Attachment #1

Year	TSS Discharged lbs/year
2015	561,795
2016	530,643
2017	579,959
2018	597,415

In the Memorandum of Understanding (MOU) between Green Bay Metropolitan Sewerage District Combined and the Wisconsin Department of Natural Resources, a legal agreement was formed in which the option and conditions to comply with TSS and TP TMDL allocations through an adaptive management plan was agreed upon. With the permit application, Green Bay Metropolitan Sewerage District Combined has submitted an adaptive management request and plan. If approved, Green Bay Metropolitan Sewerage District will be subject to interim TSS and TP limits as the adaptive management plan is implemented. Through the MOU, the department and Green Bay Metropolitan Sewerage District Combined have agreed upon interim TSS limits to be established in each permit term in which adaptive management is implemented. The table below outlines the established interim TSS limits:

Adaptive Management Interim TSS limits.		
First Adaptive Management Permit Term		
Facility	Weekly Average (mg/L)	Monthly Average (mg/L)
GBF	27	18
DPF	12	8.0
Second Adaptive Management Permit Term		
Facility	Weekly Average (mg/L)	Monthly Average (mg/L)
GBF	22.5	15
DPF	10.5	7.0
Third Adaptive Management Permit Term		
Facility	Weekly Average (mg/L)	Monthly Average (mg/L)
GBF	22.5	15
DPF	10.5	7.0

If an adaptive management plan is approved, the following interim TSS limits should be included in the reissued permit:

	Weekly Average (mg/L)	Monthly Average (mg/L)
Green Bay Facility	27	18
De Pere Facility	12	8 .0

The final TSS TMDL limits may be re-calculated at a future permit issuance if TSS WLA or in-stream water quality is not met to account for effluent variability.

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. These limits are re-evaluated at this time due to the following changes:

- Updates to s. NR 106.07(3), Wis. Adm. Code require weekly and monthly average limits for municipal treatment plants.
- The maximum expected effluent pH has changed
- To assess the need for seasonal ammonia limits where none are present in the current permit

Daily Maximum Limits based on Acute Toxicity Criteria (ATC) for Outfall 001:
Daily maximum limitations are based on acute toxicity criteria, which are a function of the effluent pH and the receiving water classification. The acute toxicity criterion (ATC) for ammonia is calculated using the following equation.

$$\text{ATC in mg/L} = [A \div (1 + 10^{(7.204 - pH)})] + [B \div (1 + 10^{(pH - 7.204)})]$$

Where:

$A = 0.411$ and $B = 58.4$ for a Warm Water Sport fishery, and
pH (s.u.) = that characteristic of the effluent.

The maximum effluent pH data for the permit term was examined as part of this evaluation. Green Bay Metropolitan Sewerage District Combined continuously monitors pH at both facilities and reports the daily maximum and minimum pH. For the purpose of this evaluation, a conservative estimate of effluent pH, equal to the reported maximum pH will be used for ammonia calculations. A total of 1857 sample results were reported from 07/01/2014 to 07/31/2019. The maximum reported value was 8.0 s.u. (Standard pH Units), and a pH of greater than 7.69 s.u. was reported 32 times. The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), is 7.69 s.u. And the mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.7 s.u. A value of 7.7 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.7 s.u. into the equation above yields an ATC = 14.44 mg/L and a computed daily maximum limit of 29 mg/L using two times the ATC. A daily maximum limit is not recommended as GBF Outfall 001 demonstrates no reasonable potential to exceed daily limits. Further discussion regarding reasonable potential for ammonia limits is discussed later in Part 4 of this document.

Weekly & Monthly Average Limits based on Chronic Toxicity Criteria (CTC) - Outfall 001
The ammonia limit calculation also warrants evaluation of weekly and monthly average limits based on chronic toxicity criteria for ammonia, since those limits relate to the assimilative capacity of the receiving water. Additionally, the need for weekly average limits for November through April will be evaluated.

In-stream pH monitoring data (n=1514) collected from 07/01/2014 to 01/09/2019 at the USGS monitoring station 040851385 was used for this evaluation. Reported median pH values were averaged within the months in which ammonia limits are calculated. It should be noted that 2018 and 2019 pH data was provisional, and pH data was not continuously monitored. Ambient temperature values from s. NR 102.25(3) for the Lower Fox River were used as it is believed that water temperature from the Lower Fox

River will have the predominant controlling effect on the ambient temperature in the mixing zone. Cold water criteria would apply to northern parts of Green Bay, but the mixing zone is not expected to extend north with any appreciable amounts of ammonia. Default ambient ammonia concentrations in the Lower Fox River gathered from past monitoring efforts are used for this evaluation.

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as a Warm Water Sport Fish Community is calculated by the following equation.

$$CTC = E \times \{[0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})]\} \times C$$

Where:

pH = the pH (s.u.) of the receiving water,
E = 0.854,
C = the minimum of 2.85 or $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Present), or
C = $1.45 \times 10^{(0.028 \times (25 - T))}$ – (Early Life Stages Absent), and
T = the temperature (°C) of the receiving water – (Early Life Stages Present), or
T = the maximum of the actual temperature (°C) and 7 - (Early Life Stages Absent)

The 4-day criterion is simply equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used to derive weekly average limitations, and the 30-day criteria are used to derive monthly average limitations, both by a mass-balance using a ten-to-one dilution ratio.

The rules provide a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 °C, during the winter and spring months. Burbot, an early spawning species, are believed to be present in the Lower Fox River and Green Bay, based on conversations with local fisheries biologists. So "ELS Absent" criteria apply October through December and "ELS Present" criteria apply January through September for a Warm Water Sports Fish with Burbot classification.

		January - April	May - September	October	November - December
Effluent Flow	Qe (MGD)	49.2	49.2	49.2	49.2
Background Information	Ammonia (mg/L)	0.14	0.05	0.09	0.09
	Average Temperature (°C)	4	22	12	4
	Maximum Temperature (°C)	10	25	12	6
	pH (s.u.)	7.94	8.24	8.27	7.88
	Dilution Ratio	10:1	10:1	10:1	10:1
Criteria mg/L	4-day Chronic				
	Early Life Stages Present	6.62	2.14		
	Early Life Stages Absent			4.71	11.66
	30-day Chronic				
	Early Life Stages Present	2.65	0.86		
	Early Life Stages Absent			1.88	4.67
Effluent Limitations mg/L	Weekly Average				
	Early Life Stages Present	71	23		
	Early Life Stages Absent			51	127
	Monthly Average				
	Early Life Stages Present	28	8.9		
	Early Life Stages Absent			20	50

Section NR 106.33(2) was also updated effective September 1, 2016. As a result, seasonal 20 and 40 mg/L thresholds for including ammonia limits in municipal discharge permits are no longer applicable under current rules. As such, s. NR 106.33(1) enables the Department to determine the need to include ammonia limits in municipal discharge permits based on the statistical comparisons in s. NR 106.05.

Effluent Data - Outfall 001

The following table evaluates the statistics based upon ammonia data reported from 07/01/2014 to 07/31/2019, with those results being compared to the calculated limits to determine the need to include ammonia limits in the Green Bay Metropolitan Sewerage District Combined permit for the respective month ranges. That need is determined by calculating 99th upper percentile (or P_{99}) values for ammonia during each of the month ranges and comparing it to the calculated daily, weekly, and monthly ammonia limits. Based on this analysis, reasonable potential is not shown for any ammonia limits.

Ammonia Nitrogen mg/L	January – April	May – September	October	November – December
1-day P_{99}	10.1	1.5	0.2	1.3
4-day P_{99}	5.5	1.0	0.1	0.7
30-day P_{99}	2.51	0.45	0.04	0.29
Mean*	1.28	0.09	0.02	0.08
Std	2.55	0.84	0.06	0.59
Sample size	601	691	155	305
Range	<0.01 - 13.52	<0.01 - 5.47	<0.01 - 0.26	<0.01 - 2.82

However monthly average limits are included in the current permit year round and weekly average limits are included May – October. Where there are existing ammonia nitrogen limits in the permit, the limits are recommended to be retained regardless of reasonable potential, consistent with s. NR 106.33(1), Wis. Adm. Code:

> (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Antidegradation:

The calculated monthly and weekly average limits are less restrictive than the current permit limits. Without a demonstration of need for a higher limit in accordance with s. NR 207.04 Wis. Adm. Code, the current ammonia limits should be continued in the reissued permit.

Conclusions and Recommendations for Outfall 001:

The current ammonia limits should be continued in the reissued permit. No mass limitations are recommended in accordance with s. NR 106.32(5). **Additional ammonia limits to comply with expression of limit requirements are discussed in detail in Part 8 of this document.**

Daily Maximum Limits based on Acute Toxicity Criteria (ATC) - Outfall 051

The effluent pH data for the past permit term was examined as part of this evaluation. A total of 1857 sample results were reported from 07/01/2014 to 07/31/2019. The maximum reported value was 7.83 s.u. (Standard pH Units) and a pH of greater than 7.77 s.u. was reported 14 times. The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), is 8.06 s.u. And the mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.77

s.u. A value of 7.77 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.77 s.u. into the equation above yields an ATC = 12.8 mg/L and a computed daily maximum limit of 26 mg/L using two times the ATC.

Weekly & Monthly Average Limits based on Chronic Toxicity Criteria (CTC) - Outfall 051
Weekly and monthly average limits based on chronic toxicity criteria are being evaluated as part of this permit issuance to assess the need for ammonia limits for the months of May through October. As discussed previously, this evaluation utilizes the same background data sources (pH, temperature, ammonia) as used for Outfall 001.

The 4-day criterion is simply equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the $7\text{-}Q_{10}$ ($4\text{-}Q_3$, if available) to derive weekly average limitations. And the 30-day criteria are used with the $30\text{-}Q_5$ (estimated as 85% of the $7\text{-}Q_2$ if the $30\text{-}Q_5$ is not available) to derive monthly average limitations. The stream flow value is further adjusted to temperature; 100% of the flow is used if the Temperature ≥ 16 °C, 25% of the flow is used if the Temperature < 11 °C, and 50% of the flow is used if the Temperature ≥ 11 °C but < 16 °C.

The rules provide a mechanism for less stringent weekly average and monthly average effluent limitations when early life stages (ELS) of critical organisms are absent from the receiving water. This applies only when the water temperature is less than 14.5 °C, during the winter and spring months. Burbot, an early spawning species, are believed to be present in the Lower Fox River, based on conversations with local fisheries biologists. So "ELS Absent" criteria apply from October through December, and "ELS Present" criteria will apply from January through September for a warm water sports fishery classification.

		Jan. – Mar.	April	May – Sept.	Oct.	Nov. – Dec.
Effluent Flow	Qe (MGD)	10	10	10	10	10
Background Information	$7\text{-}Q_{10}$ (cfs)	660	660	660	660	660
	$7\text{-}Q_2$ (cfs)	1400	1400	1400	1400	1400
	Ammonia (mg/L)	0.16	0.07	0.05	0.09	0.125
	Average Temperature (°C)	2	10	22	12	4
	Max Temperature (°C)	3	10	25	12	6
	pH (s.u.)	7.82	8.33	8.24	8.27	8.03
	% of Flow used	25	25	100	50	25
	Reference Weekly Flow (cfs)	165	165	660	330	165
	Reference Monthly Flow (cfs)	298	298	1190	595	298
Criteria mg/L	4-day Chronic					
	Early Life Stages Present	7.76	3.63	2.14		
	Early Life Stages Absent				4.71	11.66
	30-day Chronic					
	Early Life Stages Present	3.10	1.45	0.86		
	Early Life Stages Absent				1.88	4.67
Effluent Limitations mg/L	Weekly Average					
	Early Life Stages Present	89	42	91		
	Early Life Stages Absent				102	135
	Monthly Average					
	Early Life Stages Present	60	28	63		
	Early Life Stages Absent				69	92

Effluent Data

The following table evaluates the statistics based upon ammonia data reported from 07/01/2014 to 07/31/2019, with those results being compared to the calculated limits to determine the need to include ammonia limits in the Green Bay Metropolitan Sewerage District Combined permit for the respective month ranges. That need is determined by calculating 99th upper percentile (or P_{99}) values for ammonia during each of the month ranges and comparing the daily maximum values to the daily maximum limit. Based on a reasonable potential analysis, no weekly limits are recommended for the months of November through April, and no ammonia limits are recommended for May through October.

Ammonia mg/L	January – March	April	May – September	October	November – December
1-day P_{99}	11.6	10.1	6.1	0.3	8.2
4-day P_{99}	6.4	5.8	3.6	0.1	4.5
30-day P_{99}	3.09	2.96	1.54	0.06	1.88
Mean*	1.74	1.78	0.40	0.02	0.73
Std	2.71	2.28	2.75	0.10	2.56
Sample size	408	150	796	155	305
Range	<0.01 - 13.52	<0.01 - 9.2	<0.01 - 17.89	<0.01 - 0.45	<0.01 - 16.7

However monthly average and daily maximum limits are included in the current permit from November – April. Where there are existing ammonia nitrogen limits in the permit, the limits are recommended to be retained regardless of reasonable potential, consistent with s. NR 106.33(1), Wis. Adm. Code:

> (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Antidegradation:

The calculated weekly and monthly average limits are less restrictive than the limits within the current permit. Without a demonstration of need for a higher limit in accordance with s. NR 207.04 Wis. Adm. Code, the current permit limits should be continued in the reissued permit.

Conclusions and Recommendations:

The current permit limits should be continued in the reissued permit. No mass limitations are recommended in accordance with s. NR 106.32(5). In conclusion, the following ammonia limits for Outfall 051 are recommended.

Month	Daily Maximum mg/L	Monthly Average mg/L
January – March	26	27
April	26	24
November – December	26	31

Limits to comply with expression of limit requirements are outlined in Part 8 of this document.

PART 5 –PHOSPHORUS

Technology Based Effluent Limit (TBL)
Wisconsin Administrative Code, ch. NR 217, requires municipal wastewater treatment facilities that discharge greater than 150 pounds of Total Phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because Green Bay Metropolitan Sewerage District Combined currently has a limit of 1.0 mg/L at both outfalls, this limit should be included in the reissued permit. This limit remains applicable unless a more stringent water quality-based concentration limit is given.

TMDL Implementation
A Total Maximum Daily Load (TMDL) is being implemented for the Lower Fox River Basin for phosphorus and total suspended solids. The TMDL addresses phosphorus and sediment water quality impairments within the basin and provide waste load allocations (WLA) required to meet water quality standards.

Green Bay Metropolitan Sewerage District Combined has been allocated a phosphorus waste load allocation of 22,292 lbs/year as a combined discharge from the De Pere facility (4,943 lbs/year) and Green Bay Facility (17,349 lbs/year) allocations. Phosphorus TMDL Limits are calculated below:

Equivalent Effluent Concentration = 22,292 lbs/year ÷ (365 days/year x 59.2 MGD x 8.34) = 0.123 mg/L

Since the equivalent effluent concentration is below 0.3 mg/L, the TMDL mass limits must be expressed as both a 6-month average and monthly average limit.

6-Month Average TP WQBEL = 22,292 lbs/year ÷ 365 days per year x 1.11 = 68 lbs/day
Monthly Average TP WQBEL = 67.8 lbs/day x 3 = 203 lbs/day
Where:
22,292 lbs/day = the total phosphorus WLA from the LFR TMDL
59.2 MGD = design flow of Green Bay Metropolitan Sewerage District Combined
1.11 = the 6-month average limits multiplier representing a coefficient of effluent variation of 0.6.
3 = the ratio of the monthly average limit to the 6-month average limit taken from the Justification Paper for the expression of total phosphorus WQBELs.

Final TMDL phosphorus limits are expressed as 203 lbs/day as a monthly average and 68 lbs/day as a six-month average.

Effluent Data
The following monitoring data from 07/01/2014 to 07/31/2019 is summarized below:

	Outfall 001	Outfall 051	Combined
	TP – mg/L	TP – mg/L	TP – lbs/day
1-day P_{99}	1.2	1.0	356
4-day P_{99}	0.7	0.5	209

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	Outfall 001	Outfall 051	Combined
	TP – mg/L	TP – mg/L	TP – lbs/day
30-day P_{99}	0.44	0.28	135
Mean	0.33	0.18	102
Std	0.24	0.20	69.8
Sample size	1614	1614	1857
Range	<0.03 - 3.83	<0.03 - 4.1	0 - 1289

Additionally, the estimated total phosphorus (TP) discharge from the combined outfalls is summarized below:

Year	TP Discharged (lbs/year)
2015	32,634
2016	35,671
2017	30,624
2018	33,587

Adaptive Management Interim Limit

Green Bay Metropolitan Sewerage District Combined intends to pursue adaptive management (AM) to comply with the phosphorus water quality based effluent limits. Because this is the first permit term which AM is being pursued, the required interim limit is 0.6 mg/L, expressed as a 6-month average per s. NR 217.18 (3) (e) 1, Wis. Adm. Code. The permittee may be allowed up to five years to meet this interim limit.

Green Bay Metropolitan Sewerage District Combined has shown the ability to meet the required interim limit prior to permit reissuance. **If an adaptive management plan is approved, a six-month average limit of 0.6 mg/L and a monthly average limit of 1.0 mg/L are to be established in the reissued permit.**

PART 6 –THERMAL

New surface water quality standards for temperature took effect on October 1, 2010. These new regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

Thermal Evaluation for Outfall 001

In accordance with s. NR 106.53(2)(b), the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from 07/01/2014 to 07/31/2019.

The table below summarizes the maximum temperatures reported during monitoring from 10/01/2005 to 10/31/2011 at Outfall 001. Due to the increases in effluent flow rates and changes in operation at both GBF and DPF, the monitoring data is not believed to be representative of current effluent temperatures.

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The data previously collected shows that effluent temperatures were at one time near the levels warranting temperature limits, however during the time from 2005 – 2011, effluent flows were significantly lower than present levels. The data is presented below for comparison, and to demonstrate the need to collect representative temperature data.

Month	Highest Monthly Effluent Temperature from 2005 to 2011		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	61	62	76	120
FEB	60	62	88	120
MAR	58	60	73	111
APR	63	66	70	110
MAY	74	76	74	99
JUN	77	79	81	109
JUL	80	81	97	120
AUG	81	82	94	107
SEP	79	81	80	103
OCT	75	77	68	105
NOV	72	76	71	120
DEC	63	66	56	97

In accordance with ch. NR 106.56(12), when representative effluent temperature data is not available at the time of permit reissuance, the proposed permit shall include effluent temperature monitoring (for at least one year), WQBELs for temperature, and a compliance schedule to meet the temperature limits. Pursuant to s. NR 106.5(12)(c), a condition of the permit should be included whereas after sufficient effluent monitoring data is available, if effluent limits are determined as not necessary, effluent limits may not be effective.

At temperatures above ~103°F, conventional biological treatment systems stop functioning properly and experience upsets. There is no indication that this has ever occurred at this treatment system. This information, leads to the conclusion that this discharge is unlikely to exceed an effluent temperature of 103°F or above. Therefore, only calculated temperature limits below 103°F are recommended in the reissued permit. Based on previous monitoring data, it is expected that additional monitoring data may indicate no reasonable potential to exceed the calculated temperature limits.

The following general options are available for a facility to explore potential relief from the temperature limits:

- Effluent monitoring data: Verification or additional effluent monitoring (flow and/or temperature) may be appropriate if there were questions on the representativeness of the current effluent data.
-
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- Dissipative cooling demonstration: Effluent limitations based on sub-lethal criteria may be adjusted based on the potential for heat dissipation from municipal treatment plants (s. NR 106.59(4))
- A variance to the water quality standard: This is typically considered to be the least preferable and most complex option as it requires the evaluation of the other alternatives.

These options are explained in additional detail in the August 15, 2013 Department *Guidance for Implementation of Wisconsin's Thermal Water Quality Standards* http://dnr.wi.gov/topic/surfacewater/documents/ThermalGuidance2edition8152013.pdf

Thermal Evaluation for Outfall 051

In accordance with s. NR 106.53(2)(b), the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from 07/01/2014 - 07/31/2019.

The table below summarizes the temperature limits calculated from reported effluent flow rates from 07/01/2014 - 11/30/2018.

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	No effluent temperature data available		NA	120
FEB			NA	120
MAR			NA	120
APR			NA	120
MAY			115	120
JUN			NA	120
JUL			NA	120
AUG			NA	120
SEP			NA	120
OCT			NA	120
NOV			NA	120
DEC			NA	120

At temperatures above ~103°F, conventional biological treatment systems stop functioning properly and experience upsets. There is no indication that this has ever occurred at this treatment system. This information, leads to the conclusion that this discharge is unlikely to exceed an effluent temperature of 115°F. No limit is recommended to be included in the reissued permit for temperature.

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. The following evaluation is based on procedures in the Department's WET Program Guidance Document (revision #11, dated November 1, 2016).

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC_{50} (Lethal Concentration to 50% of the test organisms) greater than 100% effluent.
- Chronic tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC_{25} (Inhibition Concentration) greater than the instream waste concentration (IWC). The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). **The IWC of 9.1% for Outfall 001 and 8.5% for Outfall 051** shown in the WET Checklist summary below was calculated according to the following equation, as specified in s. NR 106.03(6):

  The IWC for Outfall 001 is 9.1% based on dilution of 10 parts lake water to 1-part effluent, or a factor of 1 in 11 to calculate the IWC.

  $$\text{IWC for Outfall 051 (as \%)} = 8.5\% = Q_e \div \{(1-f)\, Q_e + Q_s\} \times 100$$

  Where:

  Q_e = annual average flow = 10 MGD = 15.473 cfs
  f = fraction of the Q_e withdrawn from the receiving water = 0
  Q_s = ¼ of the 7-Q_{10} = 660 cfs ÷ 4 = 165 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfalls 001 and 051 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone of any other known discharge or standard laboratory water. The specific receiving water location must be specified in the WPDES permit.
- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data. Data which is not believed to be representative of the discharge is not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History Outfall 001

Date Test Initiated[1]	Acute Results LC$_{50}$ % (% survival in 100% effluent)				Chronic Results IC$_{25}$ %				
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Algae (IC$_{50}$%)	Pass or Fail?	Use in RP?
09/04/2018	100	100	Pass	Yes	100	100		Pass	Yes
02/14/2017	100	100	Pass	Yes	100	100		Pass	Yes
05/10/2016	100	100	Pass	Yes	70.6	100		Pass	Yes
07/28/2015	100	100	Pass	Yes	22.8	100		Pass	Yes
10/28/2014	100	100	Pass	Yes	100	100		Pass	Yes

Footnotes:

1. Older WET data before the merging of the Green Bay Facility and De Pere Facility was excluded as Green Bay Facility now routinely accepts influent from the De Pere Facility. Additionally, previous WET tests prior to the establishment of Green Bay Metropolitan Sewerage District Combined Facility indicated minimal toxicity (1 detect in 5/30/2002) at the Green Bay Facility.

- Shown below is a tabulation of all available WET data for Outfall 051. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data. Data which is not believed to be representative of the discharge is not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History Outfall 051

Date Test Initiated[1]	Acute Results LC$_{50}$ % (% survival in 100% effluent)				Chronic Results IC$_{25}$ %					Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Algae (IC$_{50}$%)	Pass or Fail?	Use in RP?	
09/11/2018	100	100	Pass	Yes	100	100		Pass	Yes	
04/18/2017					100	100		Pass	Yes	
03/28/2017					100	100		Pass	Yes	
02/21/2017	100	100	Pass	Yes	100	1.79		Fail	No	2
05/03/2016	100	100	Pass	Yes	100	67.5		Pass	Yes	
11/04/2014	100	100	Pass	Yes	100	100		Pass	Yes	

Footnotes:

1. Older WET data before the merging of the Green Bay Facility and De Pere Facility was excluded as Green Bay Facility now routinely accepts influent from the De Pere Facility. Additionally, previous WET tests prior to the establishment of Green Bay Metropolitan Sewerage District Combined Facility indicated no toxicity at the De Pere Facility in WET tests performed from 2003 – 2006.
2. Results noted as unreliable due to slug load/upset conditions from industrial contributor. Industrial contributor no longer discharges to the De Pere Facility.

- WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

According to s. NR 106.08(6)(d), TUa effluent values are equal to zero whenever toxicity is not detected (i.e. when the LC_{50}, IC_{25} or $IC_{50} \geq 100\%$,).

Acute Reasonable Potential for **Outfall 001 and Outfall 051 = 0** < 1.0, reasonable potential is not shown and a limit is not required.

Chronic Reasonable Potential = [(TUc effluent) (B)(IWC)]

Outfall 001

TUc (maximum) 100/IC25	**B** (multiplication factor from s. NR 106.08(5)(c), Wis. Adm. Code, Table 4)	IWC
100/22.8 = 4.39	3.8 Based on 2 detects	9.1%

[(TUc effluent) (B)(IWC)] = 1.52 > 1.0

Therefore, reasonable potential is shown chronic WET for outfall 001 using the procedures in s. NR 106.08(6) and representative data from 10/28/2014 to 09/04/2018. **A chronic WET limit is recommended for Outfall 001.**

Outfall 051

TUc (maximum) 100/IC25	**B** (multiplication factor from s. NR 106.08(5)(c), Wis. Adm. Code, Table 4)	IWC
100/67.5 = 1.48	6.2 Based on 1 detects	8.5%

[(TUc effluent) (B)(IWC)] = 0.78 < 1.0

Therefore, reasonable potential is not shown for chronic WET at Outfall 051 using the procedures in s. NR 106.08(6) and representative data from 10/28/2014 to 9/4/2018. **No chronic WET limit is recommended for Outfall 051.**

Expression of WET limits
Chronic WET limit = 100/Instream Waste Concentration (IWC) (units are TU_c and the limit is expressed as a monthly average)

The WET Checklist was developed to help DNR staff make recommendations regarding WET limits, monitoring, and other permit conditions. The Checklist steps the user through a series of questions that evaluate the potential for effluent toxicity. The Checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code, and recommends monitoring frequencies based on points accumulated during the Checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. The completed WET Checklist recommendations for this permittee are summarized in the table below. Staff recommendations, based on the WET Checklist and best professional judgment, are provided below the summary table. For guidance related to reasonable potential and the WET Checklist, see Chapter 1.3 of the

Attachment #1

WET Guidance Document: http://dnr.wi.gov/topic/wastewater/WETguidance.html.

WET Checklist Summary for Outfall 001

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	IWC = 9.1 %. **0 Points**
Historical Data	5 tests used to calculate RP = 0. No tests failed. **0 Points**	5 tests used to calculate RP = 1.5. No tests failed. **0 Points**
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. **0 Points**	Same as Acute. **0 Points**
Receiving Water Classification	Full Fish & Aquatic Life **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	Limits for no substances based on ATC 9 substances detected. Additional Compounds of Concern: 2 detected **5 Points**	Limits for no substances based on CTC 9 substances detected. Additional Compounds of Concern: 2 detected **5 Points**
Additives	1 Biocides and 2 Water Quality Conditioners added. SorbX-100 Used: No **5 Points**	All additives used more than once per 4 days. **5 Points**
Discharge Category	14 Industrial Contributors. **15 Points**	Same as Acute. **15 Points**
Wastewater Treatment	Secondary or Better **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known **0 Points**	Same as Acute. **0 Points**
Total Checklist Points:	**30 Points**	**30 Points**
Recommended Monitoring Frequency (from Checklist):	1 x yearly	1 x yearly
Limit Required?	No	Yes Limit = 11.1 TU_c
TRE Recommended? (from Checklist)	No	No

- Following the guidance provided in the Department's WET Program Guidance Document (revision #11, dated November 1, 2016), based upon the point totals generated by the WET Checklist, other information given above, and Chapter 1.3 of the WET Guidance Document, annual acute and chronic WET testing is recommended in the reissued permit for **Outfall 001**. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing shall continue after the permit expiration date (until the permit is reissued).
- According to the requirements specified in s. NR 106.08, Wis. Adm. Code, a chronic WET limit is required for Outfall 001. The chronic WET limit should be expressed as 11.1 TUc as a monthly average in the effluent limits table of the permit.

- A minimum of annual chronic monitoring is required because a chronic WET limit is required. Federal regulations in 40 CFR Part 122.44(i) require that monitoring occur at least once per year when a limit is present.
- A minimum of annual acute and chronic monitoring is recommended because Green Bay Metropolitan Sewerage District Combined is a major municipal discharger with a design flow greater than 1.0 MGD. Federal regulations at 40 CFR Part 122.21(j) require at least 4 acute and chronic WET tests with each permit application on samples collected since the previous reissuance. Therefore, annual monitoring is recommended in the permit term, so that data will be available for the next permit application.

WET Checklist Summary for Outfall 051

	Acute	**Chronic**
AMZ/IWC	Not Applicable. **0 Points**	IWC = 8.5 %. **0 Points**
Historical Data	8 tests used to calculate RP = 0. No tests failed. **0 Points**	10 tests used to calculate RP=0.78. No tests failed. **0 Points**
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. **0 Points**	Same as Acute. **0 Points**
Receiving Water Classification	Full Fish & Aquatic Life **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	Limits for no substances based on ATC; 9 substances detected. Additional Compounds of Concern: 2 compounds detected **5 Points**	Limits for no substances based on CTC; 9 substances detected. Additional Compounds of Concern: 2 compounds detected **5 Points**
Additives	0 Biocides and 1 Water Quality Conditioners added. SorbX-100 Used: No **1 Points**	All additives used more than once per 4 days **1 Points**
Discharge Category	6 Industrial Contributors. **15 Points**	Same as Acute. **15 Points**
Wastewater Treatment	Secondary or Better **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known **0 Points**	Same as Acute. **0 Points**
Total Checklist Points:	**21 Points**	**21 Points**
Recommended Monitoring Frequency (from Checklist):	1 x yearly	1 x yearly
Limit Required?	No	No
TRE Recommended? (from Checklist)	No	No

- Following the guidance provided in the Department's WET Program Guidance Document (revision #11, dated November 1, 2016), based upon the point totals generated by the WET Checklist, other information given above, and Chapter 1.3 of the WET Guidance Document, annual acute and chronic

WET testing is recommended in the reissued permit. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing shall continue after the permit expiration date (until the permit is reissued).

- A minimum of annual acute and chronic monitoring is recommended because Green Bay Metropolitan Sewerage District Combined is a major municipal discharger with a design flow greater than 1.0 MGD. Federal regulations at 40 CFR Part 122.21(j) require at least 4 acute and chronic WET tests with each permit application on samples collected since the previous reissuance. Therefore, annual monitoring is recommended in the permit term, so that data will be available for the next permit application.

PART 8 – EXPRESSION OF LIMITS

Revisions to chs. NR 106 and 205, Wis. Adm. Code align Wisconsin's water quality-based effluent limitations with 40 CFR 122.45(d), which requires WPDES permits contain the following concentration limits, whenever practicable and necessary to protect water quality:

- Weekly average and monthly average limitations for continuous discharges subject to ch. NR 210.
- Daily maximum and monthly average limitations for all other discharges.

Green Bay Metropolitan Sewerage District Combined is a municipal treatment facility and is therefore subject to weekly average and monthly average limitations whenever limitations are determined to be necessary.

This evaluation provides additional limitations necessary to comply with the expression of limits in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code. Pollutants already compliant with these rules or that have an approved impracticability demonstration, are excluded from this evaluation including water-quality based effluent limitations for phosphorus, temperature, and pH, among other parameters. Mass limitations are not subject to the limit expression requirements if concentrations limits are given.

Method for calculation:
The methods for calculating limitations for continuous discharges subject to ch. NR 210 to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(3), and are as follows:

1. Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.
   - For Outfall 001, weekly and monthly average chlorine limits shall be set equal to the daily maximum limit as it is the most stringent applicable limit.
   - For Outfall 051, weekly and monthly average ammonia limits are set equal to daily maximum ammonia limits as ammonia limits based on the chronic toxicity criterion are less stringent than the daily maximum limit.
2. Whenever a monthly average limitation is determined necessary to protect water quality, a weekly average limit shall be calculated using the following procedure and included in the permit unless a more restrictive limit is already determined necessary to protect water quality:

   Weekly Average Limitation = (Monthly Average Limitation x MF)

   Where:

   MF= Multiplication factor as defined in Table 1

   CV= coefficient of variation (CV) as calculated in s. NR 106.07(5m) = 0.6 for fecal coliform

   n= the number of samples per month required in the permit

s. NR 106.07 (3) (e) 4. Table 1 — Multiplication Factor (for CV = 0.6)

CV	n=1	n=2	n=3	n=4	n=8	n=12	n=16	n=20	n=24	n=30
0.6	1.00	1.31	1.51	**1.64**	1.95	2.12	2.23	2.30	2.36	2.43
1.7	1.00	1.32	1.58	1.80	2.45	2.88	3.21	3.47	3.69	**3.95**
2.0	1.00	1.29	1.54	1.74	2.38	2.84	3.19	3.47	3.71	**4.00**

Note: This methodology is based on the *Technical Support Document for Water Quality-based Toxics Control* (March 1991). PB91-127415.

- Weekly average ammonia limits for Outfall 001 calculated from the chronic toxicity criterion are less stringent than those calculated from the monthly average limit multiplied by the multiplication factor for the months of January – April.
- Fecal Coliform weekly average limits are calculated using the default CV of 0.6 and multiplication factor of 1.64.

Summary of Additional Limitations:
In conclusion, the following additional limitations are required to comply with ss. NR 106.07 and NR 205.065(7) Expression of Limits are included in **BOLD.**

Outfall 001

Parameter	Daily Maximum	Weekly Average	Monthly Average	Weekly Geometric Mean	Monthly Geometric Mean	Multiplication Factor (CV)	Assumed Monitoring Frequency (n)
Ammonia Nitrogen							
January – April		**59 mg/L**	15 mg/L			3.95 (1.7)	Daily (30)
May – September		13 mg/L	4.7 mg/L				
October		38 mg/L	14 mg/L				
November – December		**104 mg/L**	26 mg/L			4 (3.85*)	Daily (30)
Chlorine	38 µg/L	**38 µg/L**	**38 µg/L**				
Fecal Coliform				**656 #/100ml**	400 #/100ml	1.64 (0.6)	Weekly (4)

*Maximum multiplication value is 4.0. At CV values greater than 2.0 the multiplication factor decreases. The calculated CV is artificially high due to the inclusion of non-detect results as zeroes per s. NR 106.07(5m)(c). Since the true CV is unknown due to the high number of non-detect results, a multiplication factor of 4 is used in this evaluation. The resulting limit is still more stringent than the applicable weekly average limit based on chronic toxicity criteria (127 mg/L).

Outfall 051

Parameter	Daily Maximum	Weekly Average	Monthly Average	Weekly Geometric Mean	Monthly Geometric Mean	Multiplication Factor (CV)	Assumed Monitoring Frequency (n)
Ammonia Nitrogen							
January – March	26 mg/L	**26 mg/L**	**26 mg/L**				
April	26 mg/L	**26 mg/L**	24 mg/L				
November – December	26 mg/L	**26 mg/L**	**26 mg/L**				
Fecal Coliform				**656 #/100ml**	400 #/100ml	1.64 (0.6)	Weekly (4)

CBOD$_5$ WLA for Outfall 001

TABLE 1 - WASTELOAD ALLOCATED VALUES IN LBS PER DAY OF CBOD$_5$

(River mile 7.3 to 0.0)

MAY

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs)														
	750 OR LESS	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	7439	7439	7439	7439	7439	7439	7439	7439	9882	12967	18576	27844	35420	35420	35420
82 TO 85	7439	7439	7439	7439	7439	7439	7439	8441	10925	13901	19274	28104	35420	35420	35420
78 TO 81	7439	7439	7439	7439	7439	7439	8290	10323	12795	15701	20859	29201	35420	35420	35420
74 TO 77	7439	7439	7439	7439	7439	8479	10304	12514	15106	18071	23212	31330	35420	35420	35420
70 TO 73	7439	7439	7439	7439	8670	10528	12719	15241	18083	21243	26566	34724	35420	35420	35420
66 TO 69	7439	7439	7439	8524	10658	13073	15764	18726	21953	25439	31142	35420	35420	35420	35420
62 TO 65	7439	7439	7700	10354	13236	16342	19663	23198	26941	30885	35420	35420	35420	35420	35420
58 TO 61	7439	7439	9276	12868	16630	20557	24642	28885	33274	35420	35420	35420	35420	35420	35420
54 TO 57	7439	7439	11630	16290	21064	25946	30927	35420	35420	35420	35420	35420	35420	35420	35420
50 TO 53	7439	9186	14988	20849	26767	32731	35420	35420	35420	35420	35420	35420	35420	35420	35420
46 TO 49	7439	12380	19573	26769	33960	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
42 TO 45	10762	16894	25613	34274	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
≤41	15632	22958	33333	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420

TABLE 2 - WASTELOAD ALLOCATED EFFLUENT VALUES IN POUNDS PER DAY OF CBOD$_5$

(River mile 7.3 to 0.0)

JUNE

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs)														
	750 OR LESS	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	13818	12792	11646	10866	10434	10335	10557	11085	11901	12967	18576	27844	35420	35420	35420
82 TO 85	13068	12203	11285	10726	10512	10627	11057	11788	12804	13901	19274	28104	35420	35420	35420
78 TO 81	12057	11465	10929	10748	10901	11375	12158	13234	14585	15701	20859	29201	35420	35420	35420
74 TO 77	11281	10979	10851	11066	11613	12472	13630	15073	16785	18071	23212	31330	35420	35420	35420
70 TO 73	10738	10743	11047	11686	12646	13913	15472	17307	19403	21243	26566	34724	35420	35420	35420
66 TO 69	7439	7439	7439	8524	10658	13073	15764	18726	21953	25439	31142	35420	35420	35420	35420
62 TO 65	7439	7439	7700	10354	13236	16342	19663	23198	26941	30885	35420	35420	35420	35420	35420
58 TO 61	7439	7439	9276	12868	16630	20557	24642	28885	33274	35420	35420	35420	35420	35420	35420
54 TO 57	7439	7439	11630	16290	21064	25946	30927	35420	35420	35420	35420	35420	35420	35420	35420
50 TO 53	7439	9186	14988	20849	26767	32731	35420	35420	35420	35420	35420	35420	35420	35420	35420
46 TO 49	7439	12380	19573	26769	33960	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
42 TO 45	10762	16894	25613	34274	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
≤41	15632	22958	33333	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420

TABLE 3 - WASTELOAD ALLOCATED EFFLUENT VALUES IN POUNDS PER DAY OF $CBOD_5$
(River mile 7.3 to 0.0)

JULY - AUGUST

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs))														
	750 OR LESS	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	13818	12792	11646	10866	10434	10335	10557	11085	11901	12995	15116	18769	25774	35420	35420
82 TO 85	13068	12203	11285	10726	10512	10627	11057	11788	12804	14090	16493	20502	28007	35420	35420
78 TO 81	12057	11465	10929	10748	10901	11375	12158	13234	14585	16201	19083	23703	32066	35420	35420
74 TO 77	11281	10979	10851	11066	11613	12472	13630	15073	16785	18752	22149	27429	35420	35420	35420
70 TO 73	10738	10743	11047	11686	12646	13913	15472	17307	19403	21748	25693	31679	35420	35420	35420
66 TO 69	10432	10759	11517	12604	14005	15703	17684	19934	22439	25184	29715	35420	35420	35420	35420
62 TO 65	10361	11028	12264	13821	15684	17837	20267	22958	25894	29061	34215	35420	35420	35420	35420
≤61	10524	11547	13285	15337	17686	20318	23219	26373	29764	33380	35420	35420	35420	35420	35420

TABLE 4 - WASTELOAD ALLOCATED EFFLUENT VALUES IN POUNDS PER DAY OF $CBOD_5$
(River mile 7.3 to 0.0)

SEPTEMBER - OCTOBER

Temperature (previous day average in °F)	Flow reported by the Lower Fox River Dischargers Association (previous four-day average in cfs)														
	0 TO 750	751 TO 1000	1001 TO 1250	1251 TO 1500	1501 TO 1750	1751 TO 2000	2001 TO 2250	2251 TO 2500	2501 TO 2750	2751 TO 3000	3001 TO 3500	3501 TO 4000	4001 TO 5000	5001 TO 8000	8001 OR MORE
≥86	7439	7439	7439	7439	8811	11224	13833	16613	19550	22620	27439	34151	35420	35420	35420
82 TO 85	7439	7439	7439	7561	9417	11486	13750	16186	18776	21502	25800	31819	35420	35420	35420
78 TO 81	7439	7439	7439	8667	10149	11844	13731	15793	18007	20356	24085	29342	35420	35420	35420
74 TO 77	7439	7547	8392	9486	10811	12347	14078	15979	18031	20219	23705	28635	35420	35420	35420
70 TO 73	7734	8208	9111	10267	11651	13245	15033	16991	19101	21342	24910	29946	35420	35420	35420
66 TO 69	7981	8649	9830	11259	12920	14790	16851	19083	21462	23977	27951	33524	35420	35420	35420
62 TO 65	8104	9118	10792	12717	14868	17229	19781	22500	25370	28373	33076	35420	35420	35420	35420
58 TO 61	8359	9870	12255	14887	17748	20816	24073	27500	31076	34781	35420	35420	35420	35420	35420
54 TO 57	8991	11151	14462	18019	21804	25797	29979	34326	35420	35420	35420	35420	35420	35420	35420
50 TO 53	10255	13215	17668	22368	27295	32427	35420	35420	35420	35420	35420	35420	35420	35420	35420
46 TO 49	12399	16309	22123	28179	34465	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
42 TO 45	15672	20686	28076	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420
≤41	20328	26597	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420	35420

Complete Thermal Table Outfall 001

Temperature limits for receiving waters without unidirectional flow

(calculation using default ambient temperature data)

Facility: GBF
Outfall(s): 001
Date Prepared: 3/26/2019
Design Flow (Qe): 49.2 MGD

Lake Type: Green Bay waters - South
Discharge Type: Great Lakes shore discharge

Maximum area of mixing zone allowed (coefficient "A"): 3,125,000 ft^2
07/31/19

Temp Dates
Start: 10/01/05
End: 10/31/11

Flow Dates
Start: 07/01/14
End: 7/31/2019

Month	Water Quality Criteria			Representative Highest Effluent Flow Rate (Qe)					Representative Highest Monthly Effluent Temperature		**Calculated Effluent Limit**	
	Ta (default)	Sub-Lethal WQC	Acute WQC	7-day Rolling Average (Qesl)	Daily Maximum Flow Rate (Qea)	B	e^{-a} (for SL-WQBEL)	e^{-a} (for A-WQBEL)	Weekly Average	Daily Maximum	**Weekly Average Effluent Limitation**	**Daily Maximum Effluent Limitation**
	(°F)	(°F)	(°F)	(MGD)	(MGD)				(°F)	(°F)	(°F)	(°F)
JAN	35	49	75	39.84	46.52	0.405	0.338	0.395	61	62	76	120
FEB	35	52	75	37.95	39.44	0.405	0.320	0.334	60	62	88	120
MAR	41	54	77	47.60	64.60	0.405	0.403	0.512	58	60	73	111
APR	47	58	79	57.04	63.20	0.405	0.469	0.505	63	66	70	110
MAY	56	64	81	54.02	81.39	0.405	0.449	0.588	74	76	74	99
JUN	66	70	83	39.95	55.28	0.555	0.274	0.393	77	79	81	109
JUL	70	75	83	34.46	40.00	0.667	0.186	0.235	80	81	97	120
AUG	70	75	83	37.00	55.08	0.667	0.209	0.349	81	82	94	107
SEP	65	70	83	47.18	68.82	0.555	0.335	0.472	79	81	80	103
OCT	54	60	80	51.21	64.89	0.405	0.430	0.514	75	77	68	105
NOV	39	49	76	37.16	46.45	0.405	0.312	0.394	72	76	71	120
DEC	37	46	75	55.93	93.94	0.405	0.462	0.631	63	66	56	97

Attachment #3

Complete Thermal Table Outfall 051

Temperature limits for receiving waters with unidirectional flow

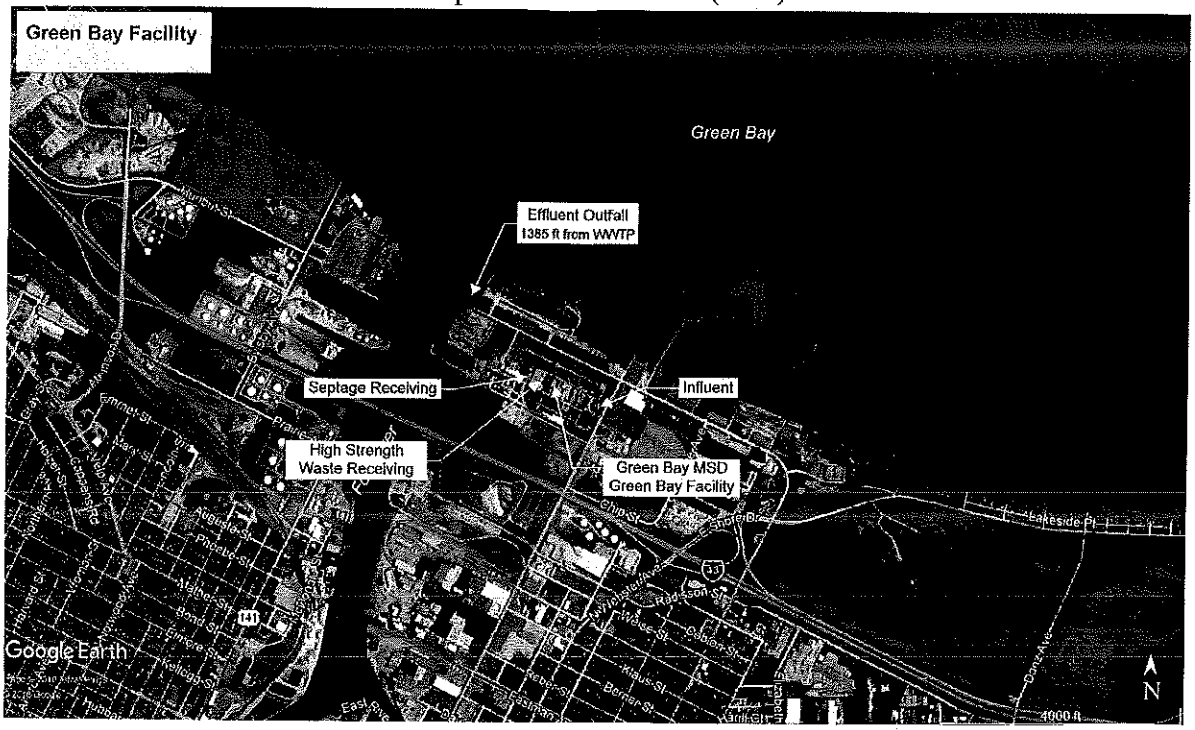
(calculation using default ambient temperature data)

Facility:	DPF	**7-Q10:**	660 cfs	**Temp Dates**	**Flow Dates**
Outfall(s):	051	**Dilution:**	25%	**Start:**	07/01/14
Date Prepared:	08/27/2019	**f:**	0	**End:**	07/31/19
Design Flow (Qe):	10.00 MGD	**Stream type:**	Lower Fox River		
Storm Sewer Dist.	0 ft	**Qs:Qe ratio:**	11 :1		
		Calculation Needed?	YES		

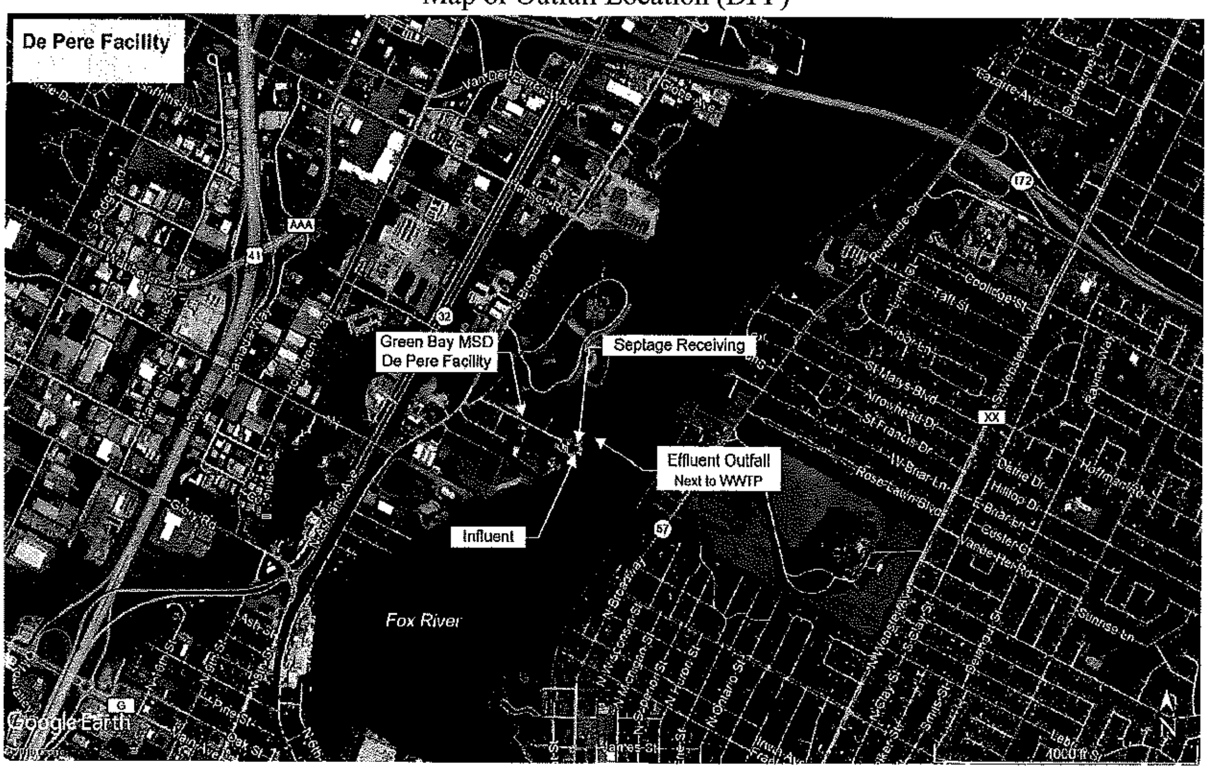
Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)	Representative Highest Effluent Flow Rate (Qe)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Ta (default)	Sub-Lethal WQC	Acute WQC		7-day Rolling Average (Qesl)	Daily Maximum Flow Rate (Qea)		Weekly Average	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(cfs)	(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)
JAN	35	49	76	2481	8.48	9.71	0			NA	120
FEB	35	50	76	1911	9.26	11.02	0			NA	120
MAR	38	52	77	2087	12.89	19.08	0			NA	120
APR	50	55	80	1848	17.41	20.12	0			NA	120
MAY	62	65	83	1510	14.51	19.54	0			115	120
JUN	73	76	85	1445	10.46	13.64	0			NA	120
JUL	77	81	87	1147	8.63	9.52	0			NA	120
AUG	76	80	86	1126	9.93	15.47	0			NA	120
SEP	68	73	85	869	12.01	19.66	0			NA	120
OCT	53	61	80	1055	13.72	18.66	0			NA	120
NOV	42	50	78	1632	8.79	9.84	0			NA	120
DEC	35	49	76	2231	13.20	24.93	0			NA	120

Attachment #4

Map of Outfall Location (GBF)



Map of Outfall Location (DPF)



CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: August 7, 2020

TO: Phillip Spranger – Fitchburg

FROM: Wade Strickland – WY/3

SUBJECT: Addendum to the Water Quality-Based Effluent Limitations for the Green Bay Metropolitan Sewerage District Combined WPDES Permit No. WI-0065251-02

This is in response to your request for a re-evaluation of the water quality-based effluent limitations (WQBELs) for mercury and temperature using Chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Green Bay Metropolitan Sewerage District (GBMSD) combined wastewater treatment facility in Brown County. The limit recommendations in this addendum supersede those in the September 18, 2019 memo titled *Water Quality-Based Effluent Limitations for the Green Bay Metropolitan Sewerage District Combined WPDES Permit No. WI-0065251-02.*

GBMSD owns and operates two regional wastewater treatment facilities, the Green Bay Facility – GBF and the De Pere Facility – DPF which both discharge to the Lower Fox River. Both municipal wastewater treatment facilities (WWTF) are located in the Fox River – Frontal Green Bay Watershed in the Lower Fox River Basin. The limits evaluated in this addendum pertain to only the Green Bay Facility (Outfall 001 in the permit).

Mercury:
The September 18, 2019 WQBEL memo recommended a variance mercury limit of 4.4 ng/L as a daily maximum limit. This value is the 1-day P_{99} of Outfall 001 data from July 2014 to July 2019. GBMSD began using a new solid processing system in fall of 2018. This system is expected to decrease mercury air emissions from solids incineration through use of a wet venturi scrubber, wet electrostatic precipitator (WESP), and granular activated carbon adsorber. The effluent from these scrubbers is directed back to the treatment plant, which has resulted in a recent increase in measured effluent mercury concentrations. Therefore, Outfall 001 mercury data from before this date is not representative of current operations.

The tables below summarize mercury data since September 2018. **Based on this data, a daily maximum mercury limit of 5.5 ng/L is recommended at Outfall 001.** Although this limit is higher than the limit previously recommended for permit reissuance, this is still a decrease from the daily maximum limit of 6.6 ng/L in the current permit.

Sample Date	Mercury ng/L	Sample Date	Mercury ng/L
09/25/2018	1.34	08/28/2019	2.02
10/10/2018	1.56	09/19/2019	1.69
11/01/2018	1.34	10/02/2019	1.04
12/12/2018	2.46	11/14/2019	2.63
01/15/2019	1.98	12/12/2019	2.36
02/12/2019	4.66	01/21/2020	1.79
03/13/2019	3.1	02/12/2020	2.22
04/10/2019	4.06	03/18/2020	2.47
05/15/2019	3.86	04/16/2020	2.42
06/11/2019	1.27	05/13/2020	1.33
07/18/2019	3.65	06/01/2020	2.07

	Mercury ng/L
1-day P_{99}	5.53
4-day P_{99}	3.72
30-day P_{99}	2.78
Mean	2.33
Std	0.99
Sample size	22
Range	1.04 - 4.66

Temperature
The September 18, 2019 WQBEL memo recommended the following temperature limits. At the time, no representative effluent data was available in order to determine reasonable potential. Since biological treatment systems are not expected to discharge effluent over 103°F, only the calculated limits lower than this threshold were recommended to be included in the permit.

Previously Recommended Temperature Limits		
Month	Weekly Average Limit (°F)	Daily Maximum Limit (°F)
January	76	
February	88	
March	73	
April	70	
May	74	99
June	81	
July	97	
August	94	
September	80	103
October	68	
November	71	
December	56	97

Since then, the facility has provided representative effluent temperature data that can be used to determine reasonable potential. Heat recovery associated with the new solids handling system appears to have decreased effluent temperatures overall. Therefore, only effluent data since September 2018 is considered representative and used in this evaluation.

The table below summarizes the maximum temperatures reported for Outfall 001 during monitoring from September 2018 to June 2020. The limits are calculated for a lake discharge to Green Bay-South using actual flow reported from September 2018 to June 2020. The full table is attached at the end of this addendum.

Revised Temperature Limits				
Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	57	59	69	120
FEB	56	57	93	120
MAR	56	57	65	96
APR	57	59	72	107
MAY	64	66	73	96
JUN	69	71	79	117
JUL	75	76	88	106
AUG	75	76	88	104
SEP	75	76	76	99
OCT	69	73	**67**	98
NOV	63	68	63	110
DEC	60	62	**58**	107

Reasonable Potential

Permit limits for temperature are recommended based on the procedures in s. NR 106.56, Wis. Adm. Code.

- An acute limit for temperature is recommended for each month in which the representative daily maximum effluent temperature for that month exceeds the acute WQBEL. The representative daily maximum effluent temperature is the greater of the following:
  - (a) The highest recorded representative daily maximum effluent temperature
  - (b) The projected 99th percentile of all representative daily maximum effluent temperatures
- A sub−lethal limitation for temperature is recommended for each month in which the representative weekly average effluent temperature for that month exceeds the weekly average WQBEL. The representative weekly average effluent temperature is the greater of the following:
  - (a) The highest weekly average effluent temperature for the month.
  - (b) The projected 99th percentile of all representative weekly average effluent temperatures for the month

Comparing the representative highest effluent temperature to the calculated effluent limits determines the reasonable potential of exceeding the effluent limits. The months in which limitations are recommended are highlighted. Based on this analysis, **weekly average temperature limits are necessary for the months of October and December**. Regular effluent temperature monitoring is recommended in the reissued permit to ensure that representative data is available for the next permit reissuance.

Several options for potential relief from temperature limits were provided in the September 18, 2019 WQBEL memo and are repeated here for reference:

- Effluent monitoring data: Verification or additional effluent monitoring (flow and/or temperature) may be appropriate if there were questions on the representativeness of the current effluent data.
- Monthly low receiving water flows: Contract with USGS to generate monthly low flow estimates for the receiving water to be used in place of the annual low flow.

- Mixing zone studies: A demonstration of rapid and complete mixing may allow for the use of a mixing zone other than the default 25%.
- Dissipative cooling demonstration: Effluent limitations based on sub-lethal criteria may be adjusted based on the potential for heat dissipation from municipal treatment plants (s. NR 106.59(4))
- Collection of site-specific ambient temperature: default background temperatures for streams in Wisconsin, so actual data from the direct receiving water may provide for relaxed thermal limits but only if the site-specific temperatures are lower than the small stream defaults used in the above tables
- A variance to the water quality standard: This is typically considered to be the least preferable and most complex option as it requires the evaluation of the other alternatives.

These options are explained in additional detail in the August 15, 2013 Department *Guidance for Implementation of Wisconsin's Thermal Water Quality Standards* http://dnr.wi.gov/topic/surfacewater/documents/ThermalGuidance2edition8152013.pdf

If there are any questions or comments, please contact Rachel Fritz at Rachel.Fritz@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

PREPARED BY: Rachel Fritz Date: 8/7/2020

Rachel Fritz,
Water Resources Engineer

E-cc: Laura Gerold, Wastewater Engineer – Green Bay
Heidi Schmitt-Marquez, Regional Wastewater Supervisor – Green Bay
Diane Figiel, Water Resources Engineer – WY/3

Temperature limits for receiving waters without unidirectional flow

(calculation using default ambient temperature data)

Facility: GBMSD

Outfall(s): 001

Date Prepared: 07/24/2020

Design Flow (Qe): 49.2 MGD

Lake Type: Green Bay waters - South

Discharge Type: Great Lakes shore discharge

Maximum area of mixing zone allowed (coefficient "A"): 3,125,000 ft^2

	Temp Dates	Flow Dates
Start:	09/01/18	09/01/18
End:	06/15/20	06/16/20

Month	Water Quality Criteria			Representative Highest Effluent Flow Rate (Qe)					Representative Highest Monthly Effluent Temperature		**Calculated Effluent Limit**	
	Ta (default) (°F)	Sub-Lethal WQC (°F)	Acute WQC (°F)	7-day Rolling Average (Qesl) (MGD)	Daily Maximum Flow Rate (Qea) (MGD)	B	e^{-a} (for SL-WQBEL)	e^{-a} (for A-WQBEL)	Weekly Average (°F)	Daily Maximum (°F)	**Weekly Average Effluent Limitation (°F)**	**Daily Maximum Effluent Limitation (°F)**
JAN	35	49	75	49.14	52.21	0.405	0.415	0.437	57	59	69	120
FEB	35	52	75	35.34	36.81	0.405	0.294	0.309	56	57	93	120
MAR	41	54	77	68.42	102.75	0.405	0.532	0.657	56	57	65	96
APR	47	58	79	51.44	68.79	0.405	0.432	0.533	57	59	72	107
MAY	56	64	81	55.66	90.26	0.405	0.460	0.619	64	66	73	96
JUN	66	70	83	42.93	47.29	0.555	0.300	0.335	69	71	79	117
JUL	70	75	83	44.52	56.70	0.667	0.272	0.360	75	76	88	106
AUG	70	75	83	44.54	61.20	0.667	0.272	0.388	75	76	88	104
SEP	65	70	83	63.77	79.95	0.555	0.445	0.524	75	76	76	99
OCT	54	60	80	58.67	82.53	0.405	0.479	0.592	69	73	**67**	98
NOV	39	49	76	48.41	65.77	0.405	0.409	0.518	63	68	63	110
DEC	37	46	75	51.32	71.36	0.405	0.431	0.546	60	62	**58**	107

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: March 8, 2021

TO: Phillip Spranger – SCR/Fitchburg

FROM: Wade Strickland – WY/3

SUBJECT: Updated Phosphorus Wasteload Allocations and TMDL Limits for the Green Bay Metropolitan Sewerage District Combined -WPDES Permit No. (WI-0065251-02-0) in Brown County.

This is in response to your request for updated total phosphorus limitations for Green Bay Metropolitan Sewerage District Combined (GBMSD). The wastewater treatment facility (WWTF) discharges to the Lower Fox River in the Fox River – Frontal Green Bay Watershed in the Lower Fox River Basin. The discharges from this facility are included in the Lower Fox River TMDL as approved by EPA.

Green Bay Metropolitan Sewerage District Combined operates two separate regional wastewater treatment facilities, the Green Bay Facility (GBF, Outfall 001) and the De Pere Facility (DPF, Outfall 051), which both discharge to the Lower Fox River Main Stem Sub-Basin of the Lower Fox River Basin TMDL. Due to the merger of the two facilities (GBF and DPF) under the same permit and the fact that both outfalls discharge to the Lower Fox River, the permit will have combined TMDL wasteload allocations for phosphorus and TSS from the two facilities.

GBMSD has entered into a contractual agreement with Green Bay Packaging (GBP) under which GBP has agreed to transfer to GBMSD GBP's Lower Fox River TMDL total phosphorus wasteload allocation (WLA) under GBP's WPDES Permit No. WI-0000973-09-0. This transfer will occur on the date on which GBP ceases direct discharge to the Fox River and the department terminates GBP's WPDES permit. Total phosphorus TMDL compliance will be determined based on the combined WLAs of GBF, DPF and GBP. This WLA transfer will not change GBMSD's TSS WLA under the TMDL. Updated Phosphorus TMDL limits are calculated in this memo to combine the wasteload allocations from the two facilities as well as the WLA transfer from GBP.

Effluent Information

- Flow: Average Design Flow = 49.2 MGD at Outfall 001 and 10 MGD at Outfall 051. Total flow of 59.2 MGD from the two facilities.
- Effluent characterization: This facility is categorized as a major municipality
- Monitoring data: Data submitted by the facility to the department from February 2016 to January 2021 was used in this evaluation
- Total Phosphorus Wasteload Allocation:

  The current WLAs for GBMSD are 17,349 lbs/year for Outfall 001 and 4934 lbs/year for Outfall 051

  The WLA from GBP which will be transferred to GBMSD is 629 lbs/year

  Total Updated WLA for GBMSD (Outfall 001 + Outfall 051 + GBP)

  = 22,921 lbs/year annual allocation.

  = 62.8 lbs/day daily allocation (22,921 lbs/year ÷ 365)

The allocations tables in the TMDL Report will be modified to reflect the transfer of phosphorus WLA from Green Bay Packaging to GBMSD.

TMDL Limits – Phosphorus

Total phosphorus (TP) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs (*May 2020). The wasteload allocations (WLA) found in the *Total Maximum Daily Loads and Watershed Management Plan for Total Phosphorus and Total Suspended Solids in the Lower Fox River Basin and Lower Green Bay* report dated March 2021 are expressed as maximum annual loads (lbs/year) and maximum daily loads (lbs/day). The daily WLAs in the TMDL equals the annual WLA divided by the number of days in the year. Therefore, the daily WLA is an annual average. Since the derivation of daily WLAs from annual WLAs does not take effluent variability or monitoring frequency into consideration, maximum daily WLAs from the TMDL should not be used directly as permit effluent limits.

For the reasons explained in the April 30, 2012 paper entitled *Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin*, WDNR has determined that the phosphorus WQBELs set equal to WLAs would not be consistent with the assumptions and requirements of the TMDL.

Therefore, limits given to continuously discharging facilities covered by the TMDL are given monthly average mass limits. If the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits are also included. The following equation shows the calculation of equivalent effluent concentration:

$$\begin{aligned}\text{TP Equivalent Effluent Concentration} &= \text{Daily WLA} \div (\text{Flow Rate} * \text{Conversion Factor}) \\ &= 62.8 \text{ lbs/day} \div (59.2 \text{ MGD} * 8.34) \\ &= 0.127 \text{ mg/L}\end{aligned}$$

Since this value is less than 0.3 mg/L, both a six-month average mass limit and a monthly average mass limit are applicable for total phosphorus. The monthly average limit is set equal to three times the six-month average limit.

$$\begin{aligned}\text{TP 6-Month Average Permit Limit} &= \text{Daily WLA} * \text{6-monthly average multiplier} \\ &= 62.8 \text{ lbs/day} * 1.11 \\ &= 70 \text{ lbs/day}\end{aligned}$$

$$\begin{aligned}\text{TP Monthly Average Permit Limit} &= \text{TP 6-Month Average Permit Limit} * 3 \\ &= 69.7 \text{ lbs/day} * 3 \\ &= 209 \text{ lbs/day}\end{aligned}$$

The multiplier used in the six-month average calculation was used as recommended in TMDL implementation guidance. A coefficient of variation was calculated, based on phosphorus mass monitoring data, to be 0.68. However, it is believed that the optimization of the wastewater treatment system to achieve the WLA-derived phosphorus permit limits will reduce effluent variability. Thus, the maximum anticipated coefficient of variation expected by any facility is 0.6. This value, along with monitoring frequency, is used to select the multiplier. The current permit specifies phosphorus monitoring as daily; if a different monitoring frequency is used, the stated limits should be reevaluated.

Conclusions:
In summary, the following limits are recommended by this evaluation:

- Monthly average Total Phosphorus mass limit of 209 lbs/day
- 6-month average Total Phosphorus mass limit of 70 lbs/day

If there are any questions or comments, please contact Rachel Fritz at Rachel.Fritz@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

PREPARED BY: Rachel Fritz Date: 3/8/21
Rachel Fritz, Water Resources Engineer

E-cc: Laura Gerold, Basin Engineer – NER/Green Bay
Heidi Schmitt-Marquez – NER/Green Bay

APPENDIX E – Influent Flow Data

E-1: Green Bay Facility

E-2: De Pere Facility

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Influent Flow

Year	Month	Raw Metro (MGD)	Procter & Gamble (MGD)	Fox River Fiber (MGD)	DPF Inf. (LM-P3) to GBF (MGD)	TOTAL INFLUENT (MGD)
2017	January	24.202	3.963	0.566	1.631	30.362
2017	February	22.422	4.488	0.765	0.000	27.676
2017	March	28.988	4.934	0.668	0.009	34.598
2017	April	34.130	4.119	0.696	0.804	39.749
2017	May	31.093	4.280	0.775	1.683	37.831
2017	June	25.346	4.612	0.205	0.005	30.169
2017	July	23.846	4.648	0.000	0.000	28.494
2017	August	22.432	4.047	0.000	0.000	26.479
2017	September	19.107	4.306	0.000	0.000	23.413
2017	October	20.339	4.419	0.000	0.000	24.758
2017	November	19.116	3.833	0.000	0.000	22.948
2017	December	17.939	3.858	0.000	0.000	21.796
2018	January	18.674	3.308	0.000	0.000	21.982
2018	February	18.798	3.625	0.000	0.001	22.424
2018	March	19.767	3.810	0.000	0.000	23.577
2018	April	33.034	3.591	0.000	0.012	36.637
2018	May	32.400	3.788	0.000	0.164	36.352
2018	June	24.215	4.348	0.000	0.152	28.716
2018	July	20.213	4.968	0.000	0.000	25.181
2018	August	21.865	4.411	0.000	0.069	26.345
2018	September	30.538	4.378	0.000	0.323	35.239
2018	October	30.310	3.992	0.000	0.016	34.318
2018	November	23.662	3.576	0.000	0.000	27.237
2018	December	23.038	3.619	0.000	0.000	26.656
2019	January	23.583	3.949	0.000	0.000	27.531
2019	February	20.591	4.871	0.000	0.001	25.462
2019	March	34.216	5.209	0.000	0.299	39.724
2019	April	36.474	4.284	0.000	0.163	40.920
2019	May	35.513	4.819	0.000	0.184	40.516
2019	June	31.288	5.073	0.000	0.000	36.360
2019	July	27.812	5.319	0.000	0.040	33.171
2019	August	27.394	4.868	0.232	0.675	33.168
2019	September	38.689	5.012	0.768	0.500	44.968
2019	October	37.342	4.166	0.678	0.199	42.384
2019	November	32.571	3.596	0.583	1.852	38.601
2019	December	35.330	3.773	0.457	3.029	42.590
2020	January	30.913	4.020	0.436	2.161	37.530
2020	February	24.289	3.893	0.481	0.123	28.786
2020	March	42.416	4.021	0.713	3.008	50.157
2020	April	32.370	3.845	0.495	1.831	38.541
2020	May	36.136	4.474	0.528	0.785	41.923
2020	June	31.584	5.821	0.278	0.109	37.791
2020	July	27.551	4.817	0.313	0.988	33.668
2020	August	22.012	4.765	0.332	0.377	27.486
2020	September	21.027	4.811	0.273	0.012	26.123
2020	October	23.522	4.747	0.334	0.434	29.037
2020	November	24.466	5.006	0.323	0.093	29.886
					AVERAGE	**32.361**

NEW Water
2021 Local Limits Evaluation

DePere Facility
Influent Flow

Year	Month	Metro (MGD)	Fox River Fiber (MGD)	TOTAL FLOW (MGD)
2017	January	6.755	0.092	6.848
2017	February	8.099	0.058	8.157
2017	March	9.857	0.110	9.967
2017	April	9.980	0.070	10.050
2017	May	7.330	0.054	7.383
2017	June	8.809	0.045	8.854
2017	July	8.296	0.000	8.296
2017	August	7.588	0.000	7.588
2017	September	7.000	0.000	7.000
2017	October	7.437	0.000	7.437
2017	November	6.683	0.000	6.683
2017	December	6.821	0.000	6.821
2018	January	7.086	0.000	7.086
2018	February	7.105	0.000	7.105
2018	March	7.617	0.000	7.617
2018	April	11.786	0.000	11.786
2018	May	10.515	0.000	10.515
2018	June	8.300	0.000	8.300
2018	July	7.553	0.000	7.553
2018	August	7.782	0.000	7.782
2018	September	9.267	0.000	9.267
2018	October	9.814	0.000	9.814
2018	November	8.166	0.000	8.166
2018	December	8.260	0.000	8.260
2019	January	8.640	0.000	8.640
2019	February	7.765	0.000	7.765
2019	March	11.111	0.000	11.111
2019	April	11.116	0.000	11.116
2019	May	9.524	0.543	10.068
2019	June	8.284	0.692	8.975
2019	July	7.654	0.637	8.292
2019	August	6.818	0.380	7.198
2019	September	9.744	0.012	9.757
2019	October	9.524	0.017	9.541
2019	November	6.878	0.072	6.950
2019	December	6.031	0.197	6.228
2020	January	5.792	0.190	5.983
2020	February	6.831	0.210	7.041
2020	March	7.859	0.112	7.971
2020	April	6.080	0.125	6.205
2020	May	8.109	0.083	8.192
2020	June	7.786	0.111	7.897
2020	July	6.595	0.201	6.795
2020	August	6.083	0.182	6.265
2020	September	6.421	0.199	6.620
2020	October	6.356	0.097	6.453
2020	November	7.020	0.100	7.120
			AVERAGE	**8.097**

APPENDIX F – Pollutant Removal Efficiencies

F-1: Green Bay Facility

F-2: De Pere Facility

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result		MDL	Units	Sample Date	Effluent Analyte		Result		MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/22/2021	Arsenic		1.4		0.78	ug/L	3/23/2021	Arsenic	<	0.39		0.78	ug/L	73%	73%	73%		
3/23/2021	Arsenic		1.6		0.78	ug/L	3/24/2021	Arsenic	<	0.39		0.78	ug/L	75%	75%			
3/24/2021	Arsenic	<	0.39		0.78	ug/L	3/25/2021	Arsenic	<	0.39		0.78	ug/L	0%				
3/29/2021	Arsenic		0.43		0.78	ug/L	3/30/2021	Arsenic	<	0.39		0.78	ug/L	10%	10%	10%		
3/30/2021	Arsenic		0.53		0.78	ug/L	3/31/2021	Arsenic	<	0.39		0.78	ug/L	27%	27%	27%		
3/31/2021	Arsenic		0.49		0.78	ug/L	4/1/2021	Arsenic		0.64		0.78	ug/L	-30%				
4/1/2021	Arsenic		0.46		0.78	ug/L	4/2/2021	Arsenic	<	0.39		0.78	ug/L	16%	16%	16%		
4/5/2021	Arsenic		0.47		0.78	ug/L	4/6/2021	Arsenic	<	0.39		0.78	ug/L	17%	17%	17%		
4/8/2021	Arsenic		0.41		0.78	ug/L	4/9/2021	Arsenic	<	0.39		0.78	ug/L	4%	4%	4%		
4/14/2021	Arsenic		0.46		0.78	ug/L	4/15/2021	Arsenic	<	0.39		0.78	ug/L	15%	15%	15%		
	Average		0.7					Average		0.415				Average		23%	38%	45%
	Maximum		1.6					Maximum		0.636								
3/22/2021	Beryllium	<	0.048		0.096	ug/L	3/23/2021	Beryllium	<	0.048		0.096	ug/L	0%				
3/23/2021	Beryllium	<	0.048		0.096	ug/L	3/24/2021	Beryllium	<	0.048		0.096	ug/L	0%				
3/24/2021	Beryllium		0.055		0.096	ug/L	3/25/2021	Beryllium	<	0.048		0.096	ug/L	13%	13%	13%		
3/29/2021	Beryllium	<	0.048		0.096	ug/L	3/30/2021	Beryllium	<	0.048		0.096	ug/L	0%				
3/30/2021	Beryllium	<	0.057		0.096	ug/L	3/31/2021	Beryllium	<	0.048		0.096	ug/L	16%	16%	16%		
3/31/2021	Beryllium		0.066		0.096	ug/L	4/1/2021	Beryllium	<	0.048		0.096	ug/L	27%	27%	27%		
4/1/2021	Beryllium	<	0.048		0.096	ug/L	4/2/2021	Beryllium	<	0.048		0.096	ug/L	0%				
4/5/2021	Beryllium	<	0.048		0.096	ug/L	4/6/2021	Beryllium	<	0.048		0.096	ug/L	0%				
4/8/2021	Beryllium		0.055		0.096	ug/L	4/9/2021	Beryllium	<	0.048		0.096	ug/L	13%	13%	13%		
4/14/2021	Beryllium	<	0.048		0.096	ug/L	4/15/2021	Beryllium	<	0.048		0.096	ug/L	0%				
	Average		0.052					Average		0.048				Average		17%	8%	
	Maximum		0.066					Maximum		0.048								
3/22/2021	Cadmium		0.10		0.596	ug/L	3/23/2021	Cadmium		0.01		0.02	ug/L	86%	86%	86%		
3/23/2021	Cadmium		0.10		0.297	ug/L	3/24/2021	Cadmium	<	0.01		0.02	ug/L	90%	90%	90%		
3/24/2021	Cadmium		0.13		0.297	ug/L	3/25/2021	Cadmium		0.02		0.02	ug/L	84%	84%	84%		
3/29/2021	Cadmium		0.11		0.297	ug/L	3/30/2021	Cadmium	<	0.01		0.02	ug/L	91%	91%	91%		
3/30/2021	Cadmium		0.093		0.297	ug/L	3/31/2021	Cadmium		0.03		0.02	ug/L	68%	68%	68%		
3/31/2021	Cadmium		0.11		0.297	ug/L	4/1/2021	Cadmium	<	0.01		0.02	ug/L	91%	91%	91%		
4/1/2021	Cadmium		0.10		0.297	ug/L	4/2/2021	Cadmium		0.02		0.02	ug/L	81%	81%	81%		
4/5/2021	Cadmium		0.066		0.297	ug/L	4/6/2021	Cadmium	<	0.015		0.02	ug/L	77%	77%	77%		
4/8/2021	Cadmium		0.13		0.297	ug/L	4/9/2021	Cadmium	<	0.01		0.02	ug/L	92%	92%	92%		
4/14/2021	Cadmium		0.12		0.297	ug/L	4/15/2021	Cadmium		0.015			ug/L	88%	88%	88%		
	Average		0.11					Average		0.02				Average		85%	85%	67%
	Maximum		0.13					Maximum		0.03								

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	MDL	Units	Sample Date	Effluent Analyte		Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/22/2021	Chromium, Total		8.60	1	ug/L	3/23/2021	Chromium, Total		1.0	1	ug/L	88%	88%	88%		
3/23/2021	Chromium, Total		5.23	1	ug/L	3/24/2021	Chromium, Total	<	0.5	1	ug/L	90%	90%	90%		
3/24/2021	Chromium, Total		5.51	1	ug/L	3/25/2021	Chromium, Total		0.81	1	ug/L	85%	85%	85%		
3/29/2021	Chromium, Total		4.85	1	ug/L	3/30/2021	Chromium, Total	<	0.5	1	ug/L	90%	90%	90%		
3/30/2021	Chromium, Total		4.75	1	ug/L	3/31/2021	Chromium, Total	<	0.5	1	ug/L	89%	89%	89%		
3/31/2021	Chromium, Total		4.71	1	ug/L	4/1/2021	Chromium, Total	<	0.5	1	ug/L	89%	89%	89%		
4/1/2021	Chromium, Total		4.87	1	ug/L	4/2/2021	Chromium, Total	<	0.5	1	ug/L	90%	90%	90%		
4/5/2021	Chromium, Total		3.59	1	ug/L	4/6/2021	Chromium, Total		0.78	1	ug/L	78%	78%	78%		
4/8/2021	Chromium, Total		4.41	1	ug/L	4/9/2021	Chromium, Total		0.81	1	ug/L	82%	82%	82%		
4/14/2021	Chromium, Total		3.89	1	ug/L	4/15/2021	Chromium, Total		2.03	1	ug/L	48%	48%			
	Average		5.04				Average		0.8			Average		87%	84%	82%
	Maximum		8.60				Maximum		2.0							
3/29/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	3/30/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	0%				
3/30/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	3/31/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	0%				
3/31/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	4/1/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	0%				
4/1/2021	Chromium Hexavalent		0.007	0.002	mg/L	4/2/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	85%	85%	85%		
4/5/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	4/6/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	2%	2%			
4/6/2021	Chromium Hexavalent	<	0.002	0.004	mg/L	4/7/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	50%	50%			
4/7/2021	Chromium Hexavalent	<	0.002	0.004	mg/L	4/8/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	50%	50%			
4/8/2021	Chromium Hexavalent		0.002	0.002	mg/L	4/9/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	45%	45%	45%		
4/14/2021	Chromium Hexavalent		0.006	0.002	mg/L	4/15/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	83%	83%	83%		
4/15/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	4/16/2021	Chromium Hexavalent	<	0.001	0.002	mg/L	0%				
	Average		0.002				Average		0.001			Average		71%	57%	81%
	Maximum		0.007				Maximum		0.001							
3/22/2021	Copper		73.8	0.745	ug/L	3/23/2021	Copper		11.9	0.745	ug/L	84%	84%	84%		
3/23/2021	Copper		63.2	0.775	ug/L	3/24/2021	Copper		8.74	0.775	ug/L	86%	86%	86%		
3/24/2021	Copper		63.3	0.775	ug/L	3/25/2021	Copper		12.2	0.775	ug/L	81%	81%	81%		
3/29/2021	Copper		61.7	0.775	ug/L	3/30/2021	Copper		17.6	0.775	ug/L	71%	71%			
3/30/2021	Copper		95.8	0.775	ug/L	3/31/2021	Copper		13.2	0.775	ug/L	86%	86%	86%		
3/31/2021	Copper		77.0	0.775	ug/L	4/1/2021	Copper		11.6	0.775	ug/L	85%	85%	85%		
4/1/2021	Copper		78.6	0.775	ug/L	4/2/2021	Copper		10.5	0.775	ug/L	87%	87%	87%		
4/5/2021	Copper		141	0.775	ug/L	4/6/2021	Copper		12.4	0.775	ug/L	91%	91%	91%		
4/8/2021	Copper		74.1	0.775	ug/L	4/9/2021	Copper		8.97	0.775	ug/L	88%	88%	88%		
4/14/2021	Copper		60.8	0.775	ug/L	4/15/2021	Copper		12.8	0.775	ug/L	79%	79%	79%		
	Average		79				Average		12.0			Average		85%	85%	86%
	Maximum		141				Maximum		17.6							

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Sample Date	Influent Analyte		Result	MDL	Units	Sample Date	Effluent Analyte		Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/22/2021	Cyanide	<	0.007	0.014	mg/L	3/23/2021	Cyanide	<	0.007	0.014	mg/L	0%				
3/23/2021	Cyanide		0.007	0.014	mg/L	3/24/2021	Cyanide	<	0.007	0.014	mg/L	0%				
3/24/2021	Cyanide	<	0.007	0.014	mg/L	3/25/2021	Cyanide	<	0.007	0.014	mg/L	0%				
3/25/2021	Cyanide	<	0.007	0.014	mg/L	3/26/2021	Cyanide	<	0.007	0.014	mg/L	0%				
3/29/2021	Cyanide		0.007	0.014	mg/L	3/30/2021	Cyanide	<	0.007	0.014	mg/L	0%				
3/30/2021	Cyanide	<	0.007	0.014	mg/L	3/31/2021	Cyanide	<	0.007	0.014	mg/L	0%				
3/31/2021	Cyanide		0.007	0.014	mg/L	4/1/2021	Cyanide	<	0.007	0.014	mg/L	0%				
4/1/2021	Cyanide		0.007	0.014	mg/L	4/2/2021	Cyanide	<	0.007	0.014	mg/L	0%				
4/5/2021	Cyanide	<	0.007	0.014	mg/L	4/6/2021	Cyanide	<	0.007	0.014	mg/L	0%				
4/6/2021	Cyanide	<	0.007	0.014	mg/L	4/7/2021	Cyanide	<	0.007	0.014	mg/L	0%				
4/7/2021	Cyanide	<	0.007	0.014	mg/L	4/8/2021	Cyanide	<	0.007	0.014	mg/L	0%				
4/8/2021	Cyanide		0.007	0.014	mg/L	4/9/2021	Cyanide	<	0.007	0.014	mg/L	0%				
	Average		0.007				Average		0.007			Average			0%	69%
	Maximum		0.007				Maximum		0.007							
3/22/2021	Lead		1.1		ug/L	3/23/2021	Lead		0.17		ug/L	85%	85%	85%		
3/23/2021	Lead		1.1		ug/L	3/24/2021	Lead		0.18		ug/L	84%	84%	84%		
3/24/2021	Lead		1.4		ug/L	3/25/2021	Lead		0.25		ug/L	83%	83%	83%		
3/29/2021	Lead		1.2		ug/L	3/30/2021	Lead		0.15		ug/L	87%	87%	87%		
3/30/2021	Lead		1.2		ug/L	3/31/2021	Lead		0.50		ug/L	58%	58%			
3/31/2021	Lead		1.47		ug/L	4/1/2021	Lead		0.19		ug/L	87%	87%	87%		
4/1/2021	Lead		1.3		ug/L	4/2/2021	Lead		0.17		ug/L	87%	87%	87%		
4/5/2021	Lead		1.3		ug/L	4/6/2021	Lead		0.12		ug/L	91%	91%	91%		
4/8/2021	Lead		1.8		ug/L	4/9/2021	Lead		0.29		ug/L	84%	84%	84%		
4/14/2021	Lead		1.44		ug/L	4/15/2021	Lead		0.27		ug/L	81%	81%	81%		
	Average		1.35				Average		0.23			Average		85%	83%	61%
	Maximum		1.85				Maximum		0.50							
3/22/2021	Manganese		110	1.993	ug/L	3/23/2021	Manganese		86.7		ug/L	21%	21%	21%		
3/23/2021	Manganese		99.3	1.993	ug/L	3/24/2021	Manganese		86.3		ug/L	13%	13%	13%		
3/24/2021	Manganese		98.6	1.993	ug/L	3/25/2021	Manganese		91.1		ug/L	8%	8%	8%		
3/29/2021	Manganese		97.5	1.993	ug/L	3/30/2021	Manganese		86.6		ug/L	11%	11%	11%		
3/30/2021	Manganese		106	1.993	ug/L	3/31/2021	Manganese		91.0		ug/L	14%	14%	14%		
3/31/2021	Manganese		114	1.993	ug/L	4/1/2021	Manganese		94.2		ug/L	18%	18%	18%		
4/1/2021	Manganese		122	1.993	ug/L	4/2/2021	Manganese		86.5		ug/L	29%	29%	29%		
4/5/2021	Manganese		113	1.993	ug/L	4/6/2021	Manganese		104		ug/L	7%	7%	7%		
4/8/2021	Manganese		123	1.993	ug/L	4/9/2021	Manganese		113		ug/L	8%	8%	8%		
4/14/2021	Manganese		99.5	1.993	ug/L	4/15/2021	Manganese		208		ug/L	-109%				
	Average		108				Average		105			Average		14%	3%	
	Maximum		123				Maximum		208							

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3/22/2021	Mercruy	2.20	0.041	ng/L	3/23/2021	Mercury	1.71		ng/L	22%	22%			
3/23/2021	Mercruy	1.60	0.041	ng/L	3/24/2021	Mercury	1.24		ng/L	23%	23%			
3/24/2021	Mercruy	6.12	0.041	ng/L	3/25/2021	Mercury	2.2		ng/L	63%	63%	63%		
3/25/2021	Mercruy	10.4	0.041	ng/L	3/26/2021	Mercury	2.07		ng/L	80%	80%	80%		
3/29/2021	Mercruy	4.56	0.041	ng/L	3/30/2021	Mercury	1.78		ng/L	61%	61%	61%		
3/30/2021	Mercruy	7.1	0.041	ng/L	3/31/2021	Mercury	0.90		ng/L	87%	87%	87%		
3/31/2021	Mercruy	11.4	0.041	ng/L	4/1/2021	Mercury	1.9		ng/L	83%	83%	83%		
4/1/2021	Mercruy	8.14	0.041	ng/L	4/2/2021	Mercury	1.5		ng/L	82%	82%	82%		
4/5/2021	Mercruy	28.8	0.041	ng/L	4/6/2021	Mercury	1.69		ng/L	94%	94%	94%		
4/6/2021	Mercruy	7.46	0.041	ng/L	4/7/2021	Mercury	1.36		ng/L	82%	82%	82%		
4/7/2021	Mercruy	10.4	0.041	ng/L	4/8/2021	Mercury	1.86		ng/L	82%	82%	82%		
4/8/2021	Mercruy	9.20	0.041	ng/L	4/9/2021	Mercury	1.74		ng/L	81%	81%	81%		
	Average	**8.94**				**Average**	**1.67**			**Average**		**80%**	**81%**	
	Maximum	**28.8**				**Maximum**	**2.24**							
3/22/2021	Molybdenum	11.9		ug/L	3/23/2021	Molybdenum	9.9		ug/L	16%	16%	16%		
3/23/2021	Molybdenum	11.2		ug/L	3/24/2021	Molybdenum	10.1		ug/L	10%	10%	10%		
3/24/2021	Molybdenum	9.44		ug/L	3/25/2021	Molybdenum	9.58		ug/L	-1%				
3/29/2021	Molybdenum	6.9		ug/L	3/30/2021	Molybdenum	7.77		ug/L	-13%				
3/30/2021	Molybdenum	6.95		ug/L	3/31/2021	Molybdenum	7.48		ug/L	-8%				
3/31/2021	Molybdenum	11.9		ug/L	4/1/2021	Molybdenum	10.4		ug/L	13%	13%	13%		
4/1/2021	Molybdenum	11.9		ug/L	4/2/2021	Molybdenum	10.1		ug/L	15%	15%	15%		
4/5/2021	Molybdenum	14.4		ug/L	4/6/2021	Molybdenum	12.4		ug/L	14%	14%	14%		
4/8/2021	Molybdenum	15.6		ug/L	4/9/2021	Molybdenum	16.0		ug/L	-3%				
4/14/2021	Molybdenum	12.7		ug/L	4/15/2021	Molybdenum	11.5		ug/L	9%	9%	9%		
	Average	**11.3**				**Average**	**10.53**			**Average**		**13%**	**7%**	
	Maximum	**15.6**				**Maximum**	**16.0**							
3/22/2021	Nickel	8.92		ug/L	3/23/2021	Nickel	10.3		ug/L	-16%				
3/23/2021	Nickel	7.40		ug/L	3/24/2021	Nickel	8.54		ug/L	-15%				
3/24/2021	Nickel	6.87		ug/L	3/25/2021	Nickel	7.22		ug/L	-5%				
3/29/2021	Nickel	9.91		ug/L	3/30/2021	Nickel	8.07		ug/L	18%	18%	18%		
3/30/2021	Nickel	8.37		ug/L	3/31/2021	Nickel	6.68		ug/L	20%	20%	20%		
3/31/2021	Nickel	6.46		ug/L	4/1/2021	Nickel	6.43		ug/L	0.4%	0.4%			
4/1/2021	Nickel	5.89		ug/L	4/2/2021	Nickel	5.12		ug/L	13%	13%	13%		
4/5/2021	Nickel	10.6		ug/L	4/6/2021	Nickel	40.7		ug/L	-284%				
4/8/2021	Nickel	6.35		ug/L	4/9/2021	Nickel	17.0		ug/L	-167%				
4/14/2021	Nickel	5.63		ug/L	4/15/2021	Nickel	7.40		ug/L	-31%				
	Average	**7.6**				**Average**	**11.7**			**Average**		**17%**	**-54%**	**42%**
	Maximum	**10.6**				**Maximum**	**40.7**							

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Sample Date	Influent Analyte		Result		MDL	Units	Sample Date	Effluent Analyte		Result		MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/22/2021	Phosphorus		4.91			mg/L	3/23/2021	Phosphorus		0.51			mg/L	90%	90%	90%		
3/23/2021	Phosphorus		4.58			mg/L	3/24/2021	Phosphorus		0.364			mg/L	92%	92%	92%		
3/24/2021	Phosphorus		3.81			mg/L	3/25/2021	Phosphorus		0.353			mg/L	91%	91%	91%		
3/25/2021	Phosphorus		4.27			mg/L	3/26/2021	Phosphorus		0.42			mg/L	90%	90%	90%		
3/29/2021	Phosphorus		4.19			mg/L	3/30/2021	Phosphorus		0.392			mg/L	91%	91%	91%		
3/30/2021	Phosphorus		4.47			mg/L	3/31/2021	Phosphorus		0.361			mg/L	92%	92%	92%		
3/31/2021	Phosphorus		4.83			mg/L	4/1/2021	Phosphorus		0.276			mg/L	94%	94%	94%		
4/1/2021	Phosphorus		4.51			mg/L	4/2/2021	Phosphorus		0.382			mg/L	92%	92%	92%		
4/5/2021	Phosphorus		3.89			mg/L	4/6/2021	Phosphorus		0.502			mg/L	87%	87%	87%		
4/6/2021	Phosphorus		3.86			mg/L	4/7/2021	Phosphorus		0.484			mg/L	87%	87%	87%		
4/8/2021	Phosphorus		4.65			mg/L	4/9/2021	Phosphorus		0.282			mg/L	94%	94%	94%		
	Average		4.36					Average		0.39				Average		91%	91%	
	Maximum		4.91					Maximum		0.51								
3/22/2021	Selenium	<	1.0		2	ug/L	3/23/2021	Selenium	<	1.0		2	ug/L	0%				
3/23/2021	Selenium		1.4		2	ug/L	3/24/2021	Selenium		1.6		2	ug/L	-10%				
3/24/2021	Selenium	<	1.0		2	ug/L	3/25/2021	Selenium	<	1.0		2	ug/L	0%				
3/29/2021	Selenium	<	1.0		2	ug/L	3/30/2021	Selenium	<	1.0		2	ug/L	0%				
3/30/2021	Selenium	<	1.0		2	ug/L	3/31/2021	Selenium	<	1.0		2	ug/L	0%				
3/31/2021	Selenium	<	1.0		2	ug/L	4/1/2021	Selenium	<	1.0		2	ug/L	0%				
4/1/2021	Selenium	<	1.0		2	ug/L	4/2/2021	Selenium	<	1.0		2	ug/L	0%				
4/5/2021	Selenium	<	1.0		2	ug/L	4/6/2021	Selenium	<	1.0		2	ug/L	0%				
4/8/2021	Selenium	<	1.0		2	ug/L	4/9/2021	Selenium	<	1.0		2	ug/L	0%				
4/14/2021	Selenium	<	1.0		2	ug/L	4/15/2021	Selenium	<	1.0		2	ug/L	0%				
	Average		1.0					Average		1.055				Average				50%
	Maximum		1.4					Maximum		1.551								
3/22/2021	Silver	<	0.191		0.382	ug/L	3/23/2021	Silver	<	0.191		0.382	ug/L	0%				
3/23/2021	Silver	<	0.191		0.382	ug/L	3/24/2021	Silver	<	0.191		0.382	ug/L	0%				
3/24/2021	Silver	<	0.191		0.382	ug/L	3/25/2021	Silver	<	0.191		0.382	ug/L	0%				
3/29/2021	Silver	<	0.191		0.382	ug/L	3/30/2021	Silver	<	0.191		0.382	ug/L	0%				
3/30/2021	Silver	<	0.191		0.382	ug/L	3/31/2021	Silver	<	0.191		0.382	ug/L	0%				
3/31/2021	Silver	<	0.191		0.382	ug/L	4/1/2021	Silver	<	0.191		0.382	ug/L	0%				
4/1/2021	Silver	<	0.191		0.382	ug/L	4/2/2021	Silver	<	0.191		0.382	ug/L	0%				
4/5/2021	Silver	<	0.191		0.382	ug/L	4/6/2021	Silver	<	0.191		0.382	ug/L	0%				
4/8/2021	Silver	<	0.191		0.382	ug/L	4/9/2021	Silver	<	0.191		0.382	ug/L	0%				
4/14/2021	Silver	<	0.191		0.382	ug/L	4/15/2021	Silver	<	0.191		0.382	ug/L	0%				
	Average		0.191					Average		0.191				Average			0%	75%
	Maximum		0.191					Maximum		0.191								

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3/22/2021	Zinc		94.9		ug/L	3/23/2021	Zinc		67.4		ug/L	29%	29%	29%		
3/23/2021	Zinc		87.4		ug/L	3/24/2021	Zinc		53.0		ug/L	39%	39%	39%		
3/24/2021	Zinc		81.6		ug/L	3/25/2021	Zinc		84.7		ug/L	-4%				
3/29/2021	Zinc		65.6		ug/L	3/30/2021	Zinc		50.4		ug/L	23%	23%	23%		
3/30/2021	Zinc		68.3		ug/L	3/31/2021	Zinc		55.0		ug/L	20%	20%	20%		
3/31/2021	Zinc		62.6		ug/L	4/1/2021	Zinc		65.5		ug/L	-5%				
4/1/2021	Zinc		64.6		ug/L	4/2/2021	Zinc		61.4		ug/L	5%	5%	5%		
4/5/2021	Zinc		56.3		ug/L	4/6/2021	Zinc		52.1		ug/L	7%	7%	7%		
4/8/2021	Zinc		75.8		ug/L	4/9/2021	Zinc		54.5		ug/L	28%	28%	28%		
4/14/2021	Zinc		60.9		ug/L	4/15/2021	Zinc		66.4		ug/L	-9%				
	Average		72				Average		61.0			Average		22%	15%	79%
	Maximum		95				Maximum		84.7							
3/22/2021	Acrylonitrile	<	9		ug/l	3/23/2021	Acrylonitrile	<	5		ug/l	41%	41%	41%		
3/23/2021	Acrylonitrile	<	9		ug/l	3/24/2021	Acrylonitrile	<	5		ug/l	43%	43%	43%		
3/24/2021	Acrylonitrile	<	9		ug/l	3/25/2021	Acrylonitrile	<	5		ug/l	45%	45%	45%		
3/25/2021	Acrylonitrile	<	9		ug/l	3/26/2021	Acrylonitrile	<	5		ug/l	44%	44%	44%		
3/29/2021	Acrylonitrile	<	10		ug/l	3/30/2021	Acrylonitrile	<	9.5		ug/l	0%				
3/30/2021	Acrylonitrile	<	10		ug/l	3/31/2021	Acrylonitrile	<	9.5		ug/l	5%	5%	5%		
3/31/2021	Acrylonitrile	<	10		ug/l	4/1/2021	Acrylonitrile	<	9.5		ug/l	7%	7%	7%		
4/1/2021	Acrylonitrile	<	12		ug/l	4/2/2021	Acrylonitrile	<	9.5		ug/l	20%	20%	20%		
4/5/2021	Acrylonitrile	<	10		ug/l	4/6/2021	Acrylonitrile	<	9.5		ug/l	7%	7%	7%		
4/6/2021	Acrylonitrile	<	11		ug/l	4/7/2021	Acrylonitrile	<	9.5		ug/l	17%	17%	17%		
4/7/2021	Acrylonitrile	<	12		ug/l	4/8/2021	Acrylonitrile	<	9.5		ug/l	21%	21%	21%		
4/8/2021	Acrylonitrile	<	17		ug/l	4/9/2021	Acrylonitrile	<	9.5		ug/l	43%	43%	43%		
	Average		11				Average		8.1			Average		27%	25%	
	Maximum		17				Maximum		9.5							
3/22/2021	BOD		274		mg/L	3/23/2021	BOD		3.6		mg/L	99%	99%	99%		
3/23/2021	BOD		180		mg/l	3/24/2021	BOD		3.3		mg/L	98%	98%	98%		
3/24/2021	BOD		202		mg/L	3/25/2021	BOD		3.9		mg/L	98%	98%	98%		
3/29/2021	BOD		176		mg/L	3/30/2021	BOD		3.2		mg/L	98%	98%	98%		
3/30/2021	BOD		186		mg/L	3/31/2021	BOD		3.5		mg/L	98%	98%	98%		
3/31/2021	BOD		173		mg/l	4/1/2021	BOD		4.2		mg/L	98%	98%	98%		
4/1/2021	BOD		272		mg/L	4/2/2021	BOD		4.0		mg/L	99%	99%	99%		
4/5/2021	BOD		231		mg/L	4/6/2021	BOD		1.5		mg/L	99%	99%			
4/8/2021	BOD		205		mg/L	4/9/2021	BOD		4.2		mg/L	98%	98%	98%		
	Average		211				Average		3.5			Average		98%	98%	79%
	Maximum		274				Maximum		4.2							

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result		MDL	Units		Sample Date	Effluent Analyte		Result		MDL	Units		Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/22/2021	TSS		347			mg/L		3/23/2021	TSS		7.3			mg/L		98%	98%	98%		
3/23/2021	TSS		86			mg/L		3/24/2021	TSS		6.9			mg/L		92%	92%	92%		
3/24/2021	TSS		88			mg/L		3/25/2021	TSS		7.1			mg/L		92%	92%	92%		
3/29/2021	TSS		232			mg/L		3/30/2021	TSS		6.5			mg/L		97%	97%	97%		
3/30/2021	TSS		108			mg/L		3/31/2021	TSS		7.4			mg/L		93%	93%	93%		
3/31/2021	TSS		74			mg/l		4/1/2021	TSS		8.6			mg/L		88%	88%	88%		
4/1/2021	TSS		171			mg/L		4/2/2021	TSS		8.6			mg/L		95%	95%	95%		
4/5/2021	TSS		97			mg/L		4/6/2021	TSS		7.4			mg/L		92%	92%	92%		
4/8/2021	TSS		222			mg/L		4/9/2021	TSS		7.4			mg/L		97%	97%	97%		
4/14/2021	TSS							4/15/2021	TSS		12.4			mg/L						
	Average		158						Average		8					Average		94%	95%	79%
	Maximum		347						Maximum		12									

NEW Water
2021 Local Limits Evaluation

DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/29/2021	Arsenic			0.46	0.78	ug/L	3/31/2021	Arsenic	<	0.78	0.39	0.78	ug/L	15%	15%	15%		
3/30/2021	Arsenic			0.47	0.78	ug/L	4/1/2021	Arsenic	<	0.78	0.39	0.78	ug/L	17%	17%	17%		
3/31/2021	Arsenic		0.87	0.87	0.78	ug/L	4/2/2021	Arsenic	<	0.78	0.39	0.78	ug/L	55%	55%	55%		
4/5/2021	Arsenic	<		0.39	0.78	ug/L	4/7/2021	Arsenic	<	0.78	0.39	0.78	ug/L	0%				
4/6/2021	Arsenic	<		0.39	0.78	ug/L	4/8/2021	Arsenic	<	0.78	0.39	0.78	ug/L	0%				
4/7/2021	Arsenic		0.93	0.93	0.78	ug/L	4/9/2021	Arsenic	<	0.78	0.39	0.78	ug/L	58%	58%	58%		
4/12/2021	Arsenic			0.42	0.78	ug/L	4/14/2021	Arsenic	<	0.78	0.39	0.78	ug/L	7%	7%	7%		
4/14/2021	Arsenic		1.0	1.0	0.78	ug/L	4/16/2021	Arsenic	<	0.78	0.39	0.78	ug/L	61%	61%	61%		
4/19/2021	Arsenic	<		0.39	0.78	ug/L	4/21/2021	Arsenic	<	0.78	0.39	0.78	ug/L	0%				
4/20/2021	Arsenic		0.42	0.42	0.78	ug/L	4/22/2021	Arsenic	<	0.78	0.39	0.78	ug/L	8%	8%	8%		
4/21/2021	Arsenic		0.45	0.45	0.78	ug/L	4/23/2021	Arsenic	<	0.78	0.39	0.78	ug/L	14%	14%	14%		
4/26/2021	Arsenic	<		0.39	0.78	ug/L	4/28/2021	Arsenic	<	0.78	0.39	0.78	ug/L	0%				
4/27/2021	Arsenic	<		0.39	0.78	ug/L	4/29/2021	Arsenic	<	0.78	0.39	0.78	ug/L	0%				
4/28/2021	Arsenic		0.45	0.45	0.78	ug/L	4/30/2021	Arsenic	<	0.78	0.39	0.78	ug/L	13%	13%	13%		
	Average			**1.65**				**Average**			**1.58**			**Average**		**27%**	**4%**	**45%**
	Maximum			**2.864**				**Maximum**			**2.864**							
7/30/2018	Beryllium	<	0.035	0.018	0.035	ug/L	8/1/2018	Beryllium	<	0.035	0.018	0.035	ug/L	0%				
7/31/2018	Beryllium		0.079	0.079	0.035	ug/L	8/2/2018	Beryllium	<	0.035	0.018	0.035	ug/L	78%	78%	78%		
8/1/2018	Beryllium	<	0.035	0.018	0.035	ug/L	8/3/2018	Beryllium	<	0.035	0.018	0.035	ug/L	0%				
8/2/2018	Beryllium	<	0.035	0.018	0.035	ug/L	8/4/2018	Beryllium	<	0.035	0.018	0.035	ug/L	0%				
8/3/2018	Beryllium	<	0.035	0.018	0.035	ug/L	8/5/2018	Beryllium	<	0.035	0.018	0.035	ug/L	0%				
8/4/2018	Beryllium	<	0.035	0.018	0.035	ug/L	8/6/2018	Beryllium	<	0.035	0.018	0.035	ug/L	0%				
8/5/2018	Beryllium	<	0.035	0.018	0.035	ug/L	8/7/2018	Beryllium	<	0.035	0.018	0.035	ug/L	0%				
8/6/2018	Beryllium		0.061	0.061	0.035	ug/L	8/8/2018	Beryllium	<	0.035	0.018	0.035	ug/L	71%	71%	71%		
8/7/2018	Beryllium		0.057	0.057	0.035	ug/L	8/9/2018	Beryllium	<	0.035	0.018	0.035	ug/L	69%	69%	69%		
8/8/2018	Beryllium		0.056	0.056	0.035	ug/L	8/10/2018	Beryllium	<	0.035	0.018	0.035	ug/L	69%	69%	69%		
8/9/2018	Beryllium		0.038	0.038	0.035	ug/L	8/11/2018	Beryllium	<	0.035	0.018	0.035	ug/L	54%	54%	54%		
8/10/2018	Beryllium		0.038	0.038	0.035	ug/L	8/12/2018	Beryllium		0.036	0.018	0.035	ug/L	53%	53%	53%		
8/11/2018	Beryllium	<	0.035	0.035	0.035	ug/L	8/13/2018	Beryllium	<	0.035	0.018	0.035	ug/L	50%	50%	50%		
3/29/2021	Beryllium	<	0.096	0.048	0.096	ug/L	3/31/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
3/30/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/1/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
3/31/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/2/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/5/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/7/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/6/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/8/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/7/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/9/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/12/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/14/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/14/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/16/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/19/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/21/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/20/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/22/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/21/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/23/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/26/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/28/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/27/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/29/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
4/28/2021	Beryllium	<	0.096	0.048	0.096	ug/L	4/30/2021	Beryllium	<	0.096	0.048	0.096	ug/L	0%				
	Average			**0.042**				**Average**			**0.033**			**Average**		**63%**	**21%**	
	Maximum			**0.079**				**Maximum**			**0.048**							

NEW Water
2021 Local Limits Evaluation

DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/29/2021	Cadmium		0.14	0.14	0.02	ug/L	3/31/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
3/30/2021	Cadmium		0.14	0.14	0.02	ug/L	4/1/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
3/31/2021	Cadmium		0.15	0.15	0.02	ug/L	4/2/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
4/5/2021	Cadmium		0.19	0.19	0.02	ug/L	4/7/2021	Cadmium	<	0.02	0.01	0.02	ug/L	95%	95%	95%		
4/6/2021	Cadmium		0.13	0.13	0.02	ug/L	4/8/2021	Cadmium	<	0.02	0.01	0.02	ug/L	92%	92%	92%		
4/7/2021	Cadmium		0.16	0.16	0.02	ug/L	4/9/2021	Cadmium		0.14	0.14	0.02	ug/L	13%	13%			
4/12/2021	Cadmium		0.18	0.18	0.02	ug/L	4/14/2021	Cadmium	<	0.02	0.01	0.02	ug/L	94%	94%	94%		
4/14/2021	Cadmium		0.13	0.13	0.02	ug/L	4/16/2021	Cadmium	<	0.02	0.01	0.02	ug/L	92%	92%	92%		
4/19/2021	Cadmium		0.15	0.15	0.02	ug/L	4/21/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
4/20/2021	Cadmium		0.15	0.15	0.02	ug/L	4/22/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
4/21/2021	Cadmium		0.15	0.15	0.02	ug/L	4/23/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
4/26/2021	Cadmium		0.36	0.36	0.02	ug/L	4/28/2021	Cadmium	<	0.02	0.01	0.02	ug/L	97%	97%			
4/27/2021	Cadmium		0.15	0.15	0.02	ug/L	4/29/2021	Cadmium	<	0.02	0.01	0.02	ug/L	93%	93%	93%		
4/28/2021	Cadmium		0.19	0.19	0.02	ug/L	4/30/2021	Cadmium	<	0.02	0.01	0.02	ug/L	95%	95%	95%		
	Average			**0.17**				**Average**			**0.02**			**Average**		**93%**	**89%**	**67%**
	Maximum			**0.36**				**Maximum**			**0.14**							
7/30/2018	Chromium, Total		20.3		1	ug/L	7/30/2018	Chromium, Total		1.95		1	ug/L	90%	90%	90%		
7/31/2018	Chromium, Total		355		1	ug/L	7/31/2018	Chromium, Total		2.56		1	ug/L	99%	99%	99%		
8/1/2018	Chromium, Total		50.2		1	ug/L	8/1/2018	Chromium, Total		3.65		1	ug/L	93%	93%	93%		
8/2/2018	Chromium, Total		31.7		1	ug/L	8/2/2018	Chromium, Total		2.82		1	ug/L	91%	91%	91%		
8/3/2018	Chromium, Total		36.5		1	ug/L	8/3/2018	Chromium, Total		2.4		1	ug/L	93%	93%	93%		
8/4/2018	Chromium, Total		19.1		1	ug/L	8/4/2018	Chromium, Total		2.28		1	ug/L	88%	88%	88%		
8/5/2018	Chromium, Total		24.8		1	ug/L	8/5/2018	Chromium, Total		2.81		1	ug/L	89%	89%	89%		
8/6/2018	Chromium, Total		25.1		1	ug/L	8/6/2018	Chromium, Total		3.52		1	ug/L	86%	86%	86%		
8/7/2018	Chromium, Total		30.3		1	ug/L	8/7/2018	Chromium, Total		2.90		1	ug/L	90%	90%	90%		
8/8/2018	Chromium, Total		36.6		1	ug/L	8/8/2018	Chromium, Total		2.40		1	ug/L	93%	93%	93%		
8/9/2018	Chromium, Total		29.2		1	ug/L	8/9/2018	Chromium, Total		4.49		1	ug/L	85%	85%	85%		
8/10/2018	Chromium, Total		31.1		1	ug/L	8/10/2018	Chromium, Total		3.58		1	ug/L	88%	88%	88%		
8/11/2018	Chromium, Total		32.0		1	ug/L	8/11/2018	Chromium, Total		3.47		1	ug/L	89%	89%	89%		
3/29/2021	Chromium, Total		15.0		1	ug/L	3/31/2021	Chromium, Total		8.59		1	ug/L	43%	43%			
3/30/2021	Chromium, Total		64.8		1	ug/L	4/1/2021	Chromium, Total		5.33		1	ug/L	92%	92%	92%		
3/31/2021	Chromium, Total		16.1		1	ug/L	4/2/2021	Chromium, Total		3.93		1	ug/L	76%	76%	76%		
4/5/2021	Chromium, Total		14.8		1	ug/L	4/7/2021	Chromium, Total		2.82		1	ug/L	81%	81%	81%		
4/6/2021	Chromium, Total		38.1		1	ug/L	4/8/2021	Chromium, Total		2.89		1	ug/L	92%	92%	92%		
4/7/2021	Chromium, Total		20.3		1	ug/L	4/9/2021	Chromium, Total		2.47		1	ug/L	88%	88%	88%		
4/12/2021	Chromium, Total		12.2		1	ug/L	4/14/2021	Chromium, Total		2.22		1	ug/L	82%	82%	82%		
4/14/2021	Chromium, Total		24.4		1	ug/L	4/16/2021	Chromium, Total		2.59		1	ug/L	89%	89%	89%		
4/19/2021	Chromium, Total		14.4		1	ug/L	4/21/2021	Chromium, Total		2.64		1	ug/L	82%	82%	82%		
4/20/2021	Chromium, Total		16.4		1	ug/L	4/22/2021	Chromium, Total		3.01		1	ug/L	82%	82%	82%		
4/21/2021	Chromium, Total		19.7		1	ug/L	4/23/2021	Chromium, Total		4.00		1	ug/L	80%	80%	80%		
4/26/2021	Chromium, Total		21.0		1	ug/L	4/28/2021	Chromium, Total		3.00		1	ug/L	86%	86%	86%		
4/27/2021	Chromium, Total		31.9		1	ug/L	4/29/2021	Chromium, Total		2.73		1	ug/L	91%	91%	91%		
4/28/2021	Chromium, Total		16.8		1	ug/L	4/30/2021	Chromium, Total		2.55		1	ug/L	85%	85%	85%		
	Average		**38.8**					**Average**		**3.24**				**Average**		**88%**	**92%**	**82%**
	Maximum		**355**					**Maximum**		**8.59**								

NEW Water
2021 Local Limits Evaluation

DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/29/2021	Chromium, Hexavalent			0.001	0.002	mg/L	3/31/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	0%				
3/30/2021	Chromium, Hexavalent	<		0.001	0.002	mg/L	4/1/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	0%				
3/31/2021	Chromium, Hexavalent	<		0.001	0.002	mg/L	4/2/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	0%				
4/5/2021	Chromium, Hexavalent	<		0.048	0.096	mg/L	4/7/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	98%	98%			
4/6/2021	Chromium, Hexavalent	<		0.001	0.002	mg/L	4/8/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	0%				
4/7/2021	Chromium, Hexavalent	<		0.002	0.004	mg/L	4/9/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	50%	50%			
4/12/2021	Chromium, Hexavalent	<		0.05	0.01	mg/L	4/14/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	98%	98%			
4/13/2021	Chromium, Hexavalent	<		0.002	0.004	mg/L	4/15/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	50%	50%			
4/14/2021	Chromium, Hexavalent		0.011	0.01	0.002	mg/L	4/16/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	**91%**	**91%**			
4/19/2021	Chromium, Hexavalent	<		0.010	0.02	mg/L	4/21/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	90%	90%			
4/20/2021	Chromium, Hexavalent	<		0.001	0.002	mg/L	4/22/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	0%				
4/21/2021	Chromium, Hexavalent	<		0.001	0.002	mg/L	4/23/2021	Chromium, Hexavalent	<	0.002	0.001	0.002	mg/L	0%				
	Average			**0.011**				**Average**			**0.001**			**Average**			**91%**	**81%**
	Maximum			**0.049**				**Maximum**			**0.001**							
3/29/2021	Copper		126		0.775	ug/L	3/31/2021	Copper		6.1		0.775	ug/L	95%	95%	95%		
3/30/2021	Copper		91.4		0.775	ug/L	4/1/2021	Copper		7.48		0.775	ug/L	92%	92%	92%		
3/31/2021	Copper		99.6		0.775	ug/L	4/2/2021	Copper		7.94		0.775	ug/L	92%	92%	92%		
4/5/2021	Copper		111		0.775	ug/L	4/7/2021	Copper		7.19		0.775	ug/L	94%	94%	94%		
4/6/2021	Copper		104		0.775	ug/L	4/8/2021	Copper		9.24		0.775	ug/L	91%	91%	91%		
4/7/2021	Copper		118		0.775	ug/L	4/9/2021	Copper		6.57		0.775	ug/L	94%	94%	94%		
4/12/2021	Copper		99		0.775	ug/L	4/14/2021	Copper		5.21		0.775	ug/L	95%	95%	95%		
4/14/2021	Copper		78.9		0.775	ug/L	4/16/2021	Copper		7.44		0.775	ug/L	91%	91%	91%		
4/19/2021	Copper		95		0.775	ug/L	4/21/2021	Copper		10.3		0.775	ug/L	89%	89%	89%		
4/20/2021	Copper		126		0.775	ug/L	4/22/2021	Copper		6.77		0.775	ug/L	95%	95%	95%		
4/21/2021	Copper		109		0.775	ug/L	4/23/2021	Copper		13.2		0.775	ug/L	88%	88%	88%		
4/26/2021	Copper		145		0.775	ug/L	4/28/2021	Copper		6.33		0.775	ug/L	96%	96%	96%		
4/27/2021	Copper		121		0.775	ug/L	4/29/2021	Copper		6.67		0.775	ug/L	95%	95%	95%		
4/28/2021	Copper		114		0.775	ug/L	4/30/2021	Copper		4.12		0.775	ug/L	96%	96%	96%		
	Average		**110**					**Average**		**7.5**				**Average**		**93%**	**93%**	**86%**
	Maximum		**145**					**Maximum**		**13.2**								
3/29/2021	Lead		1.8	1.8	0.14	ug/L	3/31/2021	Lead		0.49	0.49	0.14	ug/L	72%	72%	72%		
3/30/2021	Lead		1.6	1.6	0.14	ug/L	4/1/2021	Lead		0.20	0.20	0.14	ug/L	88%	88%	88%		
3/31/2021	Lead		1.7	1.7	0.14	ug/L	4/2/2021	Lead		0.24	0.24	0.14	ug/L	86%	86%	86%		
4/5/2021	Lead		3.2	3.2	0.14	ug/L	4/7/2021	Lead		0.22	0.22	0.14	ug/L	93%	93%	93%		
4/6/2021	Lead		1.9	1.9	0.14	ug/L	4/8/2021	Lead		0.30	0.30	0.14	ug/L	84%	84%	84%		
4/7/2021	Lead		2.6	2.6	0.14	ug/L	4/9/2021	Lead		1.80	1.80	0.14	ug/L	31%	31%			
4/12/2021	Lead		1.29	1.3	0.14	ug/L	4/14/2021	Lead		0.24	0.24	0.14	ug/L	81%	81%	81%		
4/14/2021	Lead		1.70	1.7	0.14	ug/L	4/16/2021	Lead		0.47	0.47	0.14	ug/L	72%	72%	72%		
4/19/2021	Lead		2.0	2.0	0.14	ug/L	4/21/2021	Lead		0.3	0.30	0.14	ug/L	85%	85%	85%		
4/20/2021	Lead		1.7	1.7	0.14	ug/L	4/22/2021	Lead		0.3	0.30	0.14	ug/L	83%	83%	83%		
4/21/2021	Lead		1.8	1.8	0.14	ug/L	4/23/2021	Lead		0.38	0.38	0.14	ug/L	79%	79%	79%		
4/26/2021	Lead		2.1	2.1	0.14	ug/L	4/28/2021	Lead		0.25	0.25	0.14	ug/L	88%	88%	88%		
4/27/2021	Lead		1.8	1.8	0.14	ug/L	4/29/2021	Lead		0.27	0.27	0.14	ug/L	85%	85%	85%		
4/28/2021	Lead		2.4	2.4	0.14	ug/L	4/30/2021	Lead		0.31	0.31	0.14	ug/L	87%	87%	87%		
	Average			**1.73**				**Average**			**0.86**			**Average**		**83%**	**50%**	**61%**
	Maximum			**3.21**				**Maximum**			**1.800**							

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DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/29/2021	Manganese		90.2		0.489	ug/L	3/31/2021	Manganese		67.8		0.489	ug/L	25%	25%	25%		
3/30/2021	Manganese		93.3		0.489	ug/L	4/1/2021	Manganese		69.2		0.489	ug/L	26%	26%	26%		
3/31/2021	Manganese		108.0		0.489	ug/L	4/2/2021	Manganese		69.9		0.489	ug/L	35%	35%	35%		
4/5/2021	Manganese		100		0.489	ug/L	4/7/2021	Manganese		75.3		0.489	ug/L	25%	25%	25%		
4/6/2021	Manganese		90.6		0.489	ug/L	4/8/2021	Manganese		68		0.489	ug/L	25%	25%	25%		
4/7/2021	Manganese		98.6		0.489	ug/L	4/9/2021	Manganese		62.1		0.489	ug/L	37%	37%	37%		
4/12/2021	Manganese		61.7		0.489	ug/L	4/14/2021	Manganese		59.8		0.489	ug/L	3%	3%	3%		
4/14/2021	Manganese		61.6		0.489	ug/L	4/16/2021	Manganese		53.1		0.489	ug/L	14%	14%	14%		
4/19/2021	Manganese		71.7		0.489	ug/L	4/21/2021	Manganese		99.5		0.489	ug/L	-39%				
4/20/2021	Manganese		71.0		0.489	ug/L	4/22/2021	Manganese		67.9		0.489	ug/L	4%	4%	4%		
4/21/2021	Manganese		72.5		0.489	ug/L	4/23/2021	Manganese		71.2		0.489	ug/L	2%	2%	2%		
4/26/2021	Manganese		80.3		0.489	ug/L	4/28/2021	Manganese		59.4		0.489	ug/L	26%	26%	26%		
4/27/2021	Manganese		83.7		0.489	ug/L	4/29/2021	Manganese		65.9		0.489	ug/L	21%	21%	21%		
4/28/2021	Manganese		88.1		0.489	ug/L	4/30/2021	Manganese		60.1		0.489	ug/L	32%	32%	32%		
	Average		**83.7**					**Average**		**67.8**				**Average**		**21%**	**19%**	
	Maximum		**108**					**Maximum**		**99.5**								
3/29/2021	Mercury		7.51		1.35	ng/L	3/31/2021	Mercury	<	0.135	0.068	0.135	ng/L	99%	99%	99%		
3/30/2021	Mercury		8.87		1.35	ng/L	4/1/2021	Mercury		0.268	0.268	0.135	ng/L	97%	97%	97%		
3/31/2021	Mercury		6.38		1.35	ng/L	4/2/2021	Mercury		0.162	0.162	0.135	ng/L	97%	97%	97%		
4/5/2021	Mercury		8.46		1.35	ng/L	4/7/2021	Mercury		0.341	0.341	0.135	ng/L	96%	96%	96%		
4/6/2021	Mercury		11.8		1.35	ng/L	4/8/2021	Mercury		0.318	0.318	0.135	ng/L	97%	97%	97%		
4/7/2021	Mercury		9.13		1.35	ng/L	4/9/2021	Mercury		0.313	0.313	0.135	ng/L	97%	97%	97%		
4/12/2021	Mercury		9.80		1.35	ng/L	4/14/2021	Mercury		0.356	0.356	0.135	ng/L	96%	96%	96%		
4/13/2021	Mercury		6.94		1.35	ng/L	4/15/2021	Mercury		0.54	0.540	0.135	ng/L	92%	92%			
4/14/2021	Mercury		7.24		1.35	ng/L	4/16/2021	Mercury		0.502	0.502	0.135	ng/L	93%	93%			
4/19/2021	Mercury		10.3		1.35	ng/L	4/21/2021	Mercury		0.422	0.422	0.135	ng/L	96%	96%	96%		
4/20/2021	Mercury		9.27		1.35	ng/L	4/22/2021	Mercury		0.461	0.461	0.135	ng/L	95%	95%	95%		
4/21/2021	Mercury		25.2		1.35	ng/L	4/23/2021	Mercury		0.551	0.551	0.135	ng/L	98%	98%	98%		
	Average		**10.1**					**Average**			**0.358**			**Average**		**97%**	**96%**	
	Maximum		**25.2**					**Maximum**			**0.551**							
3/29/2021	Molybdenum		9.14		1.707	ug/L	3/31/2021	Molybdenum		6.47		1.707	ug/L	29%	29%	29%		
3/30/2021	Molybdenum		11.9		1.707	ug/L	4/1/2021	Molybdenum		6.53		1.707	ug/L	45%	45%	45%		
3/31/2021	Molybdenum		7.78		1.707	ug/L	4/2/2021	Molybdenum		7.78		1.707	ug/L	0%				
4/5/2021	Molybdenum		11.3		1.707	ug/L	4/7/2021	Molybdenum		7.32		1.707	ug/L	35%	35%	35%		
4/6/2021	Molybdenum		8.42		1.707	ug/L	4/8/2021	Molybdenum		7.19		1.707	ug/L	15%	15%	15%		
4/7/2021	Molybdenum		6.99		1.707	ug/L	4/9/2021	Molybdenum		8.1		1.707	ug/L	-16%				
4/12/2021	Molybdenum		13.2		1.707	ug/L	4/14/2021	Molybdenum		14		1.707	ug/L	-6%				
4/14/2021	Molybdenum		13.5		1.707	ug/L	4/16/2021	Molybdenum		10		1.707	ug/L	26%	26%	26%		
4/19/2021	Molybdenum		9.49		1.707	ug/L	4/21/2021	Molybdenum		9.21		1.707	ug/L	3%	3%			
4/20/2021	Molybdenum		12.8		1.707	ug/L	4/22/2021	Molybdenum		7.28		1.707	ug/L	43%	43%	43%		
4/21/2021	Molybdenum		10.8		1.707	ug/L	4/23/2021	Molybdenum		6.64		1.707	ug/L	39%	39%	39%		
4/26/2021	Molybdenum		8.76		1.707	ug/L	4/28/2021	Molybdenum		5.99		1.707	ug/L	32%	32%	32%		
4/27/2021	Molybdenum		11.1		1.707	ug/L	4/29/2021	Molybdenum		8.44		1.707	ug/L	24%	24%	24%		
4/28/2021	Molybdenum		12.8		1.707	ug/L	4/30/2021	Molybdenum		7.63		1.707	ug/L	40%	40%	40%		
	Average		**10.6**					**Average**		**8.0**				**Average**		**33%**	**24%**	
	Maximum		**13.5**					**Maximum**		**14.0**								

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DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
7/30/2018	Nickel		58.3		1.178	ug/L	8/1/2018	Nickel		24.6		1.178	ug/L	58%	58%	58%		
7/31/2018	Nickel		65.9		1.178	ug/L	8/2/2018	Nickel		24.8		1.178	ug/L	62%	62%	62%		
8/1/2018	Nickel		68.3		1.178	ug/L	8/3/2018	Nickel		25.9		1.178	ug/L	62%	62%	62%		
8/2/2018	Nickel		85.6		1.178	ug/L	8/4/2018	Nickel		27.4		1.178	ug/L	68%	68%	68%		
8/3/2018	Nickel		78		1.178	ug/L	8/5/2018	Nickel		24.8		1.178	ug/L	68%	68%	68%		
8/4/2018	Nickel		28.8		1.178	ug/L	8/6/2018	Nickel		26.4		1.178	ug/L	8%	8%			
8/5/2018	Nickel		67.8		1.178	ug/L	8/7/2018	Nickel		27.2		1.178	ug/L	60%	60%	60%		
8/6/2018	Nickel		168		1.178	ug/L	8/8/2018	Nickel		27		1.178	ug/L	84%	84%	84%		
8/7/2018	Nickel		76.1		1.178	ug/L	8/9/2018	Nickel		25.2		1.178	ug/L	67%	67%	67%		
8/8/2018	Nickel		26.5		1.178	ug/L	8/10/2018	Nickel		24.7		1.178	ug/L	7%	7%			
8/9/2018	Nickel		102		1.178	ug/L	8/11/2018	Nickel		26.2		1.178	ug/L	74%	74%	74%		
8/10/2018	Nickel		53.4		1.178	ug/L	8/12/2018	Nickel		24.7		1.178	ug/L	54%	54%	54%		
8/11/2018	Nickel		47.4		1.178	ug/L	8/13/2018	Nickel		25.1		1.178	ug/L	47%	47%	47%		
3/29/2021	Nickel		264		1.178	ug/L	3/31/2021	Nickel		31.6		1.178	ug/L	88%	88%	88%		
3/30/2021	Nickel		288		1.178	ug/L	4/1/2021	Nickel		34.4		1.178	ug/L	88%	88%	88%		
3/31/2021	Nickel		149		1.178	ug/L	4/2/2021	Nickel		34.6		1.178	ug/L	77%	77%	77%		
4/5/2021	Nickel		95.3		1.178	ug/L	4/7/2021	Nickel		32.3		1.178	ug/L	66%	66%	66%		
4/6/2021	Nickel		77.3		1.178	ug/L	4/8/2021	Nickel		29.4		1.178	ug/L	62%	62%	62%		
4/7/2021	Nickel		64.7		1.178	ug/L	4/9/2021	Nickel		31		1.178	ug/L	52%	52%	52%		
4/12/2021	Nickel		204		1.178	ug/L	4/14/2021	Nickel		24.4		1.178	ug/L	88%	88%	88%		
4/14/2021	Nickel		90		1.178	ug/L	4/16/2021	Nickel		22.7		1.178	ug/L	75%	75%	75%		
4/19/2021	Nickel		130		1.178	ug/L	4/21/2021	Nickel		24.4		1.178	ug/L	81%	81%	81%		
4/20/2021	Nickel		51		1.178	ug/L	4/22/2021	Nickel		28.5		1.178	ug/L	44%	44%	44%		
4/21/2021	Nickel		122		1.178	ug/L	4/23/2021	Nickel		33		1.178	ug/L	73%	73%	73%		
4/26/2021	Nickel		114		1.178	ug/L	4/28/2021	Nickel		30.3		1.178	ug/L	73%	73%	73%		
4/27/2021	Nickel		72.3		1.178	ug/L	4/29/2021	Nickel		31		1.178	ug/L	57%	57%	57%		
4/28/2021	Nickel		75.5		1.178	ug/L	4/30/2021	Nickel		27.7		1.178	ug/L	63%	63%	63%		
	Average		101					Average		27.8				Average		68%	72%	42%
	Maximum		288					Maximum		34.6								
3/29/2021	Phosphorus		4.60		0.292	mg/L	3/31/2021	Phosphorus		0.167	0.167	0.073	mg/L	96%	96%	96%		
3/30/2021	Phosphorus		5.35		0.292	mg/L	4/1/2021	Phosphorus		0.138	0.138	0.073	mg/L	97%	97%	97%		
3/31/2021	Phosphorus		4.89		0.292	mg/L	4/2/2021	Phosphorus		0.105	0.105	0.073	mg/L	98%	98%	98%		
4/5/2021	Phosphorus		5.26		0.292	mg/L	4/7/2021	Phosphorus		0.145	0.145	0.073	mg/L	97%	97%	97%		
4/6/2021	Phosphorus		5.32		0.292	mg/L	4/8/2021	Phosphorus		0.19	0.19	0.073	mg/L	96%	96%	96%		
4/7/2021	Phosphorus		6.65		0.292	mg/L	4/9/2021	Phosphorus		0.18	0.18	0.073	mg/L	97%	97%	97%		
4/12/2021	Phosphorus		3.76		0.292	mg/L	4/14/2021	Phosphorus		0.0808	0.0808	0.073	mg/L	98%	98%	98%		
4/13/2021	Phosphorus		4.06		0.292	mg/L	4/15/2021	Phosphorus	<	0.073	0.0365	0.073	mg/L	99%	99%	99%		
4/14/2021	Phosphorus		4.84		0.292	mg/L	4/16/2021	Phosphorus	<	0.073	0.0365	0.073	mg/L	99%	99%	99%		
4/19/2021	Phosphorus		4.75		0.292	mg/L	4/21/2021	Phosphorus	<	0.073	0.0365	0.073	mg/L	99%	99%	99%		
4/20/2021	Phosphorus		5.01		0.292	mg/L	4/22/2021	Phosphorus		0.158	0.158	0.073	mg/L	97%	97%	97%		
4/21/2021	Phosphorus		5.82		0.292	mg/L	4/23/2021	Phosphorus	<	0.073	0.0365	0.073	mg/L	99%	99%	99%		
4/26/2021	Phosphorus		5.39		0.292	mg/L	4/28/2021	Phosphorus		0.0772	0.0772	0.073	mg/L	99%	99%	99%		
4/27/2021	Phosphorus		6.03		0.292	mg/L	4/29/2021	Phosphorus		0.108	0.108	0.073	mg/L	98%	98%	98%		
4/28/2021	Phosphorus		6.38		0.292	mg/L	4/30/2021	Phosphorus		0.103	0.103	0.073	mg/L	98%	98%	98%		
	Average		5.21					Average			0.107			Average		98%	98%	
	Maximum		6.65					Maximum			0.190						*Note: No 2018 so remov*	

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Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/29/2021	Selenium	<	2	1	2	ug/L	3/31/2021	Selenium	<	2	1	2	ug/L					
3/30/2021	Selenium	<	2	1	2	ug/L	4/1/2021	Selenium	<	2	1	2	ug/L					
3/31/2021	Selenium	<	2	1	2	ug/L	4/2/2021	Selenium	<	2	1	2	ug/L					
4/5/2021	Selenium	<	2	1	2	ug/L	4/7/2021	Selenium	<	2	1	2	ug/L					
4/6/2021	Selenium	<	2	1	2	ug/L	4/8/2021	Selenium	<	2	1	2	ug/L					
4/7/2021	Selenium	<	2	1	2	ug/L	4/9/2021	Selenium	<	2	1	2	ug/L					
4/12/2021	Selenium	<	2	1	2	ug/L	4/14/2021	Selenium	<	2	1	2	ug/L					
4/14/2021	Selenium	<	2	1	2	ug/L	4/16/2021	Selenium	<	2	1	2	ug/L					
4/19/2021	Selenium	<	2	1	2	ug/L	4/21/2021	Selenium	<	2	1	2	ug/L					
4/20/2021	Selenium	<	2	1	2	ug/L	4/22/2021	Selenium	<	2	1	2	ug/L					
4/21/2021	Selenium	<	2	1	2	ug/L	4/23/2021	Selenium	<	2	1	2	ug/L					
4/26/2021	Selenium	<	2	1	2	ug/L	4/28/2021	Selenium	<	2	1	2	ug/L					
4/27/2021	Selenium	<	2	1	2	ug/L	4/29/2021	Selenium	<	2	1	2	ug/L					
4/28/2021	Selenium	<	2	1	2	ug/L	4/30/2021	Selenium	<	2	1	2	ug/L					
	Average			**2.799**				**Average**			**2.799**			**Average**			**0%**	**50%**
	Maximum			**4.737**				**Maximum**			**4.737**							
7/30/2018	Silver	<	0.382	0.191	0.382	ug/L	8/1/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
7/31/2018	Silver		1.1	1.1	0.382	ug/L	8/2/2018	Silver	<	0.382	0.191	0.382	ug/L	83%	83%	83%		
8/1/2018	Silver		0.41	0.41	0.382	ug/L	8/3/2018	Silver	<	0.382	0.191	0.382	ug/L	53%	53%	53%		
8/2/2018	Silver		1.58	1.58	0.382	ug/L	8/4/2018	Silver	<	0.382	0.191	0.382	ug/L	88%	88%	88%		
8/3/2018	Silver	<	0.382	0.191	0.382	ug/L	8/5/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/4/2018	Silver	<	0.382	0.191	0.382	ug/L	8/6/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/5/2018	Silver	<	0.382	0.191	0.382	ug/L	8/7/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/6/2018	Silver	<	0.382	0.191	0.382	ug/L	8/8/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/7/2018	Silver	<	0.382	0.191	0.382	ug/L	8/9/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/8/2018	Silver	<	0.382	0.191	0.382	ug/L	8/10/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/9/2018	Silver	<	0.382	0.191	0.382	ug/L	8/11/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/10/2018	Silver	<	0.382	0.191	0.382	ug/L	8/12/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
8/11/2018	Silver	<	0.382	0.191	0.382	ug/L	8/13/2018	Silver	<	0.382	0.191	0.382	ug/L	0%				
3/29/2021	Silver	<		0.191	0.382	ug/L	3/31/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
3/30/2021	Silver	<		0.191	0.382	ug/L	4/1/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
3/31/2021	Silver		0.51	0.510	0.382	ug/L	4/2/2021	Silver	<	0.382	0.191	0.382	ug/L	63%	63%	63%		
4/5/2021	Silver	<		0.191	0.382	ug/L	4/7/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
4/6/2021	Silver	<		0.191	0.382	ug/L	4/8/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
4/7/2021	Silver		0.64	0.640	0.382	ug/L	4/9/2021	Silver	<	0.382	0.191	0.382	ug/L	70%	70%	70%		
4/12/2021	Silver	<		0.191	0.382	ug/L	4/14/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
4/14/2021	Silver		0.60	0.60	0.382	ug/L	4/16/2021	Silver	<	0.382	0.191	0.382	ug/L	68%	68%	68%		
4/19/2021	Silver	<		0.191	0.382	ug/L	4/21/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
4/20/2021	Silver	<		0.191	0.382	ug/L	4/22/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
4/21/2021	Silver		1.1	1.068	0.382	ug/L	4/23/2021	Silver	<	0.382	0.191	0.382	ug/L	82%	82%	82%		
4/26/2021	Silver	<		0.191	0.382	ug/L	4/28/2021	Silver	<	0.382	0.191	0.382	ug/L	0%				
4/27/2021	Silver		0.57	0.573	0.382	ug/L	4/29/2021	Silver	<	0.382	0.191	0.382	ug/L	67%	67%	67%		
4/28/2021	Silver		0.689	0.689	0.382	ug/L	4/30/2021	Silver	<	0.382	0.191	0.382	ug/L	72%	72%	72%		
	Average			**0.393**				**Average**			**0.191**			**Average**		**72%**	**51%**	**75%**
	Maximum			**1.58**				**Maximum**			**0.191**							

NEW Water
2021 Local Limits Evaluation

DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
7/30/2018	Zinc		122		4.822	ug/L	8/1/2018	Zinc		30.5		4.822	ug/L	75%	75%	75%		
7/31/2018	Zinc		127		4.822	ug/L	8/2/2018	Zinc		30.1		4.822	ug/L	76%	76%	76%		
8/1/2018	Zinc		156		4.822	ug/L	8/3/2018	Zinc		27.1		4.822	ug/L	83%	83%	83%		
8/2/2018	Zinc		133		4.822	ug/L	8/4/2018	Zinc		27.5		4.822	ug/L	79%	79%	79%		
8/3/2018	Zinc		144		4.822	ug/L	8/5/2018	Zinc		24.4		4.822	ug/L	83%	83%	83%		
8/4/2018	Zinc		109		4.822	ug/L	8/6/2018	Zinc		24.3		4.822	ug/L	78%	78%	78%		
8/5/2018	Zinc		110		4.822	ug/L	8/7/2018	Zinc		24.7		4.822	ug/L	78%	78%	78%		
8/6/2018	Zinc		142		4.822	ug/L	8/8/2018	Zinc		32.0		4.822	ug/L	77%	77%	77%		
8/7/2018	Zinc		141		4.822	ug/L	8/9/2018	Zinc		30.0		4.822	ug/L	79%	79%	79%		
8/8/2018	Zinc		164		4.822	ug/L	8/10/2018	Zinc		25.4		4.822	ug/L	85%	85%	85%		
8/9/2018	Zinc		152		4.822	ug/L	8/11/2018	Zinc		27.8		4.822	ug/L	82%	82%	82%		
8/10/2018	Zinc		148		4.822	ug/L	8/12/2018	Zinc		21.4		4.822	ug/L	86%	86%	86%		
8/11/2018	Zinc		130		4.822	ug/L	8/13/2018	Zinc		24.9		4.822	ug/L	81%	81%	81%		
3/29/2021	Zinc		93.2		4.822	ug/L	3/31/2021	Zinc		17.3		4.822	ug/L	81%	81%	81%		
3/30/2021	Zinc		88.9		4.822	ug/L	4/1/2021	Zinc		18.4		4.822	ug/L	79%	79%	79%		
3/31/2021	Zinc		98.3		4.822	ug/L	4/2/2021	Zinc		20.9		4.822	ug/L	79%	79%	79%		
4/5/2021	Zinc		101		4.822	ug/L	4/7/2021	Zinc		25.6		4.822	ug/L	75%	75%	75%		
4/6/2021	Zinc		112		4.822	ug/L	4/8/2021	Zinc		28.7		4.822	ug/L	74%	74%	74%		
4/7/2021	Zinc		114		4.822	ug/L	4/9/2021	Zinc		26.8		4.822	ug/L	76%	76%	76%		
4/12/2021	Zinc		79.1		4.822	ug/L	4/14/2021	Zinc		19.6		4.822	ug/L	75%	75%	75%		
4/14/2021	Zinc		74.0		4.822	ug/L	4/16/2021	Zinc		22.9		4.822	ug/L	69%	69%	69%		
4/19/2021	Zinc		90.2		4.822	ug/L	4/21/2021	Zinc		21		4.822	ug/L	77%	77%	77%		
4/20/2021	Zinc		91.3		4.822	ug/L	4/22/2021	Zinc		21.8		4.822	ug/L	76%	76%	76%		
4/21/2021	Zinc		98.9		4.822	ug/L	4/23/2021	Zinc		26.5		4.822	ug/L	73%	73%	73%		
4/26/2021	Zinc		107		4.822	ug/L	4/28/2021	Zinc		15.6		4.822	ug/L	85%	85%	85%		
4/27/2021	Zinc		102		4.822	ug/L	4/29/2021	Zinc		19.9		4.822	ug/L	81%	81%	81%		
4/28/2021	Zinc		111		4.822	ug/L	4/30/2021	Zinc		18		4.822	ug/L	84%	84%	84%		
	Average		116					Average		24.2				Average		79%	79%	79%
	Maximum		164					Maximum		32.0								
3/29/2021	Acrylonitrile	<		48	95	ug/l	3/31/2021	Acrylonitrile	<	19	9.5	38	ug/l					
3/30/2021	Acrylonitrile	<		48	95	ug/l	4/1/2021	Acrylonitrile	<	19	9.5	38	ug/l					
3/31/2021	Acrylonitrile	<		48	95	ug/l	4/2/2021	Acrylonitrile	<	19	9.5	38	ug/l					
4/5/2021	Acrylonitrile	<		48	95	ug/l	4/7/2021	Acrylonitrile	<	19	9.5	38	ug/L					
4/6/2021	Acrylonitrile	<		48	95	ug/l	4/8/2021	Acrylonitrile	<	19	9.5	38	ug/L					
4/7/2021	Acrylonitrile	<		48	95	ug/l	4/9/2021	Acrylonitrile	<	19	9.5	38	ug/L					
4/12/2021	Acrylonitrile	<		48	95	ug/l	4/14/2021	Acrylonitrile	<	19	9.5	38	ug/L					
4/13/2021	Acrylonitrile	<		10		ug/l	4/15/2021	Acrylonitrile	<	19	9.5	38	ug/L					
4/14/2021	Acrylonitrile	<		48	95	ug/l	4/16/2021	Acrylonitrile	<	1.9	0.95	3.8	ug/L					
4/19/2021	Acrylonitrile	<		48	95	ug/l	4/21/2021	Acrylonitrile	<	1.9	0.95	3.8	ug/l					
4/20/2021	Acrylonitrile	<		48	95	ug/l	4/22/2021	Acrylonitrile	<	1.9	0.95	3.8	ug/L					
4/21/2021	Acrylonitrile	<		48	95	ug/l	4/23/2021	Acrylonitrile	<	1.9	0.95	3.8	ug/L					
	Average			44				Average			6.7							
	Maximum			48				Maximum			10							

NEW Water
2021 Local Limits Evaluation

DePere Facility
Pollutant Removal Efficiencies

Sample Date	Influent Analyte		Result	Edit Result	MDL	Units	Sample Date	Effluent Analyte		Result	Edit Result	MDL	Units	Removal Rate %	Positive Removal	Quartile Outlier Removal	Mean Removal Efficiency	USEPA Median
3/29/2021	BOD		364		2	mg/L	3/31/2021	BOD		4.7		2	mg/L	99%	99%	99%		
3/30/2021	BOD		426		2	mg/L	4/1/2021	BOD		6		2	mg/L	99%	99%	99%		
3/31/2021	BOD		382		2	mg/L	4/2/2021	BOD		5		2	mg/L	99%	99%	99%		
4/5/2021	BOD		284		2	mg/L	4/7/2021	BOD		8.9		2	mg/L	97%	97%			
4/6/2021	BOD		385		2	mg/L	4/8/2021	BOD		6.8		2	mg/L	98%	98%	98%		
4/7/2021	BOD		396		2	mg/L	4/9/2021	BOD		5.7		2	mg/L	99%	99%	99%		
4/12/2021	BOD		279		2	mg/L	4/14/2021	BOD		5		2	mg/L	98%	98%	98%		
4/13/2021	BOD		431		2	mg/L	4/15/2021	BOD		4.6		2	mg/L	99%	99%	99%		
4/14/2021	BOD		455		2	mg/L	4/16/2021	BOD		5.6		2	mg/L	99%	99%	99%		
4/19/2021	BOD		371		2	mg/L	4/21/2021	BOD		5.2		2	mg/L	99%	99%	99%		
4/20/2021	BOD		430		2	mg/L	4/22/2021	BOD		4.2		2	mg/L	99%	99%	99%		
4/21/2021	BOD		477		2	mg/L	4/23/2021	BOD		4		2	mg/L	99%	99%	99%		
4/26/2021	BOD		391		2	mg/L	4/28/2021	BOD		2.4		2	mg/L	99%	99%	99%		
4/27/2021	BOD		422		2	mg/L	4/29/2021	BOD		2.8		2	mg/L	99%	99%	99%		
4/28/2021	BOD		435		2	mg/L	4/30/2021	BOD		2.8		2	mg/L	99%	99%	99%		
	Average		395					Average		4.9				Average		99%	99%	
	Maximum		477					Maximum		8.9								
3/29/2021	TSS		212		2	mg/L	3/31/2021	TSS	<	2	1	2	mg/L	99.5%	99.5%	99.5%		
3/30/2021	TSS		206		2	mg/L	4/1/2021	TSS	<	2	1	2	mg/L	99.5%	99.5%	99.5%		
3/31/2021	TSS		177		2	mg/L	4/2/2021	TSS	<	2	1	2	mg/L	99.4%	99.4%	99.4%		
4/5/2021	TSS		219		2	mg/L	4/7/2021	TSS	<	2	1	2	mg/L	99.5%	99.5%	99.5%		
4/6/2021	TSS		229		2	mg/L	4/8/2021	TSS	<	2	1	2	mg/L	99.6%	99.6%	99.6%		
4/7/2021	TSS		235		2	mg/L	4/9/2021	TSS	<	2	1	2	mg/L	99.6%	99.6%	99.6%		
4/12/2021	TSS		229		2	mg/L	4/14/2021	TSS	<	2	1	2	mg/L	99.6%	99.6%	99.6%		
4/13/2021	TSS		198		2	mg/L	4/15/2021	TSS	<	2	1	2	mg/L	99.5%	99.5%	99.5%		
4/14/2021	TSS		105		2	mg/L	4/16/2021	TSS	<	2	1	2	mg/L	99.0%	99.0%			
4/19/2021	TSS		336		2	mg/L	4/21/2021	TSS	<	2	1	2	mg/L	99.7%	99.7%	99.7%		
4/20/2021	TSS		335		2	mg/L	4/22/2021	TSS		2	1	2	mg/L	99.7%	99.7%	99.7%		
4/21/2021	TSS		259		2	mg/L	4/23/2021	TSS	<	2	1	2	mg/L	99.6%	99.6%	99.6%		
4/26/2021	TSS		251		2	mg/L	4/28/2021	TSS	<	2	1	2	mg/L	99.6%	99.6%	99.6%		
4/27/2021	TSS		248		2	mg/L	4/29/2021	TSS		2.8	2.8	2	mg/L	98.9%	98.9%			
4/28/2021	TSS		283		2	mg/L	4/30/2021	TSS	<	2	1	2	mg/L	99.6%	99.6%	99.6%		
	Average		235					Average			1.1			Average		99.6%	99.5%	
	Maximum		336					Maximum			2.8							

APPENDIX G – Residential/Commercial Data

G-1: Green Bay Facility

G-2: De Pere Facility

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Arsenic	<6.05	3.03			6.05	ug/L
MS-14	1/11/2017	Arsenic	<6.05	3.03			6.05	ug/L
MS-14A	1/11/2017	Arsenic	<6.05	3.03			6.05	ug/L
MS-07	2/6/2017	Arsenic	<6.05	3.03			6.05	ug/L
MS-14	2/6/2017	Arsenic	<6.05	3.03			6.05	ug/L
MS-14A	2/6/2017	Arsenic	<6.05	3.03			6.05	ug/L
MS-07	3/8/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-14	3/8/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-14A	3/8/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-14	4/6/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-14A	4/6/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-14	5/8/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-14A	5/8/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-07	5/9/2017	Arsenic	<8.982	4.491			8.982	ug/L
MS-07	6/21/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	6/21/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	6/21/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	6/29/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	7/13/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	7/13/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	7/13/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	8/7/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	8/7/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	8/7/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	9/13/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	9/13/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	9/13/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	10/26/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	10/26/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	10/26/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	11/6/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	11/6/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	11/6/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	12/7/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	12/7/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	12/7/2017	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	1/13/2018	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	1/13/2018	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	1/13/2018	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	2/7/2018	Arsenic	<4.154	2.077			4.154	ug/L
MS-14	2/7/2018	Arsenic	<4.154	2.077			4.154	ug/L
MS-14A	2/7/2018	Arsenic	<4.154	2.077			4.154	ug/L
MS-07	3/8/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	3/8/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	3/8/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	4/2/2018	Arsenic	<5.728	2.864			5.728	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	4/2/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	4/2/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	5/9/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	5/9/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	5/9/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	6/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	6/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	6/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	7/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	7/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	7/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	8/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	8/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	8/11/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	9/10/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	9/10/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	9/10/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	10/4/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	10/4/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	10/4/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	11/7/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	11/7/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	11/7/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	12/3/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	12/3/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	12/3/2018	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	1/12/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	1/12/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	1/12/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	2/6/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	2/6/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	2/6/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	3/7/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	3/7/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	3/7/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	4/1/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	4/1/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	4/1/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	5/8/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	5/8/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	5/8/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	6/8/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	6/8/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	6/8/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	7/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	7/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	7/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	8/10/2019	Arsenic	<5.728	2.864			5.728	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	8/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	8/10/2019	Arsenic	6.08	2.864			5.728	ug/L
MS-07	9/9/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	9/9/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	9/9/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	10/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	10/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	10/10/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	11/6/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	11/6/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	11/6/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	12/2/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	12/2/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	12/2/2019	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	1/15/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	1/15/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	1/15/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	2/20/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	2/20/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	2/20/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	3/14/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	3/14/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	3/14/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	4/22/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	4/22/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	4/22/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	5/14/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	5/14/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	5/14/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	6/4/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	6/4/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	6/4/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	7/18/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	7/18/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	7/18/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	8/15/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	8/15/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	8/15/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-07	9/16/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14	9/16/2020	Arsenic	<5.728	2.864			5.728	ug/L
MS-14A	9/16/2020	Arsenic	<5.728	2.864			5.728	ug/L
		Average		**2.804**	**ug/l**		**0.002804**	**mg/l**
		Maximum		**4.491**	**ug/l**		**0.004491**	**mg/l**

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Beryllium	0.306	0.306			0.26	ug/L
MS-14	1/11/2017	Beryllium	0.283	0.283			0.26	ug/L
MS-14A	1/11/2017	Beryllium	0.324	0.324			0.26	ug/L
MS-07	2/6/2017	Beryllium	0.339	0.339			0.26	ug/L
MS-14	2/6/2017	Beryllium	0.628	0.628			0.26	ug/L
MS-14A	2/6/2017	Beryllium	0.546	0.546			0.26	ug/L
MS-07	3/8/2017	Beryllium	0.555	0.555			0.245	ug/L
MS-14	3/8/2017	Beryllium	0.462	0.462			0.245	ug/L
MS-14A	3/8/2017	Beryllium	0.304	0.304			0.245	ug/L
MS-14	4/6/2017	Beryllium	0.247	0.247			0.245	ug/L
MS-14A	4/6/2017	Beryllium	0.256	0.256			0.245	ug/L
MS-14	5/8/2017	Beryllium	<0.245	0.123	0.123		0.245	ug/L
MS-14A	5/8/2017	Beryllium	<0.245	0.123	0.123		0.245	ug/L
MS-07	5/9/2017	Beryllium	<0.245	0.123	0.123		0.245	ug/L
MS-07	6/21/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	6/21/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	6/21/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	6/29/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	7/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	7/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	7/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	8/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	8/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	8/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	9/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	9/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	9/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	10/26/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	10/26/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	10/26/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	11/6/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	11/6/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	11/6/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	12/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	12/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	12/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	1/13/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	1/13/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	1/13/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	2/7/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14	2/7/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-14A	2/7/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-07	3/8/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	3/8/2018	Beryllium	0.038	0.038	0.038		0.035	ug/L
MS-14A	3/8/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	4/2/2018	Beryllium	0.12	0.12	0.120		0.035	ug/L
MS-14	4/2/2018	Beryllium	0.054	0.054	0.054		0.035	ug/L
MS-14A	4/2/2018	Beryllium	0.055	0.055	0.055		0.035	ug/L
MS-07	5/9/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	5/9/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	6/11/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	6/11/2018	Beryllium	0.074	0.074	0.074		0.035	ug/L
MS-14A	6/11/2018	Beryllium	0.036	0.036	0.036		0.035	ug/L
MS-07	7/11/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	7/11/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	7/11/2018	Beryllium	0.036	0.036	0.036		0.035	ug/L
MS-07	8/11/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	8/11/2018	Beryllium	0.056	0.056	0.056		0.035	ug/L
MS-14A	8/11/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	9/10/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	9/10/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	9/10/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	10/4/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	10/4/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	10/4/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	11/7/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	11/7/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	11/7/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	12/3/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	12/3/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	12/3/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	1/12/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	1/12/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	1/12/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	2/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	2/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	2/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	3/7/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	3/7/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	3/7/2019	Beryllium	0.077	0.077	0.077		0.035	ug/L
MS-07	4/1/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	4/1/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	4/1/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	5/8/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	5/8/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	5/8/2019	Beryllium	0.055	0.055	0.055		0.035	ug/L
MS-07	6/8/2019	Beryllium	0.046	0.046	0.046		0.035	ug/L
MS-14	6/8/2019	Beryllium	0.039	0.039	0.039		0.035	ug/L
MS-14A	6/8/2019	Beryllium	0.038	0.038	0.038		0.035	ug/L
MS-07	7/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	7/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	7/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	8/10/2019	Beryllium	0.083	0.083	0.083		0.035	ug/L
MS-14	8/10/2019	Beryllium	0.057	0.057	0.057		0.035	ug/L
MS-14A	8/10/2019	Beryllium	0.067	0.067	0.067		0.035	ug/L
MS-07	9/9/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	9/9/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	10/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	10/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	10/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	11/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	11/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	11/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	12/2/2019	Beryllium	0.077	0.077	0.077		0.035	ug/L
MS-14	12/2/2019	Beryllium	0.04	0.04	0.040		0.035	ug/L
MS-14A	12/2/2019	Beryllium	0.043	0.043	0.043		0.035	ug/L
MS-07	1/15/2020	Beryllium	0.05	0.05	0.050		0.035	ug/L
MS-14	1/15/2020	Beryllium	0.071	0.071	0.071		0.035	ug/L
MS-14A	1/15/2020	Beryllium	0.092	0.092	0.092		0.035	ug/L
MS-07	2/20/2020	Beryllium	0.04	0.04	0.040		0.035	ug/L
MS-14	2/20/2020	Beryllium	0.044	0.044	0.044		0.035	ug/L
MS-14A	2/20/2020	Beryllium	0.069	0.069	0.069		0.035	ug/L
MS-07	3/14/2020	Beryllium	0.052	0.052	0.052		0.035	ug/L
MS-14	3/14/2020	Beryllium	0.051	0.051	0.051		0.035	ug/L
MS-14A	3/14/2020	Beryllium	0.057	0.057	0.057		0.035	ug/L
MS-07	4/22/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	4/22/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	4/22/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	5/14/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	5/14/2020	Beryllium	0.042	0.042	0.042		0.035	ug/L
MS-14A	5/14/2020	Beryllium	0.048	0.048	0.048		0.035	ug/L
MS-07	6/4/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	6/4/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	6/4/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-07	7/18/2020	Beryllium	0.093	0.093	0.093		0.035	ug/L
MS-14	7/18/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14A	7/18/2020	Beryllium	0.045	0.045	0.045		0.035	ug/L
MS-07	8/15/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	8/15/2020	Beryllium	0.049	0.049	0.049		0.035	ug/L
MS-14A	8/15/2020	Beryllium	0.096	0.096	0.096		0.035	ug/L
MS-07	9/16/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-14	9/16/2020	Beryllium	0.047	0.047	0.047		0.035	ug/L
MS-14A	9/16/2020	Beryllium	0.073	0.073	0.073		0.035	ug/L
		Average		**0.079**	**0.052**	**ug/l**	**0.000052**	**mg/l**
		Maximum		**0.628**	**0.123**	**ug/l**	**0.000123**	**mg/l**

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-14	1/11/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-14A	1/11/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-07	2/6/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-14	2/6/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-14A	2/6/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-07	3/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-14	3/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-14A	3/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-14	4/6/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-14A	4/6/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-14	5/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-14A	5/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-07	5/9/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-07	6/21/2017	Cadmium	0.62	0.62	0.62		0.374	ug/L
MS-14	6/21/2017	Cadmium	0.47	0.47	0.47		0.374	ug/L
MS-14A	6/21/2017	Cadmium	0.66	0.66	0.66		0.374	ug/L
MS-07	6/29/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-07	7/13/2017	Cadmium	0.38	0.38	0.38		0.374	ug/L
MS-14	7/13/2017	Cadmium	0.7	0.7	0.70		0.374	ug/L
MS-14A	7/13/2017	Cadmium	0.52	0.52	0.52		0.374	ug/L
MS-07	8/7/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14	8/7/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14A	8/7/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-07	9/13/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14	9/13/2017	Cadmium	0.39	0.39	0.39		0.374	ug/L
MS-14A	9/13/2017	Cadmium	0.76	0.76	0.76		0.374	ug/L
MS-07	10/26/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14	10/26/2017	Cadmium	0.43	0.43	0.43		0.374	ug/L
MS-14A	10/26/2017	Cadmium	0.66	0.66	0.66		0.374	ug/L
MS-07	11/6/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14	11/6/2017	Cadmium	0.48	0.48	0.48		0.374	ug/L
MS-14A	11/6/2017	Cadmium	0.57	0.57	0.57		0.374	ug/L
MS-07	12/7/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14	12/7/2017	Cadmium	0.73	0.73	0.73		0.374	ug/L
MS-14A	12/7/2017	Cadmium	0.78	0.78	0.78		0.374	ug/L
MS-07	1/13/2018	Cadmium	0.43	0.43	0.43		0.374	ug/L
MS-14	1/13/2018	Cadmium	0.66	0.66	0.66		0.374	ug/L
MS-14A	1/13/2018	Cadmium	0.75	0.75	0.75		0.374	ug/L
MS-07	2/7/2018	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-14	2/7/2018	Cadmium	0.49	0.49	0.49		0.374	ug/L
MS-14A	2/7/2018	Cadmium	0.59	0.59	0.59		0.374	ug/L
MS-07	3/8/2018	Cadmium	0.32	0.32	0.32		0.297	ug/L
MS-14	3/8/2018	Cadmium	0.59	0.59	0.59		0.297	ug/L
MS-14A	3/8/2018	Cadmium	0.8	0.8	0.80		0.297	ug/L
MS-07	4/2/2018	Cadmium	0.46	0.46	0.46		0.297	ug/L
MS-14	4/2/2018	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-14A	4/2/2018	Cadmium	0.55	0.55	0.55		0.297	ug/L
MS-07	5/9/2018	Cadmium	0.51	0.51	0.51		0.297	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-14A	5/9/2018	Cadmium	0.6	0.6	0.60		0.297	ug/L
MS-07	6/11/2018	Cadmium	0.37	0.37	0.37		0.297	ug/L
MS-14	6/11/2018	Cadmium	0.56	0.56	0.56		0.297	ug/L
MS-14A	6/11/2018	Cadmium	0.48	0.48	0.48		0.297	ug/L
MS-07	7/11/2018	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14	7/11/2018	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14A	7/11/2018	Cadmium	0.45	0.45	0.45		0.297	ug/L
MS-07	8/11/2018	Cadmium	0.33	0.33	0.33		0.297	ug/L
MS-14	8/11/2018	Cadmium	0.37	0.37	0.37		0.297	ug/L
MS-14A	8/11/2018	Cadmium	0.6	0.6	0.60		0.297	ug/L
MS-07	9/10/2018	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14	9/10/2018	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-14A	9/10/2018	Cadmium	0.47	0.47	0.47		0.297	ug/L
MS-07	10/4/2018	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-14	10/4/2018	Cadmium	0.53	0.53	0.53		0.297	ug/L
MS-14A	10/4/2018	Cadmium	0.62	0.62	0.62		0.297	ug/L
MS-07	11/7/2018	Cadmium	0.5	0.5	0.50		0.297	ug/L
MS-14	11/7/2018	Cadmium	0.39	0.39	0.39		0.297	ug/L
MS-14A	11/7/2018	Cadmium	0.45	0.45	0.45		0.297	ug/L
MS-07	12/3/2018	Cadmium	0.4	0.4	0.40		0.297	ug/L
MS-14	12/3/2018	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-14A	12/3/2018	Cadmium	0.55	0.55	0.55		0.297	ug/L
MS-07	1/12/2019	Cadmium	0.56	0.56	0.56		0.297	ug/L
MS-14	1/12/2019	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-14A	1/12/2019	Cadmium	0.57	0.57	0.57		0.297	ug/L
MS-07	2/6/2019	Cadmium	0.65	0.65	0.65		0.297	ug/L
MS-14	2/6/2019	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14A	2/6/2019	Cadmium	0.46	0.46	0.46		0.297	ug/L
MS-07	3/7/2019	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-14	3/7/2019	Cadmium	0.37	0.37	0.37		0.297	ug/L
MS-14A	3/7/2019	Cadmium	0.73	0.73	0.73		0.297	ug/L
MS-07	4/1/2019	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14	4/1/2019	Cadmium	0.4	0.4	0.40		0.297	ug/L
MS-14A	4/1/2019	Cadmium	0.51	0.51	0.51		0.297	ug/L
MS-07	5/8/2019	Cadmium	0.54	0.54	0.54		0.297	ug/L
MS-14	5/8/2019	Cadmium	0.39	0.39	0.39		0.297	ug/L
MS-14A	5/8/2019	Cadmium	0.53	0.53	0.53		0.297	ug/L
MS-07	6/8/2019	Cadmium	0.33	0.33	0.33		0.297	ug/L
MS-14	6/8/2019	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14A	6/8/2019	Cadmium	0.58	0.58	0.58		0.297	ug/L
MS-07	7/10/2019	Cadmium	0.32	0.32	0.32		0.297	ug/L
MS-14	7/10/2019	Cadmium	0.56	0.56	0.56		0.297	ug/L
MS-14A	7/10/2019	Cadmium	0.59	0.59	0.59		0.297	ug/L
MS-07	8/10/2019	Cadmium	0.43	0.43	0.43		0.297	ug/L
MS-14	8/10/2019	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14A	8/10/2019	Cadmium	0.46	0.46	0.46		0.297	ug/L
MS-07	9/9/2019	Cadmium	0.4	0.4	0.40		0.297	ug/L
MS-14	9/9/2019	Cadmium	0.43	0.43	0.43		0.297	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Cadmium	0.48	0.48	0.48		0.297	ug/L
MS-07	10/10/2019	Cadmium	0.35	0.35	0.35		0.297	ug/L
MS-14	10/10/2019	Cadmium	0.47	0.47	0.47		0.297	ug/L
MS-14A	10/10/2019	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-07	11/6/2019	Cadmium	0.42	0.42	0.42		0.297	ug/L
MS-14	11/6/2019	Cadmium	0.51	0.51	0.51		0.297	ug/L
MS-14A	11/6/2019	Cadmium	0.48	0.48	0.48		0.297	ug/L
MS-07	12/2/2019	Cadmium	0.34	0.34	0.34		0.297	ug/L
MS-14	12/2/2019	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14A	12/2/2019	Cadmium	0.31	0.31	0.31		0.297	ug/L
MS-07	1/15/2020	Cadmium	0.35	0.35	0.35		0.297	ug/L
MS-14	1/15/2020	Cadmium	0.52	0.52	0.52		0.297	ug/L
MS-14A	1/15/2020	Cadmium	0.39	0.39	0.39		0.297	ug/L
MS-07	2/20/2020	Cadmium	0.31	0.31	0.31		0.297	ug/L
MS-14	2/20/2020	Cadmium	0.41	0.41	0.41		0.297	ug/L
MS-14A	2/20/2020	Cadmium	0.54	0.54	0.54		0.297	ug/L
MS-07	3/14/2020	Cadmium	0.37	0.37	0.37		0.297	ug/L
MS-14	3/14/2020	Cadmium	0.52	0.52	0.52		0.297	ug/L
MS-14A	3/14/2020	Cadmium	0.67	0.67	0.67		0.297	ug/L
MS-07	4/22/2020	Cadmium	0.52	0.52	0.52		0.297	ug/L
MS-14	4/22/2020	Cadmium	0.32	0.32	0.32		0.297	ug/L
MS-14A	4/22/2020	Cadmium	0.6	0.6	0.60		0.297	ug/L
MS-07	5/14/2020	Cadmium	0.52	0.52	0.52		0.297	ug/L
MS-14	5/14/2020	Cadmium	0.63	0.63	0.63		0.297	ug/L
MS-14A	5/14/2020	Cadmium	0.54	0.54	0.54		0.297	ug/L
MS-07	6/4/2020	Cadmium	0.53	0.53	0.53		0.297	ug/L
MS-14	6/4/2020	Cadmium	0.72	0.72	0.72		0.297	ug/L
MS-14A	6/4/2020	Cadmium	0.6	0.6	0.60		0.297	ug/L
MS-07	7/18/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14	7/18/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14A	7/18/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-07	8/15/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14	8/15/2020	Cadmium	0.45	0.45	0.45		0.297	ug/L
MS-14A	8/15/2020	Cadmium	0.63	0.63	0.63		0.297	ug/L
MS-07	9/16/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-14	9/16/2020	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-14A	9/16/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
		Average		**0.42**	**0.42**	**ug/l**	**0.00042**	**mg/l**
		Maximum		**0.80**	**0.80**	**ug/l**	**0.00080**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Chromium, Total	0.824	0.824	0.824		0.71	ug/L
MS-14	1/11/2017	Chromium, Total	0.862	0.862	0.862		0.71	ug/L
MS-14A	1/11/2017	Chromium, Total	<0.71	0.36	0.355		0.71	ug/L
MS-07	2/6/2017	Chromium, Total	0.89	0.89	0.89		0.71	ug/L
MS-14	2/6/2017	Chromium, Total	4.07	4.07	4.07		0.71	ug/L
MS-14A	2/6/2017	Chromium, Total	4.43	4.43	4.43		0.71	ug/L
MS-07	3/8/2017	Chromium, Total	0.734	0.734	0.734		0.404	ug/L
MS-14	3/8/2017	Chromium, Total	2.9	2.9	2.9		0.404	ug/L
MS-14A	3/8/2017	Chromium, Total	0.647	0.647	0.647		0.404	ug/L
MS-14	4/6/2017	Chromium, Total	2.46	2.46	2.46		0.404	ug/L
MS-14A	4/6/2017	Chromium, Total	0.504	0.504	0.504		0.404	ug/L
MS-14	5/8/2017	Chromium, Total	2.76	2.76	2.76		0.404	ug/L
MS-14A	5/8/2017	Chromium, Total	1.72	1.72	1.72		0.404	ug/L
MS-07	5/9/2017	Chromium, Total	1.05	1.05	1.05		0.404	ug/L
MS-07	6/21/2017	Chromium, Total	3.82	3.82	3.82		0.6384	ug/L
MS-14	6/21/2017	Chromium, Total	5.18	5.18	5.18		0.6384	ug/L
MS-14A	6/21/2017	Chromium, Total	2.78	2.78	2.78		0.6384	ug/L
MS-07	6/29/2017	Chromium, Total	2.38	2.38	2.38		0.6384	ug/L
MS-07	7/13/2017	Chromium, Total	2.33	2.33	2.33		0.6384	ug/L
MS-14	7/13/2017	Chromium, Total	3.59	3.59	3.59		0.6384	ug/L
MS-14A	7/13/2017	Chromium, Total	2.76	2.76	2.76		0.6384	ug/L
MS-07	8/7/2017	Chromium, Total	57.34	57.34			0.6384	ug/L
MS-14	8/7/2017	Chromium, Total	3.33	3.33	3.33		0.6384	ug/L
MS-14A	8/7/2017	Chromium, Total	4.12	4.12	4.12		0.6384	ug/L
MS-07	9/13/2017	Chromium, Total	3.7	3.7	3.7		0.6384	ug/L
MS-14	9/13/2017	Chromium, Total	5.94	5.94	5.94		0.6384	ug/L
MS-14A	9/13/2017	Chromium, Total	2.27	2.27	2.27		0.6384	ug/L
MS-07	10/26/2017	Chromium, Total	1.88	1.88	1.88		0.6384	ug/L
MS-14	10/26/2017	Chromium, Total	2.76	2.76	2.76		0.6384	ug/L
MS-14A	10/26/2017	Chromium, Total	17.96	17.96			0.6384	ug/L
MS-07	11/6/2017	Chromium, Total	1.39	1.39	1.39		0.6384	ug/L
MS-14	11/6/2017	Chromium, Total	3.53	3.53	3.53		0.6384	ug/L
MS-14A	11/6/2017	Chromium, Total	2.68	2.68	2.68		0.6384	ug/L
MS-07	12/7/2017	Chromium, Total	2.02	2.02	2.02		0.6384	ug/L
MS-14	12/7/2017	Chromium, Total	4.09	4.09	4.09		0.6384	ug/L
MS-14A	12/7/2017	Chromium, Total	3.44	3.44	3.44		0.6384	ug/L
MS-07	1/13/2018	Chromium, Total	2.1	2.1	2.1		0.6384	ug/L
MS-14	1/13/2018	Chromium, Total	7.63	7.63			0.6384	ug/L
MS-14A	1/13/2018	Chromium, Total	4.23	4.23	4.23		0.6384	ug/L
MS-07	2/7/2018	Chromium, Total	2.13	2.13	2.13		0.6384	ug/L
MS-14	2/7/2018	Chromium, Total	17.3	17.3			0.6384	ug/L
MS-14A	2/7/2018	Chromium, Total	3.02	3.02	3.02		0.6384	ug/L
MS-07	3/8/2018	Chromium, Total	2.57	2.57	2.57		1	ug/L
MS-14	3/8/2018	Chromium, Total	12.3	12.3			1	ug/L
MS-14A	3/8/2018	Chromium, Total	3.37	3.37	3.37		1	ug/L
MS-07	4/2/2018	Chromium, Total	2.46	2.46	2.46		1	ug/L
MS-14	4/2/2018	Chromium, Total	2.78	2.78	2.78		1	ug/L
MS-14A	4/2/2018	Chromium, Total	3.04	3.04	3.04		1	ug/L
MS-07	5/9/2018	Chromium, Total	1.76	1.76	1.76		1	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Chromium, Total	1.29	1.29	1.29		1	ug/L
MS-14A	5/9/2018	Chromium, Total	1.52	1.52	1.52		1	ug/L
MS-07	6/11/2018	Chromium, Total	3.2	3.2	3.2		1	ug/L
MS-14	6/11/2018	Chromium, Total	5.62	5.62	5.62		1	ug/L
MS-14A	6/11/2018	Chromium, Total	3.16	3.16	3.16		1	ug/L
MS-07	7/11/2018	Chromium, Total	1.92	1.92	1.92		1	ug/L
MS-14	7/11/2018	Chromium, Total	6.18	6.18	6.18		1	ug/L
MS-14A	7/11/2018	Chromium, Total	7.82	7.82			1	ug/L
MS-07	8/11/2018	Chromium, Total	2.27	2.27	2.27		1	ug/L
MS-14	8/11/2018	Chromium, Total	5.61	5.61	5.61		1	ug/L
MS-14A	8/11/2018	Chromium, Total	7.08	7.08	7.08		1	ug/L
MS-07	9/10/2018	Chromium, Total	2.37	2.37	2.37		1	ug/L
MS-14	9/10/2018	Chromium, Total	4.15	4.15	4.15		1	ug/L
MS-14A	9/10/2018	Chromium, Total	3.23	3.23	3.23		1	ug/L
MS-07	10/4/2018	Chromium, Total	4.63	4.63	4.63		1	ug/L
MS-14	10/4/2018	Chromium, Total	1.9	1.9	1.9		1	ug/L
MS-14A	10/4/2018	Chromium, Total	2.04	2.04	2.04		1	ug/L
MS-07	11/7/2018	Chromium, Total	11.2	11.2			1	ug/L
MS-14	11/7/2018	Chromium, Total	2.69	2.69	2.69		1	ug/L
MS-14A	11/7/2018	Chromium, Total	2.7	2.7	2.7		1	ug/L
MS-07	12/3/2018	Chromium, Total	1.33	1.33	1.33		1	ug/L
MS-14	12/3/2018	Chromium, Total	3.77	3.77	3.77		1	ug/L
MS-14A	12/3/2018	Chromium, Total	3.05	3.05	3.05		1	ug/L
MS-07	1/12/2019	Chromium, Total	1.62	1.62	1.62		1	ug/L
MS-14	1/12/2019	Chromium, Total	4.8	4.8	4.8		1	ug/L
MS-14A	1/12/2019	Chromium, Total	1.83	1.83	1.83		1	ug/L
MS-07	2/6/2019	Chromium, Total	1.81	1.81	1.81		1	ug/L
MS-14	2/6/2019	Chromium, Total	3.32	3.32	3.32		1	ug/L
MS-14A	2/6/2019	Chromium, Total	1.85	1.85	1.85		1	ug/L
MS-07	3/7/2019	Chromium, Total	1.59	1.59	1.59		1	ug/L
MS-14	3/7/2019	Chromium, Total	18.3	18.3			1	ug/L
MS-14A	3/7/2019	Chromium, Total	3.34	3.34	3.34		1	ug/L
MS-07	4/1/2019	Chromium, Total	2.9	2.9	2.9		1	ug/L
MS-14	4/1/2019	Chromium, Total	4.93	4.93	4.93		1	ug/L
MS-14A	4/1/2019	Chromium, Total	1.97	1.97	1.97		1	ug/L
MS-07	5/8/2019	Chromium, Total	2.63	2.63	2.63		1	ug/L
MS-14	5/8/2019	Chromium, Total	3.65	3.65	3.65		1	ug/L
MS-14A	5/8/2019	Chromium, Total	1.86	1.86	1.86		1	ug/L
MS-07	6/8/2019	Chromium, Total	3.53	3.53	3.53		1	ug/L
MS-14	6/8/2019	Chromium, Total	6.42	6.42	6.42		1	ug/L
MS-14A	6/8/2019	Chromium, Total	8.72	8.72			1	ug/L
MS-07	7/10/2019	Chromium, Total	1.79	1.79	1.79		1	ug/L
MS-14	7/10/2019	Chromium, Total	7.09	7.09	7.09		1	ug/L
MS-14A	7/10/2019	Chromium, Total	2.82	2.82	2.82		1	ug/L
MS-07	8/10/2019	Chromium, Total	1.72	1.72	1.72		1	ug/L
MS-14	8/10/2019	Chromium, Total	4.75	4.75	4.75		1	ug/L
MS-14A	8/10/2019	Chromium, Total	4.33	4.33	4.33		1	ug/L
MS-07	9/9/2019	Chromium, Total	2.67	2.67	2.67		1	ug/L
MS-14	9/9/2019	Chromium, Total	5.13	5.13	5.13		1	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Chromium, Total	1.95	1.95	1.95		1	ug/L
MS-07	10/10/2019	Chromium, Total	1.61	1.61	1.61		1	ug/L
MS-14	10/10/2019	Chromium, Total	2.24	2.24	2.24		1	ug/L
MS-14A	10/10/2019	Chromium, Total	1.74	1.74	1.74		1	ug/L
MS-07	11/6/2019	Chromium, Total	1.82	1.82	1.82		1	ug/L
MS-14	11/6/2019	Chromium, Total	4.44	4.44	4.44		1	ug/L
MS-14A	11/6/2019	Chromium, Total	3.81	3.81	3.81		1	ug/L
MS-07	12/2/2019	Chromium, Total	1.63	1.63	1.63		1	ug/L
MS-14	12/2/2019	Chromium, Total	2.66	2.66	2.66		1	ug/L
MS-14A	12/2/2019	Chromium, Total	1.13	1.13	1.13		1	ug/L
MS-07	1/15/2020	Chromium, Total	1.49	1.49	1.49		1	ug/L
MS-14	1/15/2020	Chromium, Total	6.11	6.11	6.11		1	ug/L
MS-14A	1/15/2020	Chromium, Total	3.08	3.08	3.08		1	ug/L
MS-07	2/20/2020	Chromium, Total	2.62	2.62	2.62		1	ug/L
MS-14	2/20/2020	Chromium, Total	13	13			1	ug/L
MS-14A	2/20/2020	Chromium, Total	2.02	2.02	2.02		1	ug/L
MS-07	3/14/2020	Chromium, Total	1.97	1.97	1.97		1	ug/L
MS-14	3/14/2020	Chromium, Total	2.88	2.88	2.88		1	ug/L
MS-14A	3/14/2020	Chromium, Total	1.2	1.2	1.2		1	ug/L
MS-07	4/22/2020	Chromium, Total	2.11	2.11	2.11		1	ug/L
MS-14	4/22/2020	Chromium, Total	3.33	3.33	3.33		1	ug/L
MS-14A	4/22/2020	Chromium, Total	1.56	1.56	1.56		1	ug/L
MS-07	5/14/2020	Chromium, Total	1.3	1.3	1.3		1	ug/L
MS-14	5/14/2020	Chromium, Total	6.45	6.45	6.45		1	ug/L
MS-14A	5/14/2020	Chromium, Total	2.1	2.1	2.1		1	ug/L
MS-07	6/4/2020	Chromium, Total	1.99	1.99	1.99		1	ug/L
MS-14	6/4/2020	Chromium, Total	4.89	4.89	4.89		1	ug/L
MS-14A	6/4/2020	Chromium, Total	1.79	1.79	1.79		1	ug/L
MS-07	7/18/2020	Chromium, Total	1.83	1.83	1.83		1	ug/L
MS-14	7/18/2020	Chromium, Total	4.91	4.91	4.91		1	ug/L
MS-14A	7/18/2020	Chromium, Total	2.22	2.22	2.22		1	ug/L
MS-07	8/15/2020	Chromium, Total	2.07	2.07	2.07		1	ug/L
MS-14	8/15/2020	Chromium, Total	11.6	11.6			1	ug/L
MS-14A	8/15/2020	Chromium, Total	3.71	3.71	3.71		1	ug/L
MS-07	9/16/2020	Chromium, Total	1.32	1.32	1.32		1	ug/L
MS-14	9/16/2020	Chromium, Total	7.39	7.39	7.39		1	ug/L
MS-14A	9/16/2020	Chromium, Total	1.9	1.9	1.9		1	ug/L
		Average		**4.0**	**2.9**	**ug/l**	**0.0029**	**mg/l**
		Maximum		**57.3**	**7.4**	**ug/l**	**0.0074**	**mg/l**

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Copper	107	107	107		2.04	ug/L
MS-14	1/11/2017	Copper	104	104	104		2.04	ug/L
MS-14A	1/11/2017	Copper	94.6	94.6	94.6		2.04	ug/L
MS-07	2/6/2017	Copper	122	122	122		2.04	ug/L
MS-14	2/6/2017	Copper	95	95	95		2.04	ug/L
MS-14A	2/6/2017	Copper	111	111	111		2.04	ug/L
MS-07	3/8/2017	Copper	86.7	86.7	86.7		0.745	ug/L
MS-14	3/8/2017	Copper	76.4	76.4	76.4		0.745	ug/L
MS-14A	3/8/2017	Copper	49.8	49.8	49.8		0.745	ug/L
MS-14	4/6/2017	Copper	54.9	54.9	54.9		0.745	ug/L
MS-14A	4/6/2017	Copper	46.9	46.9	46.9		0.745	ug/L
MS-14	5/8/2017	Copper	76.1	76.1	76.1		0.745	ug/L
MS-14A	5/8/2017	Copper	98.7	98.7	98.7		0.745	ug/L
MS-07	5/9/2017	Copper	97.9	97.9	97.9		0.745	ug/L
MS-07	6/21/2017	Copper	90.97	90.97	90.97		0.714	ug/L
MS-14	6/21/2017	Copper	78.06	78.06	78.06		0.714	ug/L
MS-14A	6/21/2017	Copper	128.42	128.42	128.42		0.714	ug/L
MS-07	6/29/2017	Copper	92.64	92.64	92.64		0.714	ug/L
MS-07	7/13/2017	Copper	94.29	94.29	94.29		0.714	ug/L
MS-14	7/13/2017	Copper	111.15	111.15	111.15		0.714	ug/L
MS-14A	7/13/2017	Copper	110.8	110.8	110.8		0.714	ug/L
MS-07	8/7/2017	Copper	137.7	137.7	137.7		0.714	ug/L
MS-14	8/7/2017	Copper	129.56	129.56	129.56		0.714	ug/L
MS-14A	8/7/2017	Copper	171.65	171.65	171.65		0.714	ug/L
MS-07	9/13/2017	Copper	112.41	112.41	112.41		0.714	ug/L
MS-14	9/13/2017	Copper	170.74	170.74	170.74		0.714	ug/L
MS-14A	9/13/2017	Copper	131.95	131.95	131.95		0.714	ug/L
MS-07	10/26/2017	Copper	90.83	90.83	90.83		0.714	ug/L
MS-14	10/26/2017	Copper	107.23	107.23	107.23		0.714	ug/L
MS-14A	10/26/2017	Copper	137.33	137.33	137.33		0.714	ug/L
MS-07	11/6/2017	Copper	76.74	76.74	76.74		0.714	ug/L
MS-14	11/6/2017	Copper	131	131	131		0.714	ug/L
MS-14A	11/6/2017	Copper	158.85	158.85	158.85		0.714	ug/L
MS-07	12/7/2017	Copper	109.54	109.54	109.54		0.714	ug/L
MS-14	12/7/2017	Copper	126.97	126.97	126.97		0.714	ug/L
MS-14A	12/7/2017	Copper	129.92	129.92	129.92		0.714	ug/L
MS-07	1/13/2018	Copper	112	112	112		0.714	ug/L
MS-14	1/13/2018	Copper	129	129	129		0.714	ug/L
MS-14A	1/13/2018	Copper	120	120	120		0.714	ug/L
MS-07	2/7/2018	Copper	133	133	133		0.714	ug/L
MS-14	2/7/2018	Copper	128	128	128		0.714	ug/L
MS-14A	2/7/2018	Copper	148	148	148		0.714	ug/L
MS-07	3/8/2018	Copper	112	112	112		0.775	ug/L
MS-14	3/8/2018	Copper	104	104	104		0.775	ug/L
MS-14A	3/8/2018	Copper	125	125	125		0.775	ug/L
MS-07	4/2/2018	Copper	116	116	116		0.775	ug/L
MS-14	4/2/2018	Copper	108	108	108		0.775	ug/L
MS-14A	4/2/2018	Copper	89.7	89.7	89.7		0.775	ug/L
MS-07	5/9/2018	Copper	69.5	69.5	69.5		0.775	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Copper	48.2	48.2	48.2		0.775	ug/L
MS-14A	5/9/2018	Copper	20.5	20.5	20.5		0.775	ug/L
MS-07	6/11/2018	Copper	117	117	117		0.775	ug/L
MS-14	6/11/2018	Copper	103	103	103		0.775	ug/L
MS-14A	6/11/2018	Copper	123	123	123		0.775	ug/L
MS-07	7/11/2018	Copper	105	105	105		0.775	ug/L
MS-14	7/11/2018	Copper	118	118	118		0.775	ug/L
MS-14A	7/11/2018	Copper	154	154	154		0.775	ug/L
MS-07	8/11/2018	Copper	112	112	112		0.775	ug/L
MS-14	8/11/2018	Copper	137	137	137		0.775	ug/L
MS-14A	8/11/2018	Copper	121	121	121		0.775	ug/L
MS-07	9/10/2018	Copper	131	131	131		0.775	ug/L
MS-14	9/10/2018	Copper	81.7	81.7	81.7		0.775	ug/L
MS-14A	9/10/2018	Copper	66.5	66.5	66.5		0.775	ug/L
MS-07	10/4/2018	Copper	115	115	115		0.775	ug/L
MS-14	10/4/2018	Copper	70.3	70.3	70.3		0.775	ug/L
MS-14A	10/4/2018	Copper	66.4	66.4	66.4		0.775	ug/L
MS-07	11/7/2018	Copper	195	195			0.775	ug/L
MS-14	11/7/2018	Copper	116	116	116		0.775	ug/L
MS-14A	11/7/2018	Copper	78.9	78.9	78.9		0.775	ug/L
MS-07	12/3/2018	Copper	103	103	103		0.775	ug/L
MS-14	12/3/2018	Copper	129	129	129		0.775	ug/L
MS-14A	12/3/2018	Copper	79.3	79.3	79.3		0.775	ug/L
MS-07	1/12/2019	Copper	101	101	101		0.775	ug/L
MS-14	1/12/2019	Copper	82.7	82.7	82.7		0.775	ug/L
MS-14A	1/12/2019	Copper	83.7	83.7	83.7		0.775	ug/L
MS-07	2/6/2019	Copper	107	107	107		0.775	ug/L
MS-14	2/6/2019	Copper	131	131	131		0.775	ug/L
MS-14A	2/6/2019	Copper	63	63	63		0.775	ug/L
MS-07	3/7/2019	Copper	90.7	90.7	90.7		0.775	ug/L
MS-14	3/7/2019	Copper	110	110	110		0.775	ug/L
MS-14A	3/7/2019	Copper	57.7	57.7	57.7		0.775	ug/L
MS-07	4/1/2019	Copper	67.6	67.6	67.6		0.775	ug/L
MS-14	4/1/2019	Copper	93.5	93.5	93.5		0.775	ug/L
MS-14A	4/1/2019	Copper	58.5	58.5	58.5		0.775	ug/L
MS-07	5/8/2019	Copper	69.8	69.8	69.8		0.775	ug/L
MS-14	5/8/2019	Copper	83.1	83.1	83.1		0.775	ug/L
MS-14A	5/8/2019	Copper	37.2	37.2	37.2		0.775	ug/L
MS-07	6/8/2019	Copper	74.3	74.3	74.3		0.775	ug/L
MS-14	6/8/2019	Copper	123	123	123		0.775	ug/L
MS-14A	6/8/2019	Copper	96.9	96.9	96.9		0.775	ug/L
MS-07	7/10/2019	Copper	103	103	103		0.775	ug/L
MS-14	7/10/2019	Copper	144	144	144		0.775	ug/L
MS-14A	7/10/2019	Copper	93.3	93.3	93.3		0.775	ug/L
MS-07	8/10/2019	Copper	68.9	68.9	68.9		0.775	ug/L
MS-14	8/10/2019	Copper	116	116	116		0.775	ug/L
MS-14A	8/10/2019	Copper	55.7	55.7	55.7		0.775	ug/L
MS-07	9/9/2019	Copper	78.6	78.6	78.6		0.775	ug/L
MS-14	9/9/2019	Copper	117	117	117		0.775	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Copper	33.1	33.1	33.1		0.775	ug/L
MS-07	10/10/2019	Copper	49.9	49.9	49.9		0.775	ug/L
MS-14	10/10/2019	Copper	94.4	94.4	94.4		0.775	ug/L
MS-14A	10/10/2019	Copper	33.3	33.3	33.3		0.775	ug/L
MS-07	11/6/2019	Copper	89.8	89.8	89.8		0.775	ug/L
MS-14	11/6/2019	Copper	124	124	124		0.775	ug/L
MS-14A	11/6/2019	Copper	59.2	59.2	59.2		0.775	ug/L
MS-07	12/2/2019	Copper	64.8	64.8	64.8		0.775	ug/L
MS-14	12/2/2019	Copper	66.2	66.2	66.2		0.775	ug/L
MS-14A	12/2/2019	Copper	29.8	29.8	29.8		0.775	ug/L
MS-07	1/15/2020	Copper	83.5	83.5	83.5		0.775	ug/L
MS-14	1/15/2020	Copper	130	130	130		0.775	ug/L
MS-14A	1/15/2020	Copper	71.8	71.8	71.8		0.775	ug/L
MS-07	2/20/2020	Copper	94.1	94.1	94.1		0.775	ug/L
MS-14	2/20/2020	Copper	131	131	131		0.775	ug/L
MS-14A	2/20/2020	Copper	98.1	98.1	98.1		0.775	ug/L
MS-07	3/14/2020	Copper	68	68	68		0.775	ug/L
MS-14	3/14/2020	Copper	58.6	58.6	58.6		0.775	ug/L
MS-14A	3/14/2020	Copper	31.2	31.2	31.2		0.775	ug/L
MS-07	4/22/2020	Copper	76.9	76.9	76.9		0.775	ug/L
MS-14	4/22/2020	Copper	111	111	111		0.775	ug/L
MS-14A	4/22/2020	Copper	57.1	57.1	57.1		0.775	ug/L
MS-07	5/14/2020	Copper	74	74	74		0.775	ug/L
MS-14	5/14/2020	Copper	144	144	144		0.775	ug/L
MS-14A	5/14/2020	Copper	70.7	70.7	70.7		0.775	ug/L
MS-07	6/4/2020	Copper	83	83	83		0.775	ug/L
MS-14	6/4/2020	Copper	103	103	103		0.775	ug/L
MS-14A	6/4/2020	Copper	59.6	59.6	59.6		0.775	ug/L
MS-07	7/18/2020	Copper	72.8	72.8	72.8		0.775	ug/L
MS-14	7/18/2020	Copper	108	108	108		0.775	ug/L
MS-14A	7/18/2020	Copper	53.5	53.5	53.5		0.775	ug/L
MS-07	8/15/2020	Copper	85.6	85.6	85.6		0.775	ug/L
MS-14	8/15/2020	Copper	210	210			0.775	ug/L
MS-14A	8/15/2020	Copper	107	107	107		0.775	ug/L
MS-07	9/16/2020	Copper	84.5	84.5	84.5		0.775	ug/L
MS-14	9/16/2020	Copper	167	167	167		0.775	ug/L
MS-14A	9/16/2020	Copper	104	104	104		0.775	ug/L
		Average		**98.0**	**96.4**	**ug/l**	**0.0964**	**mg/l**
		Maximum		**210**	**172**	**ug/l**	**0.172**	**mg/l**

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-14	1/11/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-14A	1/11/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-07	2/6/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-14	2/6/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-14A	2/6/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-07	3/8/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-14	3/8/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-14A	3/8/2017	Lead	2.65	2.65			1.677	ug/L
MS-14	4/6/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-14A	4/6/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-14	5/8/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-14A	5/8/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-07	5/9/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-07	6/21/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	6/21/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	6/21/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	6/29/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	7/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	7/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	7/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	8/7/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	8/7/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	8/7/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	9/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	9/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	9/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	10/26/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	10/26/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	10/26/2017	Lead	2.61	2.61			2.362	ug/L
MS-07	11/6/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	11/6/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	11/6/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	12/7/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	12/7/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	12/7/2017	Lead	2.78	2.78			2.362	ug/L
MS-07	1/13/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	1/13/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	1/13/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	2/7/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14	2/7/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-14A	2/7/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-07	3/8/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	3/8/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	3/8/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	4/2/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	4/2/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	4/2/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	5/9/2018	Lead	<2.681	1.341	1.341		2.681	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	5/9/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	6/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	6/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	6/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	7/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	7/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	7/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	8/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	8/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	8/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	9/10/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	9/10/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	9/10/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	10/4/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	10/4/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	10/4/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	11/7/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	11/7/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	11/7/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	12/3/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	12/3/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	12/3/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	1/12/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	1/12/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	1/12/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	2/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	2/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	2/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	3/7/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	3/7/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	3/7/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	4/1/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	4/1/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	4/1/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	5/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	5/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	5/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	6/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	6/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	6/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	7/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	7/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	7/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	8/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	8/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	8/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	9/9/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	9/9/2019	Lead	3.82	3.82			2.681	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	10/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	10/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	10/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	11/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	11/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	11/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	12/2/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	12/2/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	12/2/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	1/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	1/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	1/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	2/20/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	2/20/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	2/20/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	3/14/2020	Lead	3.5	3.5			2.681	ug/L
MS-14	3/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	3/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	4/22/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	4/22/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	4/22/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	5/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	5/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	5/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	6/4/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	6/4/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	6/4/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	7/18/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	7/18/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	7/18/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	8/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	8/15/2020	Lead	3.52	3.52	3.520		2.681	ug/L
MS-14A	8/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-07	9/16/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14	9/16/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-14A	9/16/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
		Average		**1.36**	**1.29**	**ug/l**	**0.00129**	**mg/l**
		Maximum		**3.82**	**3.52**	**ug/l**	**0.00352**	**mg/l**

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Manganese	38.6	38.6	38.6		0.45	ug/L
MS-14	1/11/2017	Manganese	51.1	51.1	51.1		0.45	ug/L
MS-14A	1/11/2017	Manganese	32.4	32.4	32.4		0.45	ug/L
MS-07	2/6/2017	Manganese	39.9	39.9	39.9		0.45	ug/L
MS-14	2/6/2017	Manganese	35.8	35.8	35.8		0.45	ug/L
MS-14A	2/6/2017	Manganese	40	40	40		0.45	ug/L
MS-07	3/8/2017	Manganese	36.3	36.3	36.3		0.492	ug/L
MS-14	3/8/2017	Manganese	22.4	22.4	22.4		0.492	ug/L
MS-14A	3/8/2017	Manganese	14.8	14.8	14.8		0.492	ug/L
MS-14	4/6/2017	Manganese	25.8	25.8	25.8		0.492	ug/L
MS-14A	4/6/2017	Manganese	25.5	25.5	25.5		0.492	ug/L
MS-14	5/8/2017	Manganese	26.2	26.2	26.2		0.492	ug/L
MS-14A	5/8/2017	Manganese	28.4	28.4	28.4		0.492	ug/L
MS-07	5/9/2017	Manganese	35.2	35.2	35.2		0.492	ug/L
MS-07	6/21/2017	Manganese	45.67	45.67	45.67		1.182	ug/L
MS-14	6/21/2017	Manganese	41.21	41.21	41.21		1.182	ug/L
MS-14A	6/21/2017	Manganese	98.43	98.43	98.43		1.182	ug/L
MS-07	6/29/2017	Manganese	35.76	35.76	35.76		1.182	ug/L
MS-07	7/13/2017	Manganese	34.29	34.29	34.29		1.182	ug/L
MS-14	7/13/2017	Manganese	192.56	192.56			1.182	ug/L
MS-14A	7/13/2017	Manganese	51.27	51.27	51.27		1.182	ug/L
MS-07	8/7/2017	Manganese	43.4	43.4	43.4		1.182	ug/L
MS-14	8/7/2017	Manganese	55.76	55.76	55.76		1.182	ug/L
MS-14A	8/7/2017	Manganese	66.41	66.41	66.41		1.182	ug/L
MS-07	9/13/2017	Manganese	41.03	41.03	41.03		1.182	ug/L
MS-14	9/13/2017	Manganese	41.34	41.34	41.34		1.182	ug/L
MS-14A	9/13/2017	Manganese	63.71	63.71	63.71		1.182	ug/L
MS-07	10/26/2017	Manganese	39.57	39.57	39.57		1.182	ug/L
MS-14	10/26/2017	Manganese	146.29	146.29			1.182	ug/L
MS-14A	10/26/2017	Manganese	145.28	145.28			1.182	ug/L
MS-07	11/6/2017	Manganese	32.29	32.29	32.29		1.182	ug/L
MS-14	11/6/2017	Manganese	107.06	107.06			1.182	ug/L
MS-14A	11/6/2017	Manganese	375.04	375.04			1.182	ug/L
MS-07	12/7/2017	Manganese	35.81	35.81	35.81		1.182	ug/L
MS-14	12/7/2017	Manganese	109.82	109.82			1.182	ug/L
MS-14A	12/7/2017	Manganese	212.24	212.24			1.182	ug/L
MS-07	1/13/2018	Manganese	37.1	37.1	37.1		1.182	ug/L
MS-14	1/13/2018	Manganese	89	89	89		1.182	ug/L
MS-14A	1/13/2018	Manganese	150	150			1.182	ug/L
MS-07	2/7/2018	Manganese	38.4	38.4	38.4		1.182	ug/L
MS-14	2/7/2018	Manganese	99.3	99.3	99.3		1.182	ug/L
MS-14A	2/7/2018	Manganese	632	632			1.182	ug/L
MS-07	3/8/2018	Manganese	40.1	40.1	40.1		0.489	ug/L
MS-14	3/8/2018	Manganese	70.8	70.8	70.8		0.489	ug/L
MS-14A	3/8/2018	Manganese	208	208			0.489	ug/L
MS-07	4/2/2018	Manganese	39.7	39.7	39.7		0.489	ug/L
MS-14	4/2/2018	Manganese	68.2	68.2	68.2		0.489	ug/L
MS-14A	4/2/2018	Manganese	83.5	83.5	83.5		0.489	ug/L
MS-07	5/9/2018	Manganese	29.3	29.3	29.3		0.489	ug/L

NEW Water
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Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Manganese	44.8	44.8	44.8		0.489	ug/L
MS-14A	5/9/2018	Manganese	54.7	54.7	54.7		0.489	ug/L
MS-07	6/11/2018	Manganese	44.4	44.4	44.4		0.489	ug/L
MS-14	6/11/2018	Manganese	81.7	81.7	81.7		0.489	ug/L
MS-14A	6/11/2018	Manganese	165	165			0.489	ug/L
MS-07	7/11/2018	Manganese	39.5	39.5	39.5		0.489	ug/L
MS-14	7/11/2018	Manganese	61.9	61.9	61.9		0.489	ug/L
MS-14A	7/11/2018	Manganese	1350	1350			0.489	ug/L
MS-07	8/11/2018	Manganese	37.3	37.3	37.3		0.489	ug/L
MS-14	8/11/2018	Manganese	68.2	68.2	68.2		0.489	ug/L
MS-14A	8/11/2018	Manganese	82.4	82.4	82.4		0.489	ug/L
MS-07	9/10/2018	Manganese	36.9	36.9	36.9		0.489	ug/L
MS-14	9/10/2018	Manganese	37.1	37.1	37.1		0.489	ug/L
MS-14A	9/10/2018	Manganese	73.7	73.7	73.7		0.489	ug/L
MS-07	10/4/2018	Manganese	32.2	32.2	32.2		0.489	ug/L
MS-14	10/4/2018	Manganese	32.6	32.6	32.6		0.489	ug/L
MS-14A	10/4/2018	Manganese	81.6	81.6	81.6		0.489	ug/L
MS-07	11/7/2018	Manganese	79.4	79.4	79.4		0.489	ug/L
MS-14	11/7/2018	Manganese	19	19	19		0.489	ug/L
MS-14A	11/7/2018	Manganese	108	108			0.489	ug/L
MS-07	12/3/2018	Manganese	39.1	39.1	39.1		0.489	ug/L
MS-14	12/3/2018	Manganese	36.2	36.2	36.2		0.489	ug/L
MS-14A	12/3/2018	Manganese	81.5	81.5	81.5		0.489	ug/L
MS-07	1/12/2019	Manganese	34.5	34.5	34.5		2.596	ug/L
MS-14	1/12/2019	Manganese	21.3	21.3	21.3		2.596	ug/L
MS-14A	1/12/2019	Manganese	38.6	38.6	38.6		2.596	ug/L
MS-07	2/6/2019	Manganese	36.3	36.3	36.3		2.596	ug/L
MS-14	2/6/2019	Manganese	19.8	19.8	19.8		2.596	ug/L
MS-14A	2/6/2019	Manganese	39.5	39.5	39.5		2.596	ug/L
MS-07	3/7/2019	Manganese	36.4	36.4	36.4		2.596	ug/L
MS-14	3/7/2019	Manganese	49.6	49.6	49.6		2.596	ug/L
MS-14A	3/7/2019	Manganese	57.3	57.3	57.3		2.596	ug/L
MS-07	4/1/2019	Manganese	30.6	30.6	30.6		2.596	ug/L
MS-14	4/1/2019	Manganese	20.1	20.1	20.1		2.596	ug/L
MS-14A	4/1/2019	Manganese	33.8	33.8	33.8		2.596	ug/L
MS-07	5/8/2019	Manganese	33.4	33.4	33.4		2.596	ug/L
MS-14	5/8/2019	Manganese	28.6	28.6	28.6		2.596	ug/L
MS-14A	5/8/2019	Manganese	38	38	38		2.596	ug/L
MS-07	6/8/2019	Manganese	41.5	41.5	41.5		2.596	ug/L
MS-14	6/8/2019	Manganese	23.2	23.2	23.2		2.596	ug/L
MS-14A	6/8/2019	Manganese	37.6	37.6	37.6		2.596	ug/L
MS-07	7/10/2019	Manganese	37.8	37.8	37.8		2.596	ug/L
MS-14	7/10/2019	Manganese	31.9	31.9	31.9		2.596	ug/L
MS-14A	7/10/2019	Manganese	46.9	46.9	46.9		2.596	ug/L
MS-07	8/10/2019	Manganese	39.4	39.4	39.4		2.596	ug/L
MS-14	8/10/2019	Manganese	27.6	27.6	27.6		2.596	ug/L
MS-14A	8/10/2019	Manganese	52.8	52.8	52.8		2.596	ug/L
MS-07	9/9/2019	Manganese	42.4	42.4	42.4		2.596	ug/L
MS-14	9/9/2019	Manganese	45.1	45.1	45.1		2.596	ug/L

NEW Water
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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Manganese	40	40	40		2.596	ug/L
MS-07	10/10/2019	Manganese	34.4	34.4	34.4		2.596	ug/L
MS-14	10/10/2019	Manganese	19.1	19.1	19.1		2.596	ug/L
MS-14A	10/10/2019	Manganese	45.4	45.4	45.4		2.596	ug/L
MS-07	11/6/2019	Manganese	43.4	43.4	43.4		2.596	ug/L
MS-14	11/6/2019	Manganese	36.5	36.5	36.5		2.596	ug/L
MS-14A	11/6/2019	Manganese	55.6	55.6	55.6		2.596	ug/L
MS-07	12/2/2019	Manganese	32.6	32.6	32.6		2.596	ug/L
MS-14	12/2/2019	Manganese	16.6	16.6	16.6		2.596	ug/L
MS-14A	12/2/2019	Manganese	49.2	49.2	49.2		2.596	ug/L
MS-07	1/15/2020	Manganese	34	34	34		2.596	ug/L
MS-14	1/15/2020	Manganese	23.6	23.6	23.6		2.596	ug/L
MS-14A	1/15/2020	Manganese	35.6	35.6	35.6		2.596	ug/L
MS-07	2/20/2020	Manganese	36	36	36		2.596	ug/L
MS-14	2/20/2020	Manganese	27.1	27.1	27.1		2.596	ug/L
MS-14A	2/20/2020	Manganese	68.6	68.6	68.6		2.596	ug/L
MS-07	3/14/2020	Manganese	30.1	30.1	30.1		2.596	ug/L
MS-14	3/14/2020	Manganese	12.2	12.2	12.2		2.596	ug/L
MS-14A	3/14/2020	Manganese	43.6	43.6	43.6		2.596	ug/L
MS-07	4/22/2020	Manganese	39.4	39.4	39.4		2.596	ug/L
MS-14	4/22/2020	Manganese	17.9	17.9	17.9		2.596	ug/L
MS-14A	4/22/2020	Manganese	101	101	101		2.596	ug/L
MS-07	5/14/2020	Manganese	38.4	38.4	38.4		2.596	ug/L
MS-14	5/14/2020	Manganese	34.3	34.3	34.3		2.596	ug/L
MS-14A	5/14/2020	Manganese	45.7	45.7	45.7		2.596	ug/L
MS-07	6/4/2020	Manganese	32.8	32.8	32.8		2.596	ug/L
MS-14	6/4/2020	Manganese	28.5	28.5	28.5		2.596	ug/L
MS-14A	6/4/2020	Manganese	77.1	77.1	77.1		2.596	ug/L
MS-07	7/18/2020	Manganese	29.8	29.8	29.8		2.596	ug/L
MS-14	7/18/2020	Manganese	30.3	30.3	30.3		2.596	ug/L
MS-14A	7/18/2020	Manganese	205	205			2.596	ug/L
MS-07	8/15/2020	Manganese	35.3	35.3	35.3		2.596	ug/L
MS-14	8/15/2020	Manganese	38.8	38.8	38.8		2.596	ug/L
MS-14A	8/15/2020	Manganese	97.7	97.7	97.7		2.596	ug/L
MS-07	9/16/2020	Manganese	34.7	34.7	34.7		2.596	ug/L
MS-14	9/16/2020	Manganese	44.5	44.5	44.5		2.596	ug/L
MS-14A	9/16/2020	Manganese	75.2	75.2	75.2		2.596	ug/L
		Average		**69.4**	**43.5**	**ug/l**	**0.0435**	**mg/l**
		Maximum		**1350**	**101**	**ug/l**	**0.101**	**mg/l**

NEW Water
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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14	1/11/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14A	1/11/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-07	2/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14	2/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14A	2/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-07	3/8/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14	3/8/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14A	3/8/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14	4/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14A	4/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-14	5/8/2017	Mercury	0.215	0.215			0.0335	ug/L
MS-14A	5/8/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	5/9/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	6/21/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	6/21/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	6/21/2017	Mercury	0.051	0.051			0.0335	ug/L
MS-07	6/29/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	7/13/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	7/13/2017	Mercury	0.037	0.037			0.0335	ug/L
MS-14A	7/13/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	8/7/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	8/7/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	8/7/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	9/13/2017	Mercury	0.054	0.054			0.0335	ug/L
MS-14	9/13/2017	Mercury	0.04	0.04			0.0335	ug/L
MS-14A	9/13/2017	Mercury	0.055	0.055			0.0335	ug/L
MS-07	10/26/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	10/26/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	10/26/2017	Mercury	0.04	0.04			0.0335	ug/L
MS-07	11/6/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	11/6/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	11/6/2017	Mercury	0.068	0.068			0.0335	ug/L
MS-07	12/7/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	12/7/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	12/7/2017	Mercury	0.042	0.042			0.0335	ug/L
MS-07	1/13/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	1/13/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	1/13/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	2/7/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14	2/7/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-14A	2/7/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-07	3/8/2018	Mercury	<0.035	0.018	0.0175		0.035	ug/L
MS-14	3/8/2018	Mercury	<0.035	0.018	0.0175		0.035	ug/L
MS-14A	3/8/2018	Mercury	0.068	0.068			0.035	ug/L
MS-07	4/2/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	4/2/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	4/2/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-07	5/9/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	5/9/2018	Mercury	0.053	0.053			0.035	ug/L
MS-07	6/11/2018	Mercury	0.04	0.04			0.035	ug/L
MS-14	6/11/2018	Mercury	0.045	0.045			0.035	ug/L
MS-14A	6/11/2018	Mercury	0.077	0.077			0.035	ug/L
MS-07	7/11/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	7/11/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	7/11/2018	Mercury	0.264	0.264			0.035	ug/L
MS-07	8/11/2018	Mercury	0.043	0.043			0.035	ug/L
MS-14	8/11/2018	Mercury	0.086	0.086			0.035	ug/L
MS-14A	8/11/2018	Mercury	0.035	0.035			0.035	ug/L
MS-07	9/10/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	9/10/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	9/10/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-07	10/4/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	10/4/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	10/4/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-07	11/7/2018	Mercury	0.098	0.098			0.035	ug/L
MS-14	11/7/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	11/7/2018	Mercury	0.044	0.044			0.035	ug/L
MS-07	12/3/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	12/3/2018	Mercury	0.15	0.15			0.035	ug/L
MS-14A	12/3/2018	Mercury	0.035	0.035			0.035	ug/L
MS-07	1/12/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	1/12/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	1/12/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-07	2/6/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	2/6/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	2/6/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-07	3/7/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14	3/7/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-14A	3/7/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-07	4/1/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	4/1/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	4/1/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	5/8/2019	Mercury	0.0467	0.0467			0.041	ug/L
MS-14	5/8/2019	Mercury	0.0445	0.0445			0.041	ug/L
MS-14A	5/8/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	6/8/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	6/8/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	6/8/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	7/10/2019	Mercury	0.105	0.105			0.041	ug/L
MS-14	7/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	7/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	8/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	8/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	8/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	9/9/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	9/9/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	10/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	10/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	10/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	11/6/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	11/6/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	11/6/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	12/2/2019	Mercury	0.0584	0.0584			0.041	ug/L
MS-14	12/2/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	12/2/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	1/15/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	1/15/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	1/15/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	2/20/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	2/20/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	2/20/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	3/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	3/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	3/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	4/22/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	4/22/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	4/22/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	5/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	5/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	5/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	6/4/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	6/4/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	6/4/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	7/18/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	7/18/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	7/18/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	8/15/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	8/15/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	8/15/2020	Mercury	0.0538	0.0538			0.041	ug/L
MS-07	9/16/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14	9/16/2020	Mercury	0.0421	0.0421			0.041	ug/L
MS-14A	9/16/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-07	10/22/2020	Mercury	0.444	0.444			0.041	ug/L
MS-14	10/22/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-14A	10/22/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
		Average		**0.033**	**0.019**	**ug/l**	**0.000019**	**mg/l**
		Maximum		**0.444**	**0.021**	**ug/l**	**0.000021**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Molybdenum	<0.92	0.46	0.46		0.92	ug/L
MS-14	1/11/2017	Molybdenum	<0.92	0.46	0.46		0.92	ug/L
MS-14A	1/11/2017	Molybdenum	<0.92	0.46	0.46		0.92	ug/L
MS-07	2/6/2017	Molybdenum	<0.92	0.46	0.46		0.92	ug/L
MS-14	2/6/2017	Molybdenum	<0.92	0.46	0.46		0.92	ug/L
MS-14A	2/6/2017	Molybdenum	<0.92	0.46	0.46		0.92	ug/L
MS-07	3/8/2017	Molybdenum	<0.656	0.328	0.328		0.656	ug/L
MS-14	3/8/2017	Molybdenum	<0.656	0.328	0.328		0.656	ug/L
MS-14A	3/8/2017	Molybdenum	<0.656	0.328	0.328		0.656	ug/L
MS-14	4/6/2017	Molybdenum	0.662	0.662	0.662		0.656	ug/L
MS-14A	4/6/2017	Molybdenum	0.703	0.703	0.703		0.656	ug/L
MS-14	5/8/2017	Molybdenum	<0.656	0.328	0.328		0.656	ug/L
MS-14A	5/8/2017	Molybdenum	<0.656	0.328	0.328		0.656	ug/L
MS-07	5/9/2017	Molybdenum	<0.656	0.328	0.328		0.656	ug/L
MS-07	6/21/2017	Molybdenum	1.13	1.13	1.13		1.078	ug/L
MS-14	6/21/2017	Molybdenum	1.83	1.83	1.83		1.078	ug/L
MS-14A	6/21/2017	Molybdenum	1.99	1.99	1.99		1.078	ug/L
MS-07	6/29/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-07	7/13/2017	Molybdenum	1.13	1.13	1.13		1.078	ug/L
MS-14	7/13/2017	Molybdenum	2.11	2.11	2.11		1.078	ug/L
MS-14A	7/13/2017	Molybdenum	1.62	1.62	1.62		1.078	ug/L
MS-07	8/7/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14	8/7/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14A	8/7/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-07	9/13/2017	Molybdenum	1.57	1.57	1.57		1.078	ug/L
MS-14	9/13/2017	Molybdenum	1.73	1.73	1.73		1.078	ug/L
MS-14A	9/13/2017	Molybdenum	1.83	1.83	1.83		1.078	ug/L
MS-07	10/26/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14	10/26/2017	Molybdenum	1.5	1.5	1.5		1.078	ug/L
MS-14A	10/26/2017	Molybdenum	2.58	2.58	2.58		1.078	ug/L
MS-07	11/6/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14	11/6/2017	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14A	11/6/2017	Molybdenum	1.47	1.47	1.47		1.078	ug/L
MS-07	12/7/2017	Molybdenum	1.42	1.42	1.42		1.078	ug/L
MS-14	12/7/2017	Molybdenum	2.7	2.7	2.7		1.078	ug/L
MS-14A	12/7/2017	Molybdenum	1.72	1.72	1.72		1.078	ug/L
MS-07	1/13/2018	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14	1/13/2018	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14A	1/13/2018	Molybdenum	1.2	1.2	1.2		1.078	ug/L
MS-07	2/7/2018	Molybdenum	<1.078	0.539	0.539		1.078	ug/L
MS-14	2/7/2018	Molybdenum	1.55	1.55	1.55		1.078	ug/L
MS-14A	2/7/2018	Molybdenum	1.95	1.95	1.95		1.078	ug/L
MS-07	3/8/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	3/8/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	3/8/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	4/2/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	4/2/2018	Molybdenum	1.79	1.79	1.79		1.707	ug/L
MS-14A	4/2/2018	Molybdenum	1.74	1.74	1.74		1.707	ug/L
MS-07	5/9/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	5/9/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	6/11/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	6/11/2018	Molybdenum	2.33	2.33	2.33		1.707	ug/L
MS-14A	6/11/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	7/11/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	7/11/2018	Molybdenum	2.32	2.32	2.32		1.707	ug/L
MS-14A	7/11/2018	Molybdenum	2.17	2.17	2.17		1.707	ug/L
MS-07	8/11/2018	Molybdenum	2.19	2.19	2.19		1.707	ug/L
MS-14	8/11/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	8/11/2018	Molybdenum	2.33	2.33	2.33		1.707	ug/L
MS-07	9/10/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	9/10/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	9/10/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	10/4/2018	Molybdenum	1.94	1.94	1.94		1.707	ug/L
MS-14	10/4/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	10/4/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	11/7/2018	Molybdenum	5.83	5.83	5.83		1.707	ug/L
MS-14	11/7/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	11/7/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	12/3/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	12/3/2018	Molybdenum	1.71	1.71	1.71		1.707	ug/L
MS-14A	12/3/2018	Molybdenum	1.71	1.71	1.71		1.707	ug/L
MS-07	1/12/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	1/12/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	1/12/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	2/6/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	2/6/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	2/6/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	3/7/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	3/7/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	3/7/2019	Molybdenum	2.28	2.28	2.28		1.707	ug/L
MS-07	4/1/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	4/1/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	4/1/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	5/8/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	5/8/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	5/8/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	6/8/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	6/8/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	6/8/2019	Molybdenum	2.02	2.02	2.02		1.707	ug/L
MS-07	7/10/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	7/10/2019	Molybdenum	1.75	1.75	1.75		1.707	ug/L
MS-14A	7/10/2019	Molybdenum	1.75	1.75	1.75		1.707	ug/L
MS-07	8/10/2019	Molybdenum	1.71	1.71	1.71		1.707	ug/L
MS-14	8/10/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	8/10/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	9/9/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	9/9/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L

NEW Water
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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	10/10/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	10/10/2019	Molybdenum	1.77	1.770	1.77		1.707	ug/L
MS-14A	10/10/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	11/6/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	11/6/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	11/6/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	12/2/2019	Molybdenum	2.24	2.24	2.24		1.707	ug/L
MS-14	12/2/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	12/2/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	1/15/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	1/15/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	1/15/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	2/20/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	2/20/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	2/20/2020	Molybdenum	1.9	1.9	1.9		1.707	ug/L
MS-07	3/14/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	3/14/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	3/14/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	4/22/2020	Molybdenum	3.12	3.12			1.707	ug/L
MS-14	4/22/2020	Molybdenum	1.95	1.95	1.95		1.707	ug/L
MS-14A	4/22/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	5/14/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	5/14/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	5/14/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	6/4/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	6/4/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	6/4/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	7/18/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	7/18/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14A	7/18/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-07	8/15/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	8/15/2020	Molybdenum	2.14	2.14	2.14		1.707	ug/L
MS-14A	8/15/2020	Molybdenum	2.11	2.11	2.11		1.707	ug/L
MS-07	9/16/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-14	9/16/2020	Molybdenum	1.89	1.89	1.89		1.707	ug/L
MS-14A	9/16/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
		Average		**1.14**	**1.13**	**ug/l**	**0.00113**	**mg/l**
		Maximum		**5.83**	**5.83**	**ug/l**	**0.00583**	**mg/l**

NEW Water
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Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Nickel	<2.62	1.31	1.31		2.62	ug/L
MS-14	1/11/2017	Nickel	2.7	2.7	2.7		2.62	ug/L
MS-14A	1/11/2017	Nickel	<2.62	1.31	1.31		2.62	ug/L
MS-07	2/6/2017	Nickel	<2.62	1.31	1.31		2.62	ug/L
MS-14	2/6/2017	Nickel	3.57	3.57	3.57		2.62	ug/L
MS-14A	2/6/2017	Nickel	2.73	2.73	2.73		2.62	ug/L
MS-07	3/8/2017	Nickel	2.73	2.73	2.73		1.716	ug/L
MS-14	3/8/2017	Nickel	3.13	3.13	3.13		1.716	ug/L
MS-14A	3/8/2017	Nickel	2.29	2.29	2.29		1.716	ug/L
MS-14	4/6/2017	Nickel	1.97	1.97	1.97		1.716	ug/L
MS-14A	4/6/2017	Nickel	<1.716	0.858	0.858		1.716	ug/L
MS-14	5/8/2017	Nickel	4.09	4.09	4.09		1.716	ug/L
MS-14A	5/8/2017	Nickel	5.48	5.48	5.48		1.716	ug/L
MS-07	5/9/2017	Nickel	4.72	4.72	4.72		1.716	ug/L
MS-07	6/21/2017	Nickel	7.23	7.23	7.23		1.445	ug/L
MS-14	6/21/2017	Nickel	10.1	10.1	10.1		1.445	ug/L
MS-14A	6/21/2017	Nickel	11.73	11.73	11.73		1.445	ug/L
MS-07	6/29/2017	Nickel	8.2	8.2	8.2		1.445	ug/L
MS-07	7/13/2017	Nickel	8.44	8.44	8.44		1.445	ug/L
MS-14	7/13/2017	Nickel	14.34	14.34			1.445	ug/L
MS-14A	7/13/2017	Nickel	8.56	8.56	8.56		1.445	ug/L
MS-07	8/7/2017	Nickel	12.85	12.85	12.85		1.445	ug/L
MS-14	8/7/2017	Nickel	10.95	10.95	10.95		1.445	ug/L
MS-14A	8/7/2017	Nickel	12.11	12.11	12.11		1.445	ug/L
MS-07	9/13/2017	Nickel	6.65	6.65	6.65		1.445	ug/L
MS-14	9/13/2017	Nickel	9.85	9.85	9.85		1.445	ug/L
MS-14A	9/13/2017	Nickel	11.95	11.95	11.95		1.445	ug/L
MS-07	10/26/2017	Nickel	5.84	5.84	5.84		1.445	ug/L
MS-14	10/26/2017	Nickel	12.03	12.03	12.03		1.445	ug/L
MS-14A	10/26/2017	Nickel	18.26	18.26			1.445	ug/L
MS-07	11/6/2017	Nickel	6.99	6.99	6.99		1.445	ug/L
MS-14	11/6/2017	Nickel	8.15	8.15	8.15		1.445	ug/L
MS-14A	11/6/2017	Nickel	9.99	9.99	9.99		1.445	ug/L
MS-07	12/7/2017	Nickel	4.38	4.38	4.38		1.445	ug/L
MS-14	12/7/2017	Nickel	7.3	7.3	7.3		1.445	ug/L
MS-14A	12/7/2017	Nickel	8.52	8.52	8.52		1.445	ug/L
MS-07	1/13/2018	Nickel	6.95	6.95	6.95		1.445	ug/L
MS-14	1/13/2018	Nickel	9.82	9.82	9.82		1.445	ug/L
MS-14A	1/13/2018	Nickel	15.6	15.6			1.445	ug/L
MS-07	2/7/2018	Nickel	7.25	7.25	7.25		1.445	ug/L
MS-14	2/7/2018	Nickel	9.95	9.95	9.95		1.445	ug/L
MS-14A	2/7/2018	Nickel	12	12	12		1.445	ug/L
MS-07	3/8/2018	Nickel	6.06	6.06	6.06		1.178	ug/L
MS-14	3/8/2018	Nickel	8.44	8.44	8.44		1.178	ug/L
MS-14A	3/8/2018	Nickel	8.51	8.51	8.51		1.178	ug/L
MS-07	4/2/2018	Nickel	5.3	5.3	5.3		1.178	ug/L
MS-14	4/2/2018	Nickel	7.82	7.82	7.82		1.178	ug/L
MS-14A	4/2/2018	Nickel	8.96	8.96	8.96		1.178	ug/L
MS-07	5/9/2018	Nickel	6.55	6.55	6.55		1.178	ug/L

NEW Water
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Green Bay Facility
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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Nickel	3.39	3.39	3.39		1.178	ug/L
MS-14A	5/9/2018	Nickel	3.38	3.38	3.38		1.178	ug/L
MS-07	6/11/2018	Nickel	4.63	4.63	4.63		1.178	ug/L
MS-14	6/11/2018	Nickel	5.44	5.44	5.44		1.178	ug/L
MS-14A	6/11/2018	Nickel	6.45	6.45	6.45		1.178	ug/L
MS-07	7/11/2018	Nickel	4.59	4.59	4.59		1.178	ug/L
MS-14	7/11/2018	Nickel	6.15	6.15	6.15		1.178	ug/L
MS-14A	7/11/2018	Nickel	9.18	9.18	9.18		1.178	ug/L
MS-07	8/11/2018	Nickel	3.87	3.87	3.87		1.178	ug/L
MS-14	8/11/2018	Nickel	6.07	6.07	6.07		1.178	ug/L
MS-14A	8/11/2018	Nickel	8.55	8.55	8.55		1.178	ug/L
MS-07	9/10/2018	Nickel	3.65	3.65	3.65		1.178	ug/L
MS-14	9/10/2018	Nickel	5.34	5.34	5.34		1.178	ug/L
MS-14A	9/10/2018	Nickel	6.88	6.88	6.88		1.178	ug/L
MS-07	10/4/2018	Nickel	6.31	6.31	6.31		1.178	ug/L
MS-14	10/4/2018	Nickel	6.7	6.7	6.7		1.178	ug/L
MS-14A	10/4/2018	Nickel	7.55	7.55	7.55		1.178	ug/L
MS-07	11/7/2018	Nickel	11.8	11.8	11.8		1.178	ug/L
MS-14	11/7/2018	Nickel	5.03	5.03	5.03		1.178	ug/L
MS-14A	11/7/2018	Nickel	5.18	5.18	5.18		1.178	ug/L
MS-07	12/3/2018	Nickel	2.29	2.29	2.29		1.178	ug/L
MS-14	12/3/2018	Nickel	1.65	1.65	1.65		1.178	ug/L
MS-14A	12/3/2018	Nickel	2.99	2.99	2.99		1.178	ug/L
MS-07	1/12/2019	Nickel	2.51	2.51	2.51		1.178	ug/L
MS-14	1/12/2019	Nickel	3.43	3.43	3.43		1.178	ug/L
MS-14A	1/12/2019	Nickel	4.48	4.48	4.48		1.178	ug/L
MS-07	2/6/2019	Nickel	5.25	5.25	5.25		1.178	ug/L
MS-14	2/6/2019	Nickel	2.23	2.23	2.23		1.178	ug/L
MS-14A	2/6/2019	Nickel	2.02	2.02	2.02		1.178	ug/L
MS-07	3/7/2019	Nickel	3.9	3.9	3.9		1.178	ug/L
MS-14	3/7/2019	Nickel	4.56	4.56	4.56		1.178	ug/L
MS-14A	3/7/2019	Nickel	3.27	3.27	3.27		1.178	ug/L
MS-07	4/1/2019	Nickel	2.15	2.15	2.15		1.178	ug/L
MS-14	4/1/2019	Nickel	1.92	1.92	1.92		1.178	ug/L
MS-14A	4/1/2019	Nickel	2.95	2.95	2.95		1.178	ug/L
MS-07	5/8/2019	Nickel	2.79	2.79	2.79		1.178	ug/L
MS-14	5/8/2019	Nickel	2.57	2.57	2.57		1.178	ug/L
MS-14A	5/8/2019	Nickel	3.06	3.06	3.06		1.178	ug/L
MS-07	6/8/2019	Nickel	3.77	3.77	3.77		1.178	ug/L
MS-14	6/8/2019	Nickel	2.86	2.86	2.86		1.178	ug/L
MS-14A	6/8/2019	Nickel	5.61	5.61	5.61		1.178	ug/L
MS-07	7/10/2019	Nickel	3.65	3.65	3.65		1.178	ug/L
MS-14	7/10/2019	Nickel	4.43	4.43	4.43		1.178	ug/L
MS-14A	7/10/2019	Nickel	4.69	4.69	4.69		1.178	ug/L
MS-07	8/10/2019	Nickel	2.16	2.16	2.16		1.178	ug/L
MS-14	8/10/2019	Nickel	3.57	3.57	3.57		1.178	ug/L
MS-14A	8/10/2019	Nickel	3.73	3.73	3.73		1.178	ug/L
MS-07	9/9/2019	Nickel	3.54	3.54	3.54		1.178	ug/L
MS-14	9/9/2019	Nickel	3.15	3.15	3.15		1.178	ug/L

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Nickel	2.28	2.28	2.28		1.178	ug/L
MS-07	10/10/2019	Nickel	1.55	1.55	1.55		1.178	ug/L
MS-14	10/10/2019	Nickel	1.87	1.87	1.87		1.178	ug/L
MS-14A	10/10/2019	Nickel	1.47	1.47	1.47		1.178	ug/L
MS-07	11/6/2019	Nickel	2.59	2.59	2.59		1.178	ug/L
MS-14	11/6/2019	Nickel	2.6	2.6	2.6		1.178	ug/L
MS-14A	11/6/2019	Nickel	1.63	1.63	1.63		1.178	ug/L
MS-07	12/2/2019	Nickel	1.54	1.54	1.54		1.178	ug/L
MS-14	12/2/2019	Nickel	<1.178	0.589	0.589		1.178	ug/L
MS-14A	12/2/2019	Nickel	2.66	2.66	2.66		1.178	ug/L
MS-07	1/15/2020	Nickel	2.12	2.12	2.12		1.178	ug/L
MS-14	1/15/2020	Nickel	2.62	2.62	2.62		1.178	ug/L
MS-14A	1/15/2020	Nickel	2.35	2.35	2.35		1.178	ug/L
MS-07	2/20/2020	Nickel	1.75	1.75	1.75		1.178	ug/L
MS-14	2/20/2020	Nickel	<1.178	0.589	0.589		1.178	ug/L
MS-14A	2/20/2020	Nickel	1.54	1.54	1.54		1.178	ug/L
MS-07	3/14/2020	Nickel	1.43	1.43	1.43		1.178	ug/L
MS-14	3/14/2020	Nickel	<1.178	0.589	0.589		1.178	ug/L
MS-14A	3/14/2020	Nickel	<1.178	0.589	0.589		1.178	ug/L
MS-07	4/22/2020	Nickel	<1.178	0.589	0.589		1.178	ug/L
MS-14	4/22/2020	Nickel	<1.178	0.589	0.589		1.178	ug/L
MS-14A	4/22/2020	Nickel	1.33	1.33	1.33		1.178	ug/L
MS-07	5/14/2020	Nickel	4.43	4.43	4.43		1.178	ug/L
MS-14	5/14/2020	Nickel	3.04	3.04	3.04		1.178	ug/L
MS-14A	5/14/2020	Nickel	4.16	4.16	4.16		1.178	ug/L
MS-07	6/4/2020	Nickel	1.9	1.9	1.9		1.178	ug/L
MS-14	6/4/2020	Nickel	2.05	2.05	2.05		1.178	ug/L
MS-14A	6/4/2020	Nickel	4.88	4.88	4.88		1.178	ug/L
MS-07	7/18/2020	Nickel	1.95	1.95	1.95		1.178	ug/L
MS-14	7/18/2020	Nickel	2.45	2.45	2.45		1.178	ug/L
MS-14A	7/18/2020	Nickel	2.62	2.62	2.62		1.178	ug/L
MS-07	8/15/2020	Nickel	2.64	2.64	2.64		1.178	ug/L
MS-14	8/15/2020	Nickel	4.09	4.09	4.09		1.178	ug/L
MS-14A	8/15/2020	Nickel	4.06	4.06	4.06		1.178	ug/L
MS-07	9/16/2020	Nickel	2.44	2.44	2.44		1.178	ug/L
MS-14	9/16/2020	Nickel	3.22	3.22	3.22		1.178	ug/L
MS-14A	9/16/2020	Nickel	2.61	2.61	2.61		1.178	ug/L
		Average		**4.91**	**4.65**	**ug/l**	**0.00465**	**mg/l**
		Maximum		**18.26**	**12.85**	**ug/l**	**0.01285**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/9/2017	Phosphorus	4.971	4.971	4.971		0.12	mg/L
MS-14	1/9/2017	Phosphorus	4.941	4.941	4.941		0.12	mg/L
MS-14A	1/9/2017	Phosphorus	6.243	6.243	6.243		0.12	mg/L
MS-07	1/11/2017	Phosphorus	5.727	5.727	5.727		0.12	mg/L
MS-14	1/11/2017	Phosphorus	3.571	3.571	3.571		0.12	mg/L
MS-14A	1/11/2017	Phosphorus	4.354	4.354	4.354		0.12	mg/L
MS-07	1/12/2017	Phosphorus	4.98	4.98	4.98		0.12	mg/L
MS-14	1/12/2017	Phosphorus	3.769	3.769	3.769		0.12	mg/L
MS-14A	1/12/2017	Phosphorus	4.481	4.481	4.481		0.12	mg/L
MS-07	1/14/2017	Phosphorus	5.986	5.986	5.986		0.12	mg/L
MS-14	1/14/2017	Phosphorus	4.587	4.587	4.587		0.12	mg/L
MS-14A	1/14/2017	Phosphorus	5.85	5.85	5.85		0.12	mg/L
MS-07	2/6/2017	Phosphorus	5.566	5.566	5.566		0.111	mg/L
MS-14	2/6/2017	Phosphorus	4.478	4.478	4.478		0.111	mg/L
MS-14A	2/6/2017	Phosphorus	4.053	4.053	4.053		0.111	mg/L
MS-07	2/8/2017	Phosphorus	5.475	5.475	5.475		0.111	mg/L
MS-14	2/8/2017	Phosphorus	4.538	4.538	4.538		0.111	mg/L
MS-14A	2/8/2017	Phosphorus	3.796	3.796	3.796		0.111	mg/L
MS-07	2/9/2017	Phosphorus	5.654	5.654	5.654		0.111	mg/L
MS-14	2/9/2017	Phosphorus	3.956	3.956	3.956		0.111	mg/L
MS-14A	2/9/2017	Phosphorus	4.032	4.032	4.032		0.111	mg/L
MS-07	2/11/2017	Phosphorus	5.17	5.17	5.17		0.111	mg/L
MS-14	2/11/2017	Phosphorus	5.168	5.168	5.168		0.111	mg/L
MS-14A	2/11/2017	Phosphorus	4.909	4.909	4.909		0.111	mg/L
MS-07	3/6/2017	Phosphorus	3.078	3.078	3.078		0.111	mg/L
MS-14	3/6/2017	Phosphorus	2.121	2.121	2.121		0.111	mg/L
MS-14A	3/6/2017	Phosphorus	2.336	2.336	2.336		0.111	mg/L
MS-07	3/8/2017	Phosphorus	3.716	3.716	3.716		0.111	mg/L
MS-14	3/8/2017	Phosphorus	2.487	2.487	2.487		0.111	mg/L
MS-14A	3/8/2017	Phosphorus	1.938	1.938	1.938		0.111	mg/L
MS-07	3/9/2017	Phosphorus	3.95	3.95	3.95		0.111	mg/L
MS-14	3/9/2017	Phosphorus	5.373	5.373	5.373		0.111	mg/L
MS-14A	3/9/2017	Phosphorus	1.978	1.978	1.978		0.111	mg/L
MS-07	3/11/2017	Phosphorus	4.634	4.634	4.634		0.111	mg/L
MS-14	3/11/2017	Phosphorus	2.538	2.538	2.538		0.111	mg/L
MS-14A	3/11/2017	Phosphorus	3.171	3.171	3.171		0.111	mg/L
MS-14	4/3/2017	Phosphorus	2.274	2.274	2.274		0.111	mg/L
MS-14	4/5/2017	Phosphorus	2.244	2.244	2.244		0.111	mg/L
MS-14A	4/5/2017	Phosphorus	2.681	2.681	2.681		0.111	mg/L
MS-14	4/6/2017	Phosphorus	3.848	3.848	3.848		0.111	mg/L
MS-14A	4/6/2017	Phosphorus	2.323	2.323	2.323		0.111	mg/L
MS-14	4/8/2017	Phosphorus	2.574	2.574	2.574		0.111	mg/L
MS-14A	4/8/2017	Phosphorus	2.298	2.298	2.298		0.111	mg/L
MS-07	4/10/2017	Phosphorus	4.771	4.771	4.771		0.111	mg/L
MS-14	4/10/2017	Phosphorus	2.22	2.22	2.22		0.111	mg/L
MS-14A	4/10/2017	Phosphorus	3.392	3.392	3.392		0.111	mg/L
MS-14	4/11/2017	Phosphorus	2.328	2.328	2.328		0.111	mg/L
MS-14A	4/11/2017	Phosphorus	1.988	1.988	1.988		0.111	mg/L
MS-07	4/12/2017	Phosphorus	4.528	4.528	4.528		0.111	mg/L

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MS-14	4/12/2017	Phosphorus	2.449	2.449	2.449		0.111	mg/L
MS-14A	4/12/2017	Phosphorus	2.886	2.886	2.886		0.111	mg/L
MS-07	4/13/2017	Phosphorus	4.523	4.523	4.523		0.111	mg/L
MS-14	4/13/2017	Phosphorus	2.856	2.856	2.856		0.111	mg/L
MS-14A	4/13/2017	Phosphorus	2.696	2.696	2.696		0.111	mg/L
MS-14	4/17/2017	Phosphorus	2.163	2.163	2.163		0.111	mg/L
MS-14A	4/17/2017	Phosphorus	1.648	1.648	1.648		0.111	mg/L
MS-07	4/18/2017	Phosphorus	4.561	4.561	4.561		0.111	mg/L
MS-14	4/18/2017	Phosphorus	2.116	2.116	2.116		0.111	mg/L
MS-14A	4/18/2017	Phosphorus	2.72	2.72	2.72		0.111	mg/L
MS-14	4/19/2017	Phosphorus	2.379	2.379	2.379		0.111	mg/L
MS-14A	4/19/2017	Phosphorus	2.33	2.33	2.33		0.111	mg/L
MS-07	4/20/2017	Phosphorus	3.679	3.679	3.679		0.111	mg/L
MS-14	4/20/2017	Phosphorus	1.838	1.838	1.838		0.111	mg/L
MS-14A	4/20/2017	Phosphorus	1.507	1.507	1.507		0.111	mg/L
MS-14	5/8/2017	Phosphorus	2.39	2.39	2.39		0.1108	mg/L
MS-14A	5/8/2017	Phosphorus	2.321	2.321	2.321		0.1108	mg/L
MS-07	5/9/2017	Phosphorus	4.236	4.236	4.236		0.1108	mg/L
MS-07	5/10/2017	Phosphorus	5.019	5.019	5.019		0.1108	mg/L
MS-14	5/10/2017	Phosphorus	3.158	3.158	3.158		0.1108	mg/L
MS-14A	5/10/2017	Phosphorus	3.787	3.787	3.787		0.1108	mg/L
MS-07	5/11/2017	Phosphorus	5.328	5.328	5.328		0.1108	mg/L
MS-14	5/11/2017	Phosphorus	2.652	2.652	2.652		0.1108	mg/L
MS-14A	5/11/2017	Phosphorus	6.082	6.082	6.082		0.1108	mg/L
MS-07	5/13/2017	Phosphorus	7.097	7.097	7.097		0.1108	mg/L
MS-14	5/13/2017	Phosphorus	3.242	3.242	3.242		0.1108	mg/L
MS-14A	5/13/2017	Phosphorus	3.369	3.369	3.369		0.1108	mg/L
MS-14	6/19/2017	Phosphorus	4.256	4.256	4.256		0.1108	mg/L
MS-14A	6/19/2017	Phosphorus	4.645	4.645	4.645		0.1108	mg/L
MS-07	6/21/2017	Phosphorus	4.159	4.159	4.159		0.1108	mg/L
MS-14	6/21/2017	Phosphorus	4.431	4.431	4.431		0.1108	mg/L
MS-14A	6/21/2017	Phosphorus	4.366	4.366	4.366		0.1108	mg/L
MS-07	6/22/2017	Phosphorus	4.287	4.287	4.287		0.1108	mg/L
MS-14	6/22/2017	Phosphorus	3.344	3.344	3.344		0.1108	mg/L
MS-14A	6/22/2017	Phosphorus	5.722	5.722	5.722		0.1108	mg/L
MS-07	6/24/2017	Phosphorus	6.076	6.076	6.076		0.1108	mg/L
MS-14	6/24/2017	Phosphorus	3.042	3.042	3.042		0.1108	mg/L
MS-14A	6/24/2017	Phosphorus	4.341	4.341	4.341		0.1108	mg/L
MS-07	6/26/2017	Phosphorus	4.48	4.48	4.48		0.1108	mg/L
MS-07	6/28/2017	Phosphorus	4.25	4.25	4.25		0.1108	mg/L
MS-07	6/29/2017	Phosphorus	4.177	4.177	4.177		0.1108	mg/L
MS-07	7/10/2017	Phosphorus	5.708	5.708	5.708		0.1108	mg/L
MS-14	7/10/2017	Phosphorus	3.77	3.77	3.77		0.1108	mg/L
MS-14A	7/10/2017	Phosphorus	4.624	4.624	4.624		0.1108	mg/L
MS-07	7/12/2017	Phosphorus	4.577	4.577	4.577		0.1108	mg/L
MS-14	7/12/2017	Phosphorus	4.421	4.421	4.421		0.1108	mg/L
MS-14A	7/12/2017	Phosphorus	6.743	6.743	6.743		0.1108	mg/L
MS-07	7/13/2017	Phosphorus	5.042	5.042	5.042		0.1108	mg/L
MS-14	7/13/2017	Phosphorus	6.217	6.217	6.217		0.1385	mg/L

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MS-14A	7/13/2017	Phosphorus	4.882	4.882	4.882		0.1108	mg/L
MS-14	7/15/2017	Phosphorus	3.178	3.178	3.178		0.1108	mg/L
MS-07	7/17/2017	Phosphorus	4.712	4.712	4.712		0.1108	mg/L
MS-07	8/7/2017	Phosphorus	4.4	4.4	4.4		0.1108	mg/L
MS-14	8/7/2017	Phosphorus	4.39	4.39	4.39		0.1108	mg/L
MS-14A	8/7/2017	Phosphorus	5.17	5.17	5.17		0.1108	mg/L
MS-07	8/9/2017	Phosphorus	5.169	5.169	5.169		0.1108	mg/L
MS-14	8/9/2017	Phosphorus	4.712	4.712	4.712		0.1108	mg/L
MS-14A	8/9/2017	Phosphorus	4.892	4.892	4.892		0.1108	mg/L
MS-07	8/10/2017	Phosphorus	5.292	5.292	5.292		0.1108	mg/L
MS-14	8/10/2017	Phosphorus	4.576	4.576	4.576		0.1108	mg/L
MS-14A	8/10/2017	Phosphorus	5.139	5.139	5.139		0.1108	mg/L
MS-07	8/12/2017	Phosphorus	5.163	5.163	5.163		0.1108	mg/L
MS-14	8/12/2017	Phosphorus	4.692	4.692	4.692		0.1108	mg/L
MS-14A	8/12/2017	Phosphorus	5.372	5.372	5.372		0.1108	mg/L
MS-07	9/11/2017	Phosphorus	4.944	4.944	4.944		0.1108	mg/L
MS-14	9/11/2017	Phosphorus	4.257	4.257	4.257		0.1108	mg/L
MS-14A	9/11/2017	Phosphorus	5.371	5.371	5.371		0.1108	mg/L
MS-07	9/13/2017	Phosphorus	8.518	8.518			0.1108	mg/L
MS-14	9/13/2017	Phosphorus	3.821	3.821	3.821		0.1108	mg/L
MS-14A	9/13/2017	Phosphorus	5.725	5.725	5.725		0.1108	mg/L
MS-07	9/14/2017	Phosphorus	5.222	5.222	5.222		0.1108	mg/L
MS-14	9/14/2017	Phosphorus	4.335	4.335	4.335		0.1108	mg/L
MS-14A	9/14/2017	Phosphorus	5.185	5.185	5.185		0.1108	mg/L
MS-14	9/16/2017	Phosphorus	4.433	4.433	4.433		0.1108	mg/L
MS-14A	9/16/2017	Phosphorus	6.014	6.014	6.014		0.1108	mg/L
MS-07	9/18/2017	Phosphorus	5.34	5.34	5.34		0.1108	mg/L
MS-07	10/23/2017	Phosphorus	5.2	5.2	5.2		0.1108	mg/L
MS-14	10/23/2017	Phosphorus	6.841	6.841	6.841		0.1108	mg/L
MS-14A	10/23/2017	Phosphorus	5.726	5.726	5.726		0.1108	mg/L
MS-07	10/25/2017	Phosphorus	5.3	5.3	5.3		0.1108	mg/L
MS-14	10/25/2017	Phosphorus	3.932	3.932	3.932		0.1108	mg/L
MS-14A	10/25/2017	Phosphorus	4.578	4.578	4.578		0.1108	mg/L
MS-07	10/26/2017	Phosphorus	4.856	4.856	4.856		0.1108	mg/L
MS-14	10/26/2017	Phosphorus	6.286	6.286	6.286		0.1108	mg/L
MS-14A	10/26/2017	Phosphorus	6.044	6.044	6.044		0.1108	mg/L
MS-07	10/28/2017	Phosphorus	5.329	5.329	5.329		0.1108	mg/L
MS-14	10/28/2017	Phosphorus	4.38	4.38	4.38		0.1108	mg/L
MS-14A	10/28/2017	Phosphorus	5.271	5.271	5.271		0.1108	mg/L
MS-14A	10/30/2017	Phosphorus	4.673	4.673	4.673		0.1108	mg/L
MS-14A	10/31/2017	Phosphorus	4.836	4.836	4.836		0.1108	mg/L
MS-14A	11/2/2017	Phosphorus	4.859	4.859	4.859		0.1108	mg/L
MS-07	11/6/2017	Phosphorus	3.18	3.18	3.18		0.1108	mg/L
MS-14	11/6/2017	Phosphorus	5.57	5.57	5.57		0.1108	mg/L
MS-14A	11/6/2017	Phosphorus	7.41	7.41	7.41		0.1108	mg/L
MS-07	11/8/2017	Phosphorus	4.382	4.382	4.382		0.1108	mg/L
MS-14	11/8/2017	Phosphorus	4.158	4.158	4.158		0.1108	mg/L
MS-14A	11/8/2017	Phosphorus	5.296	5.296	5.296		0.1108	mg/L
MS-07	11/9/2017	Phosphorus	3.852	3.852	3.852		0.1108	mg/L

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MS-14	11/9/2017	Phosphorus	3.72	3.72	3.72		0.1108	mg/L
MS-14A	11/9/2017	Phosphorus	7.946	7.946	7.946		0.1108	mg/L
MS-07	11/11/2017	Phosphorus	4.771	4.771	4.771		0.1108	mg/L
MS-14	11/11/2017	Phosphorus	4.366	4.366	4.366		0.1108	mg/L
MS-14A	11/11/2017	Phosphorus	9.554	9.554			0.1108	mg/L
MS-14A	11/13/2017	Phosphorus	4.772	4.772	4.772		0.1108	mg/L
MS-14A	11/14/2017	Phosphorus	5.289	5.289	5.289		0.1108	mg/L
MS-14A	11/15/2017	Phosphorus	4.368	4.368	4.368		0.1108	mg/L
MS-14A	11/16/2017	Phosphorus	4.296	4.296	4.296		0.1108	mg/L
MS-07	12/4/2017	Phosphorus	4.758	4.758	4.758		0.1108	mg/L
MS-14	12/4/2017	Phosphorus	6.456	6.456	6.456		0.1108	mg/L
MS-14A	12/4/2017	Phosphorus	5.469	5.469	5.469		0.1108	mg/L
MS-07	12/6/2017	Phosphorus	5.14	5.14	5.14		0.1108	mg/L
MS-14	12/6/2017	Phosphorus	4.248	4.248	4.248		0.1108	mg/L
MS-14A	12/6/2017	Phosphorus	5.631	5.631	5.631		0.1108	mg/L
MS-07	12/7/2017	Phosphorus	6.047	6.047	6.047		0.1108	mg/L
MS-14	12/7/2017	Phosphorus	4.874	4.874	4.874		0.1108	mg/L
MS-14A	12/7/2017	Phosphorus	5.881	5.881	5.881		0.1108	mg/L
MS-07	12/9/2017	Phosphorus	5.36	5.36	5.36		0.1108	mg/L
MS-14	12/9/2017	Phosphorus	7.043	7.043	7.043		0.1108	mg/L
MS-14A	12/9/2017	Phosphorus	5.684	5.684	5.684		0.1108	mg/L
MS-14A	12/12/2017	Phosphorus	4.736	4.736	4.736		0.1108	mg/L
MS-14A	12/13/2017	Phosphorus	5.034	5.034	5.034		0.1108	mg/L
MS-14A	12/14/2017	Phosphorus	4.988	4.988	4.988		0.1108	mg/L
MS-14A	12/18/2017	Phosphorus	5.564	5.564	5.564		0.1108	mg/L
MS-14A	12/19/2017	Phosphorus	4.967	4.967	4.967		0.1108	mg/L
MS-14A	12/20/2017	Phosphorus	5.058	5.058	5.058		0.1108	mg/L
MS-14A	12/21/2017	Phosphorus	6.024	6.024	6.024		0.1108	mg/L
MS-14A	1/8/2018	Phosphorus	13.653	13.653			0.1108	mg/L
MS-07	1/10/2018	Phosphorus	5.863	5.863	5.863		0.1108	mg/L
MS-14	1/10/2018	Phosphorus	5.758	5.758	5.758		0.1108	mg/L
MS-14A	1/10/2018	Phosphorus	6.798	6.798	6.798		0.1108	mg/L
MS-07	1/11/2018	Phosphorus	4.59	4.59	4.59		0.1108	mg/L
MS-14	1/11/2018	Phosphorus	4.33	4.33	4.33		0.1108	mg/L
MS-14A	1/11/2018	Phosphorus	6.27	6.27	6.27		0.1108	mg/L
MS-07	1/13/2018	Phosphorus	6.04	6.04	6.04		0.1108	mg/L
MS-14	1/13/2018	Phosphorus	4.35	4.35	4.35		0.1108	mg/L
MS-14A	1/13/2018	Phosphorus	6.67	6.67	6.67		0.1108	mg/L
MS-14	2/5/2018	Phosphorus	6.54	6.54	6.54		0.1108	mg/L
MS-14A	2/5/2018	Phosphorus	6.62	6.62	6.62		0.1108	mg/L
MS-07	2/7/2018	Phosphorus	5.76	5.76	5.76		0.1108	mg/L
MS-14	2/7/2018	Phosphorus	5.43	5.43	5.43		0.1108	mg/L
MS-14A	2/7/2018	Phosphorus	6.43	6.43	6.43		0.1108	mg/L
MS-07	2/8/2018	Phosphorus	5.24	5.24	5.24		0.1108	mg/L
MS-14	2/8/2018	Phosphorus	4.8	4.8	4.8		0.1108	mg/L
MS-14A	2/8/2018	Phosphorus	5.92	5.92	5.92		0.1108	mg/L
MS-07	2/10/2018	Phosphorus	6.72	6.72	6.72		0.1108	mg/L
MS-14	2/10/2018	Phosphorus	5.76	5.76	5.76		0.1108	mg/L
MS-14A	2/10/2018	Phosphorus	6.13	6.13	6.13		0.1108	mg/L

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MS-07	2/13/2018	Phosphorus	7.65	7.65	7.65		0.1108	mg/L
MS-07	2/14/2018	Phosphorus	5.95	5.95	5.95		0.1108	mg/L
MS-07	3/5/2018	Phosphorus	5.33	5.33	5.33		0.228	mg/L
MS-14	3/5/2018	Phosphorus	6.6	6.6	6.6		0.228	mg/L
MS-14A	3/5/2018	Phosphorus	5.38	5.38	5.38		0.228	mg/L
MS-07	3/7/2018	Phosphorus	5.35	5.35	5.35		0.228	mg/L
MS-14	3/7/2018	Phosphorus	3.92	3.92	3.92		0.228	mg/L
MS-14A	3/7/2018	Phosphorus	5.05	5.05	5.05		0.228	mg/L
MS-07	3/8/2018	Phosphorus	5.21	5.21	5.21		0.228	mg/L
MS-14	3/8/2018	Phosphorus	4.17	4.17	4.17		0.228	mg/L
MS-14A	3/8/2018	Phosphorus	5.17	5.17	5.17		0.228	mg/L
MS-07	3/10/2018	Phosphorus	6.14	6.14	6.14		0.228	mg/L
MS-14	3/10/2018	Phosphorus	4.07	4.07	4.07		0.228	mg/L
MS-14A	3/10/2018	Phosphorus	5.21	5.21	5.21		0.228	mg/L
MS-07	4/2/2018	Phosphorus	4.81	4.81	4.81		0.228	mg/L
MS-14	4/2/2018	Phosphorus	3.96	3.96	3.96		0.228	mg/L
MS-14A	4/2/2018	Phosphorus	4.56	4.56	4.56		0.228	mg/L
MS-07	4/4/2018	Phosphorus	5.15	5.15	5.15		0.228	mg/L
MS-14	4/4/2018	Phosphorus	3.8	3.8	3.8		0.228	mg/L
MS-07	4/5/2018	Phosphorus	4.93	4.93	4.93		0.228	mg/L
MS-14	4/5/2018	Phosphorus	3.67	3.67	3.67		0.228	mg/L
MS-14A	4/5/2018	Phosphorus	4.44	4.44	4.44		0.228	mg/L
MS-07	4/7/2018	Phosphorus	4.87	4.87	4.87		0.228	mg/L
MS-14	4/7/2018	Phosphorus	5.71	5.71	5.71		0.228	mg/L
MS-14A	4/7/2018	Phosphorus	5.58	5.58	5.58		0.228	mg/L
MS-07	5/7/2018	Phosphorus	4.1	4.1	4.1		0.228	mg/L
MS-14	5/7/2018	Phosphorus	1.8	1.8	1.8		0.228	mg/L
MS-14A	5/7/2018	Phosphorus	1.95	1.95	1.95		0.228	mg/L
MS-07	5/9/2018	Phosphorus	3.45	3.45	3.45		0.228	mg/L
MS-14	5/9/2018	Phosphorus	2.06	2.06	2.06		0.228	mg/L
MS-14A	5/9/2018	Phosphorus	1.81	1.81	1.81		0.228	mg/L
MS-07	5/10/2018	Phosphorus	3.51	3.51	3.51		0.228	mg/L
MS-14	5/10/2018	Phosphorus	1.73	1.73	1.73		0.228	mg/L
MS-14A	5/10/2018	Phosphorus	2.87	2.87	2.87		0.228	mg/L
MS-07	5/12/2018	Phosphorus	4.52	4.52	4.52		0.228	mg/L
MS-14	5/12/2018	Phosphorus	2.91	2.91	2.91		0.228	mg/L
MS-14A	5/12/2018	Phosphorus	3.28	3.28	3.28		0.228	mg/L
MS-07	6/11/2018	Phosphorus	6.25	6.25	6.25		0.228	mg/L
MS-14	6/11/2018	Phosphorus	7.23	7.23	7.23		0.228	mg/L
MS-14A	6/11/2018	Phosphorus	5.23	5.23	5.23		0.228	mg/L
MS-14	6/13/2018	Phosphorus	5.74	5.74	5.74		0.228	mg/L
MS-14A	6/13/2018	Phosphorus	4.02	4.02	4.02		0.228	mg/L
MS-07	6/14/2018	Phosphorus	5.3	5.3	5.3		0.228	mg/L
MS-14A	6/14/2018	Phosphorus	4.88	4.88	4.88		0.228	mg/L
MS-07	6/16/2018	Phosphorus	4.8	4.8	4.8		0.228	mg/L
MS-14	6/16/2018	Phosphorus	3.53	3.53	3.53		0.228	mg/L
MS-14A	6/16/2018	Phosphorus	4.46	4.46	4.46		0.228	mg/L
MS-07	7/9/2018	Phosphorus	5.19	5.19	5.19		0.228	mg/L
MS-14	7/9/2018	Phosphorus	4.05	4.05	4.05		0.228	mg/L

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MS-14A	7/9/2018	Phosphorus	5.73	5.73	5.73		0.228	mg/L
MS-07	7/11/2018	Phosphorus	5.71	5.71	5.71		0.228	mg/L
MS-14	7/11/2018	Phosphorus	4.35	4.35	4.35		0.228	mg/L
MS-14A	7/11/2018	Phosphorus	6.31	6.31	6.31		0.228	mg/L
MS-07	7/12/2018	Phosphorus	4.88	4.88	4.88		0.228	mg/L
MS-14	7/12/2018	Phosphorus	4.33	4.33	4.33		0.228	mg/L
MS-14A	7/12/2018	Phosphorus	8.12	8.12	8.12		0.228	mg/L
MS-07	7/14/2018	Phosphorus	5.54	5.54	5.54		0.228	mg/L
MS-14	7/14/2018	Phosphorus	6.66	6.66	6.66		0.228	mg/L
MS-14A	7/14/2018	Phosphorus	5.69	5.69	5.69		0.228	mg/L
MS-07	8/6/2018	Phosphorus	5.68	5.68	5.68		0.228	mg/L
MS-14	8/6/2018	Phosphorus	4.24	4.24	4.24		0.228	mg/L
MS-14A	8/6/2018	Phosphorus	6.32	6.32	6.32		0.228	mg/L
MS-07	8/8/2018	Phosphorus	5.77	5.77	5.77		0.228	mg/L
MS-14A	8/8/2018	Phosphorus	5.73	5.73	5.73		0.228	mg/L
MS-07	8/9/2018	Phosphorus	5.6	5.6	5.6		0.228	mg/L
MS-14	8/9/2018	Phosphorus	4.35	4.35	4.35		0.228	mg/L
MS-14A	8/9/2018	Phosphorus	5.93	5.93	5.93		0.228	mg/L
MS-07	8/11/2018	Phosphorus	5.64	5.64	5.64		0.228	mg/L
MS-14	8/11/2018	Phosphorus	4.78	4.78	4.78		0.228	mg/L
MS-14A	8/11/2018	Phosphorus	6.56	6.56	6.56		0.228	mg/L
MS-07	9/10/2018	Phosphorus	5.19	5.19	5.19		0.228	mg/L
MS-14	9/10/2018	Phosphorus	3.14	3.14	3.14		0.228	mg/L
MS-14A	9/10/2018	Phosphorus	3.91	3.91	3.91		0.228	mg/L
MS-07	9/12/2018	Phosphorus	4.72	4.72	4.72		0.228	mg/L
MS-14	9/12/2018	Phosphorus	3.86	3.86	3.86		0.228	mg/L
MS-14A	9/12/2018	Phosphorus	4.4	4.4	4.4		0.228	mg/L
MS-07	9/13/2018	Phosphorus	4.57	4.57	4.57		0.228	mg/L
MS-14	9/13/2018	Phosphorus	3.79	3.79	3.79		0.228	mg/L
MS-14A	9/13/2018	Phosphorus	4.16	4.16	4.16		0.228	mg/L
MS-07	9/15/2018	Phosphorus	5.3	5.3	5.3		0.228	mg/L
MS-14	9/15/2018	Phosphorus	3.65	3.65	3.65		0.228	mg/L
MS-14A	9/15/2018	Phosphorus	3.99	3.99	3.99		0.228	mg/L
MS-14	10/1/2018	Phosphorus	3.05	3.05	3.05		0.228	mg/L
MS-07	10/3/2018	Phosphorus	4.35	4.35	4.35		0.228	mg/L
MS-14	10/3/2018	Phosphorus	2.29	2.29	2.29		0.228	mg/L
MS-14A	10/3/2018	Phosphorus	2.63	2.63	2.63		0.228	mg/L
MS-07	10/4/2018	Phosphorus	3.91	3.91	3.91		0.228	mg/L
MS-14	10/4/2018	Phosphorus	3.31	3.31	3.31		0.228	mg/L
MS-14A	10/4/2018	Phosphorus	2.64	2.64	2.64		0.228	mg/L
MS-07	10/6/2018	Phosphorus	4.87	4.87	4.87		0.228	mg/L
MS-14	10/6/2018	Phosphorus	5.99	5.99	5.99		0.228	mg/L
MS-14A	10/6/2018	Phosphorus	4.06	4.06	4.06		0.228	mg/L
MS-07	11/5/2018	Phosphorus	4.62	4.62	4.62		0.228	mg/L
MS-14	11/5/2018	Phosphorus	5.8	5.8	5.8		0.228	mg/L
MS-07	11/7/2018	Phosphorus	6.7	6.7	6.7		0.228	mg/L
MS-14	11/7/2018	Phosphorus	2.91	2.91	2.91		0.228	mg/L
MS-14A	11/7/2018	Phosphorus	3.7	3.7	3.7		0.228	mg/L
MS-07	11/8/2018	Phosphorus	7.6	7.6	7.6		0.228	mg/L

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MS-14	11/8/2018	Phosphorus	2.99	2.99	2.99		0.228	mg/L
MS-14A	11/8/2018	Phosphorus	2.65	2.65	2.65		0.228	mg/L
MS-07	11/10/2018	Phosphorus	4.74	4.74	4.74		0.228	mg/L
MS-14	11/10/2018	Phosphorus	2.99	2.99	2.99		0.228	mg/L
MS-14A	11/10/2018	Phosphorus	3.1	3.1	3.1		0.228	mg/L
MS-07	12/3/2018	Phosphorus	5.24	5.24	5.24		0.228	mg/L
MS-14	12/3/2018	Phosphorus	8.71	8.71			0.228	mg/L
MS-14A	12/3/2018	Phosphorus	3.75	3.75	3.75		0.228	mg/L
MS-07	12/5/2018	Phosphorus	4.85	4.85	4.85		0.228	mg/L
MS-14	12/5/2018	Phosphorus	3.43	3.43	3.43		0.228	mg/L
MS-07	12/6/2018	Phosphorus	4.72	4.72	4.72		0.228	mg/L
MS-14	12/6/2018	Phosphorus	3.39	3.39	3.39		0.228	mg/L
MS-07	12/8/2018	Phosphorus	4.64	4.64	4.64		0.228	mg/L
MS-14	12/8/2018	Phosphorus	3.01	3.01	3.01		0.228	mg/L
MS-14A	12/27/2018	Phosphorus	3.77	3.77	3.77		0.228	mg/L
MS-14A	12/28/2018	Phosphorus	3.18	3.18	3.18		0.228	mg/L
MS-07	1/7/2019	Phosphorus	3.58	3.58	3.58		0.228	mg/L
MS-14	1/7/2019	Phosphorus	1.68	1.68	1.68		0.228	mg/L
MS-14A	1/7/2019	Phosphorus	2.21	2.21	2.21		0.228	mg/L
MS-07	1/9/2019	Phosphorus	4.9	4.9	4.9		0.228	mg/L
MS-14	1/9/2019	Phosphorus	2.24	2.24	2.24		0.228	mg/L
MS-14A	1/9/2019	Phosphorus	1.98	1.98	1.98		0.228	mg/L
MS-07	1/10/2019	Phosphorus	3.86	3.86	3.86		0.228	mg/L
MS-14	1/10/2019	Phosphorus	2.25	2.25	2.25		0.228	mg/L
MS-14A	1/10/2019	Phosphorus	2.22	2.22	2.22		0.228	mg/L
MS-07	1/12/2019	Phosphorus	5.17	5.17	5.17		0.228	mg/L
MS-14	1/12/2019	Phosphorus	2.9	2.9	2.9		0.228	mg/L
MS-14A	1/12/2019	Phosphorus	2.9	2.9	2.9		0.228	mg/L
MS-07	2/4/2019	Phosphorus	4.64	4.64	4.64		0.228	mg/L
MS-14	2/4/2019	Phosphorus	4.46	4.46	4.46		0.228	mg/L
MS-14A	2/4/2019	Phosphorus	3.06	3.06	3.06		0.228	mg/L
MS-07	2/6/2019	Phosphorus	4.84	4.84	4.84		0.228	mg/L
MS-14	2/6/2019	Phosphorus	3.07	3.07	3.07		0.228	mg/L
MS-14A	2/6/2019	Phosphorus	3.65	3.65	3.65		0.228	mg/L
MS-07	2/7/2019	Phosphorus	4.74	4.74	4.74		0.228	mg/L
MS-14	2/7/2019	Phosphorus	6.25	6.25	6.25		0.228	mg/L
MS-14A	2/7/2019	Phosphorus	4.78	4.78	4.78		0.228	mg/L
MS-07	2/9/2019	Phosphorus	5.61	5.61	5.61		0.228	mg/L
MS-14	2/9/2019	Phosphorus	3.56	3.56	3.56		0.228	mg/L
MS-14A	2/9/2019	Phosphorus	4.59	4.59	4.59		0.228	mg/L
MS-07	3/4/2019	Phosphorus	5.2	5.2	5.2		0.228	mg/L
MS-14	3/4/2019	Phosphorus	3.94	3.94	3.94		0.228	mg/L
MS-14A	3/4/2019	Phosphorus	3.81	3.81	3.81		0.228	mg/L
MS-07	3/6/2019	Phosphorus	4.51	4.51	4.51		0.228	mg/L
MS-14	3/6/2019	Phosphorus	3.6	3.6	3.6		0.228	mg/L
MS-14A	3/6/2019	Phosphorus	3.98	3.98	3.98		0.228	mg/L
MS-07	3/7/2019	Phosphorus	5.12	5.12	5.12		0.228	mg/L
MS-14	3/7/2019	Phosphorus	4.41	4.41	4.41		0.228	mg/L
MS-14A	3/7/2019	Phosphorus	4.22	4.22	4.22		0.228	mg/L

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MS-07	3/9/2019	Phosphorus	5.94	5.94	5.94		0.228	mg/L
MS-14	3/9/2019	Phosphorus	4.43	4.43	4.43		0.228	mg/L
MS-14A	3/9/2019	Phosphorus	3.97	3.97	3.97		0.228	mg/L
MS-07	4/1/2019	Phosphorus	3.93	3.93	3.93		0.228	mg/L
MS-14	4/1/2019	Phosphorus	3.26	3.26	3.26		0.228	mg/L
MS-14A	4/1/2019	Phosphorus	2.57	2.57	2.57		0.228	mg/L
MS-07	4/3/2019	Phosphorus	4.52	4.52	4.52		0.228	mg/L
MS-14	4/3/2019	Phosphorus	4.75	4.75	4.75		0.228	mg/L
MS-14A	4/3/2019	Phosphorus	2.31	2.31	2.31		0.228	mg/L
MS-07	4/4/2019	Phosphorus	3.98	3.98	3.98		0.228	mg/L
MS-14	4/4/2019	Phosphorus	3.05	3.05	3.05		0.228	mg/L
MS-14A	4/4/2019	Phosphorus	2.63	2.63	2.63		0.228	mg/L
MS-07	4/6/2019	Phosphorus	5.01	5.01	5.01		0.228	mg/L
MS-14	4/6/2019	Phosphorus	5.97	5.97	5.97		0.228	mg/L
MS-14A	4/6/2019	Phosphorus	2.59	2.59	2.59		0.228	mg/L
MS-07	5/6/2019	Phosphorus	4.24	4.24	4.24		0.228	mg/L
MS-14	5/6/2019	Phosphorus	3.75	3.75	3.75		0.228	mg/L
MS-14A	5/6/2019	Phosphorus	2.33	2.33	2.33		0.228	mg/L
MS-07	5/8/2019	Phosphorus	3.28	3.28	3.28		0.292	mg/L
MS-14	5/8/2019	Phosphorus	4.31	4.31	4.31		0.292	mg/L
MS-14A	5/8/2019	Phosphorus	2.48	2.48	2.48		0.292	mg/L
MS-07	5/9/2019	Phosphorus	2.8	2.8	2.8		0.292	mg/L
MS-14	5/9/2019	Phosphorus	2.64	2.64	2.64		0.292	mg/L
MS-14A	5/9/2019	Phosphorus	1.67	1.67	1.67		0.292	mg/L
MS-07	5/11/2019	Phosphorus	3.85	3.85	3.85		0.292	mg/L
MS-14	5/11/2019	Phosphorus	4.56	4.56	4.56		0.365	mg/L
MS-14A	5/11/2019	Phosphorus	2.42	2.42	2.42		0.292	mg/L
MS-07	6/3/2019	Phosphorus	3.04	3.04	3.04		0.292	mg/L
MS-14	6/3/2019	Phosphorus	2.89	2.89	2.89		0.292	mg/L
MS-14A	6/3/2019	Phosphorus	2.05	2.05	2.05		0.292	mg/L
MS-07	6/5/2019	Phosphorus	3	3	3		0.292	mg/L
MS-14	6/5/2019	Phosphorus	3.39	3.39	3.39		0.292	mg/L
MS-14A	6/5/2019	Phosphorus	4.44	4.44	4.44		0.292	mg/L
MS-07	6/6/2019	Phosphorus	3.17	3.17	3.17		0.292	mg/L
MS-14	6/6/2019	Phosphorus	3.39	3.39	3.39		0.292	mg/L
MS-14A	6/6/2019	Phosphorus	2.35	2.35	2.35		0.292	mg/L
MS-07	6/8/2019	Phosphorus	3.69	3.69	3.69		0.292	mg/L
MS-14	6/8/2019	Phosphorus	4.16	4.16	4.16		0.292	mg/L
MS-14A	6/8/2019	Phosphorus	2.91	2.91	2.91		0.292	mg/L
MS-07	7/8/2019	Phosphorus	5.07	5.07	5.07		0.292	mg/L
MS-14	7/8/2019	Phosphorus	4.23	4.23	4.23		0.292	mg/L
MS-14A	7/8/2019	Phosphorus	4.15	4.15	4.15		0.292	mg/L
MS-07	7/10/2019	Phosphorus	5.11	5.11	5.11		0.292	mg/L
MS-14	7/10/2019	Phosphorus	4.31	4.31	4.31		0.292	mg/L
MS-14A	7/10/2019	Phosphorus	4.34	4.34	4.34		0.292	mg/L
MS-07	7/11/2019	Phosphorus	4.66	4.66	4.66		0.292	mg/L
MS-14	7/11/2019	Phosphorus	4.97	4.97	4.97		0.292	mg/L
MS-14A	7/11/2019	Phosphorus	3.92	3.92	3.92		0.292	mg/L
MS-07	7/13/2019	Phosphorus	5.43	5.43	5.43		0.292	mg/L

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MS-14	7/13/2019	Phosphorus	4.56	4.56	4.56		0.292	mg/L
MS-14A	7/15/2019	Phosphorus	5.39	5.39	5.39		0.292	mg/L
MS-07	8/5/2019	Phosphorus	4.39	4.39	4.39		0.292	mg/L
MS-14	8/5/2019	Phosphorus	4.48	4.48	4.48		0.292	mg/L
MS-14A	8/5/2019	Phosphorus	4.93	4.93	4.93		0.292	mg/L
MS-07	8/7/2019	Phosphorus	3.27	3.27	3.27		0.292	mg/L
MS-14	8/7/2019	Phosphorus	2.52	2.52	2.52		0.292	mg/L
MS-14A	8/7/2019	Phosphorus	2.47	2.47	2.47		0.292	mg/L
MS-07	8/8/2019	Phosphorus	3.12	3.12	3.12		0.292	mg/L
MS-14	8/8/2019	Phosphorus	2.65	2.65	2.65		0.292	mg/L
MS-14A	8/8/2019	Phosphorus	1.84	1.84	1.84		0.292	mg/L
MS-07	8/10/2019	Phosphorus	4.56	4.56	4.56		0.292	mg/L
MS-14	8/10/2019	Phosphorus	3.66	3.66	3.66		0.292	mg/L
MS-14A	8/10/2019	Phosphorus	3.05	3.05	3.05		0.292	mg/L
MS-07	9/9/2019	Phosphorus	4.18	4.18	4.18		0.292	mg/L
MS-14	9/9/2019	Phosphorus	3.54	3.54	3.54		0.292	mg/L
MS-14A	9/9/2019	Phosphorus	1.79	1.79	1.79		0.292	mg/L
MS-07	9/11/2019	Phosphorus	3.52	3.52	3.52		0.292	mg/L
MS-14	9/11/2019	Phosphorus	0.634	0.634	0.634		0.292	mg/L
MS-14A	9/11/2019	Phosphorus	1.27	1.27	1.27		0.292	mg/L
MS-07	9/12/2019	Phosphorus	2.07	2.07	2.07		0.292	mg/L
MS-14	9/12/2019	Phosphorus	0.678	0.678	0.678		0.292	mg/L
MS-07	9/14/2019	Phosphorus	3.17	3.17	3.17		0.292	mg/L
MS-14	9/14/2019	Phosphorus	1.92	1.92	1.92		0.292	mg/L
MS-14A	9/14/2019	Phosphorus	1.45	1.45	1.45		0.292	mg/L
MS-14A	9/16/2019	Phosphorus	1.62	1.62	1.62		0.292	mg/L
MS-07	10/7/2019	Phosphorus	4.01	4.01	4.01		0.292	mg/L
MS-14	10/7/2019	Phosphorus	2.92	2.92	2.92		0.292	mg/L
MS-14A	10/7/2019	Phosphorus	1.96	1.96	1.96		0.292	mg/L
MS-07	10/9/2019	Phosphorus	3.58	3.58	3.58		0.292	mg/L
MS-14	10/9/2019	Phosphorus	2.79	2.79	2.79		0.292	mg/L
MS-14A	10/9/2019	Phosphorus	1.95	1.95	1.95		0.292	mg/L
MS-07	10/10/2019	Phosphorus	3.15	3.15	3.15		0.292	mg/L
MS-14	10/10/2019	Phosphorus	2.32	2.32	2.32		0.292	mg/L
MS-14A	10/10/2019	Phosphorus	1.93	1.93	1.93		0.292	mg/L
MS-07	10/12/2019	Phosphorus	3.36	3.36	3.36		0.292	mg/L
MS-14	10/12/2019	Phosphorus	2.64	2.64	2.64		0.292	mg/L
MS-14A	10/12/2019	Phosphorus	2.2	2.2	2.2		0.292	mg/L
MS-07	11/4/2019	Phosphorus	4.79	4.79	4.79		0.292	mg/L
MS-14	11/4/2019	Phosphorus	4.12	4.12	4.12		0.292	mg/L
MS-14A	11/4/2019	Phosphorus	2.41	2.41	2.41		0.292	mg/L
MS-07	11/6/2019	Phosphorus	4.59	4.59	4.59		0.292	mg/L
MS-14	11/6/2019	Phosphorus	5.29	5.29	5.29		0.292	mg/L
MS-14A	11/6/2019	Phosphorus	2.81	2.81	2.81		0.292	mg/L
MS-07	11/7/2019	Phosphorus	4.1	4.1	4.1		0.292	mg/L
MS-14	11/7/2019	Phosphorus	6.35	6.35	6.35		0.292	mg/L
MS-14A	11/7/2019	Phosphorus	3.44	3.44	3.44		0.292	mg/L
MS-07	11/9/2019	Phosphorus	4.69	4.69	4.69		0.292	mg/L
MS-14	11/9/2019	Phosphorus	3.98	3.98	3.98		0.292	mg/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	11/11/2019	Phosphorus	2.98	2.98	2.98		0.146	mg/L
MS-14A	11/12/2019	Phosphorus	3.04	3.04	3.04		0.292	mg/L
MS-07	12/2/2019	Phosphorus	3.6	3.6	3.6		0.292	mg/L
MS-14	12/2/2019	Phosphorus	2.08	2.08	2.08		0.292	mg/L
MS-14A	12/2/2019	Phosphorus	1.55	1.55	1.55		0.292	mg/L
MS-07	12/4/2019	Phosphorus	3.91	3.91	3.91		0.292	mg/L
MS-14	12/4/2019	Phosphorus	2.13	2.13	2.13		0.292	mg/L
MS-14A	12/4/2019	Phosphorus	2.37	2.37	2.37		0.292	mg/L
MS-07	12/5/2019	Phosphorus	3.87	3.87	3.87		0.292	mg/L
MS-14	12/5/2019	Phosphorus	2.72	2.72	2.72		0.292	mg/L
MS-14A	12/5/2019	Phosphorus	1.9	1.9	1.9		0.292	mg/L
MS-07	12/7/2019	Phosphorus	3.99	3.99	3.99		0.292	mg/L
MS-14	12/7/2019	Phosphorus	2.72	2.72	2.72		0.292	mg/L
MS-14A	12/7/2019	Phosphorus	2.62	2.62	2.62		0.292	mg/L
MS-07	1/13/2020	Phosphorus	5.21	5.21	5.21		0.292	mg/L
MS-14	1/13/2020	Phosphorus	3.74	3.74	3.74		0.292	mg/L
MS-14A	1/13/2020	Phosphorus	2.7	2.7	2.7		0.292	mg/L
MS-07	1/15/2020	Phosphorus	4.04	4.04	4.04		0.292	mg/L
MS-14	1/15/2020	Phosphorus	3.21	3.21	3.21		0.292	mg/L
MS-14A	1/15/2020	Phosphorus	2.32	2.32	2.32		0.292	mg/L
MS-07	1/16/2020	Phosphorus	2.1	2.1	2.1		0.292	mg/L
MS-14	1/16/2020	Phosphorus	5.69	5.69	5.69		0.292	mg/L
MS-14A	1/16/2020	Phosphorus	1.14	1.14	1.14		0.292	mg/L
MS-07	1/18/2020	Phosphorus	5.08	5.08	5.08		0.292	mg/L
MS-14	1/18/2020	Phosphorus	5.07	5.07	5.07		0.292	mg/L
MS-14A	1/18/2020	Phosphorus	2.97	2.97	2.97		0.292	mg/L
MS-07	2/17/2020	Phosphorus	5.55	5.55	5.55		0.292	mg/L
MS-14	2/17/2020	Phosphorus	4.43	4.43	4.43		0.292	mg/L
MS-14A	2/17/2020	Phosphorus	3.97	3.97	3.97		0.292	mg/L
MS-07	2/19/2020	Phosphorus	5.08	5.08	5.08		0.292	mg/L
MS-14	2/19/2020	Phosphorus	4.35	4.35	4.35		0.292	mg/L
MS-14A	2/19/2020	Phosphorus	4.39	4.39	4.39		0.292	mg/L
MS-07	2/20/2020	Phosphorus	4.94	4.94	4.94		0.292	mg/L
MS-14	2/20/2020	Phosphorus	4.19	4.19	4.19		0.292	mg/L
MS-14A	2/20/2020	Phosphorus	4.27	4.27	4.27		0.292	mg/L
MS-07	2/22/2020	Phosphorus	5.29	5.29	5.29		0.292	mg/L
MS-14	2/22/2020	Phosphorus	4.09	4.09	4.09		0.292	mg/L
MS-14A	2/22/2020	Phosphorus	4.47	4.47	4.47		0.292	mg/L
MS-07	3/9/2020	Phosphorus	2.9	2.9	2.9		0.292	mg/L
MS-14	3/9/2020	Phosphorus	2.11	2.11	2.11		0.292	mg/L
MS-14A	3/9/2020	Phosphorus	1.41	1.41	1.41		0.073	mg/L
MS-07	3/11/2020	Phosphorus	3.19	3.19	3.19		0.292	mg/L
MS-14	3/11/2020	Phosphorus	1.45	1.45	1.45		0.292	mg/L
MS-14A	3/11/2020	Phosphorus	1.36	1.36	1.36		0.292	mg/L
MS-07	3/12/2020	Phosphorus	3.23	3.23	3.23		0.292	mg/L
MS-14	3/12/2020	Phosphorus	1.29	1.29	1.29		0.146	mg/L
MS-14A	3/12/2020	Phosphorus	1.07	1.07	1.07		0.146	mg/L
MS-07	3/14/2020	Phosphorus	3.47	3.47	3.47		0.292	mg/L
MS-14	3/14/2020	Phosphorus	1.75	1.75	1.75		0.292	mg/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	3/14/2020	Phosphorus	1.82	1.82	1.82		0.292	mg/L
MS-07	4/20/2020	Phosphorus	4.99	4.99	4.99		0.292	mg/L
MS-14	4/20/2020	Phosphorus	4.04	4.04	4.04		0.292	mg/L
MS-14A	4/20/2020	Phosphorus	3.2	3.2	3.2		0.292	mg/L
MS-07	4/22/2020	Phosphorus	5	5	5		0.292	mg/L
MS-14	4/22/2020	Phosphorus	3.71	3.71	3.71		0.292	mg/L
MS-14A	4/22/2020	Phosphorus	3.35	3.35	3.35		0.292	mg/L
MS-07	4/23/2020	Phosphorus	4.51	4.51	4.51		0.292	mg/L
MS-14	4/23/2020	Phosphorus	3.41	3.41	3.41		0.292	mg/L
MS-14A	4/23/2020	Phosphorus	3.95	3.95	3.95		0.292	mg/L
MS-07	4/25/2020	Phosphorus	4.97	4.97	4.97		0.292	mg/L
MS-14	4/25/2020	Phosphorus	3.51	3.51	3.51		0.292	mg/L
MS-14A	4/25/2020	Phosphorus	4.04	4.04	4.04		0.292	mg/L
MS-07	5/11/2020	Phosphorus	5.12	5.12	5.12		0.292	mg/L
MS-14	5/11/2020	Phosphorus	4.95	4.95	4.95		0.292	mg/L
MS-14A	5/11/2020	Phosphorus	4.37	4.37	4.37		0.292	mg/L
MS-07	5/13/2020	Phosphorus	5.04	5.04	5.04		0.292	mg/L
MS-14	5/13/2020	Phosphorus	4.05	4.05	4.05		0.292	mg/L
MS-14A	5/13/2020	Phosphorus	4.93	4.93	4.93		0.292	mg/L
MS-07	5/14/2020	Phosphorus	5.12	5.12	5.12		0.292	mg/L
MS-14	5/14/2020	Phosphorus	4.53	4.53	4.53		0.292	mg/L
MS-14A	5/14/2020	Phosphorus	4.22	4.22	4.22		0.292	mg/L
MS-07	5/16/2020	Phosphorus	3.91	3.91	3.91		0.292	mg/L
MS-14	5/16/2020	Phosphorus	3.27	3.27	3.27		0.292	mg/L
MS-14A	5/16/2020	Phosphorus	2.59	2.59	2.59		0.292	mg/L
MS-07	6/1/2020	Phosphorus	4.65	4.65	4.65		0.292	mg/L
MS-14	6/1/2020	Phosphorus	3.39	3.39	3.39		0.292	mg/L
MS-14A	6/1/2020	Phosphorus	2.67	2.67	2.67		0.292	mg/L
MS-07	6/3/2020	Phosphorus	4.11	4.11	4.11		0.292	mg/L
MS-14	6/3/2020	Phosphorus	3.25	3.25	3.25		0.292	mg/L
MS-14A	6/3/2020	Phosphorus	2.25	2.25	2.25		0.292	mg/L
MS-07	6/4/2020	Phosphorus	4.04	4.04	4.04		0.292	mg/L
MS-14	6/4/2020	Phosphorus	5.83	5.83	5.83		0.292	mg/L
MS-14A	6/4/2020	Phosphorus	2.56	2.56	2.56		0.292	mg/L
MS-07	6/6/2020	Phosphorus	4.44	4.44	4.44		0.292	mg/L
MS-14	6/6/2020	Phosphorus	6.81	6.81	6.81		0.292	mg/L
MS-14A	6/6/2020	Phosphorus	3.29	3.29	3.29		0.292	mg/L
MS-07	7/13/2020	Phosphorus	5.3	5.3	5.3		0.292	mg/L
MS-14	7/13/2020	Phosphorus	4.1	4.1	4.1		0.292	mg/L
MS-14A	7/13/2020	Phosphorus	3.6	3.6	3.6		0.292	mg/L
MS-14	7/15/2020	Phosphorus	3.83	3.83	3.83		0.292	mg/L
MS-14A	7/15/2020	Phosphorus	3.67	3.67	3.67		0.292	mg/L
MS-07	7/16/2020	Phosphorus	5.05	5.05	5.05		0.292	mg/L
MS-14	7/16/2020	Phosphorus	3.73	3.73	3.73		0.292	mg/L
MS-14A	7/16/2020	Phosphorus	3.66	3.66	3.66		0.292	mg/L
MS-07	7/18/2020	Phosphorus	4.34	4.34	4.34		0.292	mg/L
MS-14	7/18/2020	Phosphorus	4.55	4.55	4.55		0.292	mg/L
MS-14A	7/18/2020	Phosphorus	3.48	3.48	3.48		0.292	mg/L
MS-07	7/20/2020	Phosphorus	4.92	4.92	4.92		0.292	mg/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	8/10/2020	Phosphorus	5.51	5.51	5.51		0.292	mg/L
MS-14	8/10/2020	Phosphorus	5.38	5.38	5.38		0.292	mg/L
MS-14A	8/10/2020	Phosphorus	5.42	5.42	5.42		0.292	mg/L
MS-07	8/12/2020	Phosphorus	5.51	5.51	5.51		0.292	mg/L
MS-14	8/12/2020	Phosphorus	5.5	5.5	5.5		0.292	mg/L
MS-14A	8/12/2020	Phosphorus	5.56	5.56	5.56		0.292	mg/L
MS-07	8/13/2020	Phosphorus	5.59	5.59	5.59		0.292	mg/L
MS-14	8/13/2020	Phosphorus	5.03	5.03	5.03		0.292	mg/L
MS-14A	8/13/2020	Phosphorus	4.99	4.99	4.99		0.292	mg/L
MS-07	8/15/2020	Phosphorus	5.58	5.58	5.58		0.292	mg/L
MS-14	8/15/2020	Phosphorus	5.6	5.6	5.6		0.292	mg/L
MS-14A	8/15/2020	Phosphorus	6.57	6.57	6.57		0.292	mg/L
MS-07	9/14/2020	Phosphorus	6.34	6.34	6.34		0.292	mg/L
MS-14	9/14/2020	Phosphorus	5.67	5.67	5.67		0.292	mg/L
MS-14A	9/14/2020	Phosphorus	5.94	5.94	5.94		0.292	mg/L
MS-07	9/16/2020	Phosphorus	5.73	5.73	5.73		0.292	mg/L
MS-14	9/16/2020	Phosphorus	5.92	5.92	5.92		0.292	mg/L
MS-14A	9/16/2020	Phosphorus	5.18	5.18	5.18		0.292	mg/L
MS-07	9/17/2020	Phosphorus	5.38	5.38	5.38		0.292	mg/L
MS-14	9/17/2020	Phosphorus	4.63	4.63	4.63		0.292	mg/L
MS-14A	9/17/2020	Phosphorus	5.31	5.31	5.31		0.292	mg/L
MS-07	9/19/2020	Phosphorus	6.32	6.32	6.32		0.292	mg/L
MS-14	9/19/2020	Phosphorus	5.7	5.7	5.7		0.292	mg/L
MS-14A	9/19/2020	Phosphorus	5.34	5.34	5.34		0.292	mg/L
MS-07	10/19/2020	Phosphorus	6.25	6.25	6.25		0.292	mg/L
MS-14	10/19/2020	Phosphorus	5.92	5.92	5.92		0.292	mg/L
MS-14A	10/19/2020	Phosphorus	6.3	6.3	6.3		0.292	mg/L
MS-07	10/21/2020	Phosphorus	6.11	6.11	6.11		0.292	mg/L
MS-14	10/21/2020	Phosphorus	6.67	6.67	6.67		0.292	mg/L
MS-14A	10/21/2020	Phosphorus	7.44	7.44	7.44		0.292	mg/L
MS-07	10/22/2020	Phosphorus	4.22	4.22	4.22		0.292	mg/L
MS-14	10/22/2020	Phosphorus	2.31	2.31	2.31		0.292	mg/L
MS-14A	10/22/2020	Phosphorus	4.03	4.03	4.03		0.292	mg/L
MS-07	10/24/2020	Phosphorus	5.76	5.76	5.76		0.292	mg/L
MS-14	10/24/2020	Phosphorus	9.08	9.08			0.292	mg/L
MS-14A	10/24/2020	Phosphorus	3.35	3.35	3.35		0.292	mg/L
MS-14A	10/26/2020	Phosphorus	4.02	4.02	4.02		0.292	mg/L
MS-07	11/9/2020	Phosphorus	4.66	4.66	4.66		0.292	mg/L
MS-14	11/9/2020	Phosphorus	9.07	9.07			0.292	mg/L
MS-14A	11/9/2020	Phosphorus	4.55	4.55	4.55		0.292	mg/L
		Average		**4.29**	**4.24**	**mg/l**		
		Maximum		**13.65**	**8.12**	**mg/l**		

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-14	1/11/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-14A	1/11/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-07	2/6/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-14	2/6/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-14A	2/6/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-07	3/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-14	3/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-14A	3/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-14	4/6/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-14A	4/6/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-14	5/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-14A	5/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-07	5/9/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-07	6/21/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	6/21/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	6/21/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	6/29/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	7/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	7/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	7/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	8/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	8/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	8/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	9/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	9/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	9/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	10/26/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	10/26/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	10/26/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	11/6/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	11/6/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	11/6/2017	Selenium	6.27	6.27	6.27		4.898	ug/L
MS-07	12/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	12/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	12/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	1/13/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	1/13/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	1/13/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	2/7/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14	2/7/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-14A	2/7/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-07	3/8/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	3/8/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	3/8/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	4/2/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	4/2/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	4/2/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	5/9/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	5/9/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	6/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	6/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	6/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	7/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	7/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	7/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	8/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	8/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	8/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	9/10/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	9/10/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	9/10/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	10/4/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	10/4/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	10/4/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	11/7/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	11/7/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	11/7/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	12/3/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	12/3/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	12/3/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	1/12/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	1/12/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	1/12/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	2/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	2/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	2/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	3/7/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	3/7/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	3/7/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	4/1/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	4/1/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	4/1/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	5/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	5/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	5/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	6/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	6/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	6/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	7/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	7/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	7/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	8/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	8/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	8/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	9/9/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	9/9/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L

NEW Water
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Green Bay Facility
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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	10/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	10/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	10/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	11/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	11/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	11/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	12/2/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	12/2/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	12/2/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	1/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	1/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	1/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	2/20/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	2/20/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	2/20/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	3/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	3/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	3/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	4/22/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	4/22/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	4/22/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	5/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	5/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	5/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	6/4/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	6/4/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	6/4/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	7/18/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	7/18/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	7/18/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	8/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	8/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	8/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-07	9/16/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14	9/16/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-14A	9/16/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
		Average		**4.172**	**4.172**	**ug/l**	**0.004172**	**mg/l**
		Maximum		**6.270**	**6.270**	**ug/l**	**0.006270**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Silver	<0.92	0.46			0.92	ug/L
MS-14	1/11/2017	Silver	<0.92	0.46			0.92	ug/L
MS-14A	1/11/2017	Silver	<0.92	0.46			0.92	ug/L
MS-07	2/6/2017	Silver	<0.92	0.46			0.92	ug/L
MS-14	2/6/2017	Silver	<0.92	0.46			0.92	ug/L
MS-14A	2/6/2017	Silver	<0.92	0.46			0.92	ug/L
MS-07	3/8/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-14	3/8/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-14A	3/8/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-14	4/6/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-14A	4/6/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-14	5/8/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-14A	5/8/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-07	5/9/2017	Silver	<0.333	0.1665			0.333	ug/L
MS-07	6/21/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	6/21/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	6/21/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	6/29/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	7/13/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	7/13/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	7/13/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	8/7/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	8/7/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	8/7/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	9/13/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	9/13/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	9/13/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	10/26/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	10/26/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	10/26/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	11/6/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	11/6/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	11/6/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	12/7/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14	12/7/2017	Silver	<0.876	0.438			0.876	ug/L
MS-14A	12/7/2017	Silver	<0.876	0.438			0.876	ug/L
MS-07	1/13/2018	Silver	<0.876	0.438			0.876	ug/L
MS-14	1/13/2018	Silver	<0.876	0.438			0.876	ug/L
MS-14A	1/13/2018	Silver	<0.876	0.438			0.876	ug/L
MS-07	2/7/2018	Silver	<0.876	0.438			0.876	ug/L
MS-14	2/7/2018	Silver	<0.876	0.438			0.876	ug/L
MS-14A	2/7/2018	Silver	<0.876	0.438			0.876	ug/L
MS-07	3/8/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	3/8/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	3/8/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	4/2/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	4/2/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	4/2/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	5/9/2018	Silver	<0.382	0.191			0.382	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	5/9/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	6/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	6/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	6/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	7/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	7/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	7/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	8/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	8/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	8/11/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	9/10/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	9/10/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	9/10/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	10/4/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	10/4/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	10/4/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	11/7/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	11/7/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	11/7/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	12/3/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14	12/3/2018	Silver	<0.382	0.191			0.382	ug/L
MS-14A	12/3/2018	Silver	<0.382	0.191			0.382	ug/L
MS-07	1/12/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	1/12/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	1/12/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	2/6/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	2/6/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	2/6/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	3/7/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	3/7/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	3/7/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	4/1/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	4/1/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	4/1/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	5/8/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	5/8/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	5/8/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	6/8/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	6/8/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	6/8/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	7/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	7/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	7/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	8/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	8/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	8/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	9/9/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	9/9/2019	Silver	<0.382	0.191			0.382	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	10/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	10/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	10/10/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	11/6/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	11/6/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	11/6/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	12/2/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14	12/2/2019	Silver	<0.382	0.191			0.382	ug/L
MS-14A	12/2/2019	Silver	<0.382	0.191			0.382	ug/L
MS-07	1/15/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	1/15/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	1/15/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	2/20/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	2/20/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	2/20/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	3/14/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	3/14/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	3/14/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	4/22/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	4/22/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	4/22/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	5/14/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	5/14/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	5/14/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	6/4/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	6/4/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	6/4/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	7/18/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	7/18/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	7/18/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	8/15/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	8/15/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	8/15/2020	Silver	<0.382	0.191			0.382	ug/L
MS-07	9/16/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14	9/16/2020	Silver	<0.382	0.191			0.382	ug/L
MS-14A	9/16/2020	Silver	<0.382	0.191			0.382	ug/L
		Average		**0.25**	**ug/l**		**0.00025**	**mg/l**
		Maximum		**0.46**	**ug/l**		**0.00046**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-07	1/11/2017	Zinc	122	122	122		5.66	ug/L
MS-14	1/11/2017	Zinc	90.9	90.9	90.9		5.66	ug/L
MS-14A	1/11/2017	Zinc	93.7	93.7	93.7		5.66	ug/L
MS-07	2/6/2017	Zinc	99.9	99.9	99.9		5.66	ug/L
MS-14	2/6/2017	Zinc	87.9	87.9	87.9		5.66	ug/L
MS-14A	2/6/2017	Zinc	95.2	95.2	95.2		5.66	ug/L
MS-07	3/8/2017	Zinc	68.2	68.2	68.2		3.52	ug/L
MS-14	3/8/2017	Zinc	78.6	78.6	78.6		3.52	ug/L
MS-14A	3/8/2017	Zinc	39.9	39.9	39.9		3.52	ug/L
MS-14	4/6/2017	Zinc	66.3	66.3	66.3		3.52	ug/L
MS-14A	4/6/2017	Zinc	44.8	44.8	44.8		3.52	ug/L
MS-14	5/8/2017	Zinc	62.8	62.8	62.8		3.52	ug/L
MS-14A	5/8/2017	Zinc	73.1	73.1	73.1		3.52	ug/L
MS-07	5/9/2017	Zinc	86.3	86.3	86.3		3.52	ug/L
MS-07	6/21/2017	Zinc	87.65	87.65	87.65		4.707	ug/L
MS-14	6/21/2017	Zinc	98.06	98.06	98.06		4.707	ug/L
MS-14A	6/21/2017	Zinc	111.75	111.75	111.75		4.707	ug/L
MS-07	6/29/2017	Zinc	102.79	102.79	102.79		4.707	ug/L
MS-07	7/13/2017	Zinc	105.01	105.01	105.01		4.707	ug/L
MS-14	7/13/2017	Zinc	122.3	122.3	122.3		4.707	ug/L
MS-14A	7/13/2017	Zinc	155.7	155.7	155.7		4.707	ug/L
MS-07	8/7/2017	Zinc	119.03	119.03	119.03		4.707	ug/L
MS-14	8/7/2017	Zinc	79.69	79.69	79.69		4.707	ug/L
MS-14A	8/7/2017	Zinc	166.03	166.03	166.03		4.707	ug/L
MS-07	9/13/2017	Zinc	157.53	157.53	157.53		4.707	ug/L
MS-14	9/13/2017	Zinc	84.46	84.46	84.46		4.707	ug/L
MS-14A	9/13/2017	Zinc	131.52	131.52	131.52		4.707	ug/L
MS-07	10/26/2017	Zinc	100.27	100.27	100.27		4.707	ug/L
MS-14	10/26/2017	Zinc	114.19	114.19	114.19		4.707	ug/L
MS-14A	10/26/2017	Zinc	210.98	210.98	210.98		4.707	ug/L
MS-07	11/6/2017	Zinc	67.56	67.56	67.56		4.707	ug/L
MS-14	11/6/2017	Zinc	89.85	89.85	89.85		4.707	ug/L
MS-14A	11/6/2017	Zinc	165.36	165.36	165.36		4.707	ug/L
MS-07	12/7/2017	Zinc	110.92	110.92	110.92		4.707	ug/L
MS-14	12/7/2017	Zinc	106.85	106.85	106.85		4.707	ug/L
MS-14A	12/7/2017	Zinc	141.45	141.45	141.45		4.707	ug/L
MS-07	1/13/2018	Zinc	125	125	125		4.707	ug/L
MS-14	1/13/2018	Zinc	135	135	135		4.707	ug/L
MS-14A	1/13/2018	Zinc	174	174	174		4.707	ug/L
MS-07	2/7/2018	Zinc	131	131	131		4.707	ug/L
MS-14	2/7/2018	Zinc	156	156	156		4.707	ug/L
MS-14A	2/7/2018	Zinc	155	155	155		4.707	ug/L
MS-07	3/8/2018	Zinc	125	125	125		4.822	ug/L
MS-14	3/8/2018	Zinc	107	107	107		4.822	ug/L
MS-14A	3/8/2018	Zinc	151	151	151		4.822	ug/L
MS-07	4/2/2018	Zinc	173	173	173		4.822	ug/L
MS-14	4/2/2018	Zinc	93.4	93.4	93.4		4.822	ug/L
MS-14A	4/2/2018	Zinc	123	123	123		4.822	ug/L
MS-07	5/9/2018	Zinc	102	102	102		4.822	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14	5/9/2018	Zinc	51.1	51.1	51.1		4.822	ug/L
MS-14A	5/9/2018	Zinc	45.4	45.4	45.4		4.822	ug/L
MS-07	6/11/2018	Zinc	949	949			4.822	ug/L
MS-14	6/11/2018	Zinc	137	137	137		4.822	ug/L
MS-14A	6/11/2018	Zinc	127	127	127		4.822	ug/L
MS-07	7/11/2018	Zinc	156	156	156		4.822	ug/L
MS-14	7/11/2018	Zinc	82.7	82.7	82.7		4.822	ug/L
MS-14A	7/11/2018	Zinc	207	207	207		4.822	ug/L
MS-07	8/11/2018	Zinc	202	202	202		4.822	ug/L
MS-14	8/11/2018	Zinc	117	117	117		4.822	ug/L
MS-14A	8/11/2018	Zinc	193	193	193		4.822	ug/L
MS-07	9/10/2018	Zinc	544	544			4.822	ug/L
MS-14	9/10/2018	Zinc	68.6	68.6	68.6		4.822	ug/L
MS-14A	9/10/2018	Zinc	106	106	106		4.822	ug/L
MS-07	10/4/2018	Zinc	274	274			4.822	ug/L
MS-14	10/4/2018	Zinc	49.2	49.2	49.2		4.822	ug/L
MS-14A	10/4/2018	Zinc	78.3	78.3	78.3		4.822	ug/L
MS-07	11/7/2018	Zinc	536	536			4.822	ug/L
MS-14	11/7/2018	Zinc	64.5	64.5	64.5		4.822	ug/L
MS-14A	11/7/2018	Zinc	109	109	109		4.822	ug/L
MS-07	12/3/2018	Zinc	344	344			4.822	ug/L
MS-14	12/3/2018	Zinc	167	167	167		4.822	ug/L
MS-14A	12/3/2018	Zinc	93.6	93.6	93.6		4.822	ug/L
MS-07	1/12/2019	Zinc	181	181	181		4.822	ug/L
MS-14	1/12/2019	Zinc	84.5	84.5	84.5		4.822	ug/L
MS-14A	1/12/2019	Zinc	80.9	80.9	80.9		4.822	ug/L
MS-07	2/6/2019	Zinc	156	156	156		4.822	ug/L
MS-14	2/6/2019	Zinc	97.5	97.5	97.5		4.822	ug/L
MS-14A	2/6/2019	Zinc	84.2	84.2	84.2		4.822	ug/L
MS-07	3/7/2019	Zinc	181	181	181		4.822	ug/L
MS-14	3/7/2019	Zinc	211	211	211		4.822	ug/L
MS-14A	3/7/2019	Zinc	105	105	105		4.822	ug/L
MS-07	4/1/2019	Zinc	163	163	163		4.822	ug/L
MS-14	4/1/2019	Zinc	84.6	84.6	84.6		4.822	ug/L
MS-14A	4/1/2019	Zinc	71.8	71.8	71.8		4.822	ug/L
MS-07	5/8/2019	Zinc	120	120	120		4.822	ug/L
MS-14	5/8/2019	Zinc	109	109	109		4.822	ug/L
MS-14A	5/8/2019	Zinc	73.9	73.9	73.9		4.822	ug/L
MS-07	6/8/2019	Zinc	208	208	208		4.822	ug/L
MS-14	6/8/2019	Zinc	107	107	107		4.822	ug/L
MS-14A	6/8/2019	Zinc	84.2	84.2	84.2		4.822	ug/L
MS-07	7/10/2019	Zinc	154	154	154		4.822	ug/L
MS-14	7/10/2019	Zinc	107	107	107		4.822	ug/L
MS-14A	7/10/2019	Zinc	126	126	126		4.822	ug/L
MS-07	8/10/2019	Zinc	155	155	155		4.822	ug/L
MS-14	8/10/2019	Zinc	90.6	90.6	90.6		4.822	ug/L
MS-14A	8/10/2019	Zinc	63.9	63.9	63.9		4.822	ug/L
MS-07	9/9/2019	Zinc	367	367			4.822	ug/L
MS-14	9/9/2019	Zinc	97.3	97.3	97.3		4.822	ug/L

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Sample Desc.	Sample Date	Analyte	Result	Edit Result	Outlier Edit Result		MDL	Units
MS-14A	9/9/2019	Zinc	61	61	61		4.822	ug/L
MS-07	10/10/2019	Zinc	104	104	104		4.822	ug/L
MS-14	10/10/2019	Zinc	49.9	49.9	49.9		4.822	ug/L
MS-14A	10/10/2019	Zinc	43.2	43.2	43.2		4.822	ug/L
MS-07	11/6/2019	Zinc	119	119	119		4.822	ug/L
MS-14	11/6/2019	Zinc	112	112	112		4.822	ug/L
MS-14A	11/6/2019	Zinc	63.9	63.9	63.9		4.822	ug/L
MS-07	12/2/2019	Zinc	145	145	145		4.822	ug/L
MS-14	12/2/2019	Zinc	49.6	49.6	49.6		4.822	ug/L
MS-14A	12/2/2019	Zinc	43.8	43.8	43.8		4.822	ug/L
MS-07	1/15/2020	Zinc	115	115	115		4.822	ug/L
MS-14	1/15/2020	Zinc	111	111	111		4.822	ug/L
MS-14A	1/15/2020	Zinc	50.3	50.3	50.3		4.822	ug/L
MS-07	2/20/2020	Zinc	113	113	113		4.822	ug/L
MS-14	2/20/2020	Zinc	167	167	167		4.822	ug/L
MS-14A	2/20/2020	Zinc	100	100	100		4.822	ug/L
MS-07	3/14/2020	Zinc	119	119	119		4.822	ug/L
MS-14	3/14/2020	Zinc	46.6	46.6	46.6		4.822	ug/L
MS-14A	3/14/2020	Zinc	41.6	41.6	41.6		4.822	ug/L
MS-07	4/22/2020	Zinc	135	135	135		4.822	ug/L
MS-14	4/22/2020	Zinc	75.4	75.4	75.4		4.822	ug/L
MS-14A	4/22/2020	Zinc	60.3	60.3	60.3		4.822	ug/L
MS-07	5/14/2020	Zinc	201	201	201		4.822	ug/L
MS-14	5/14/2020	Zinc	152	152	152		4.822	ug/L
MS-14A	5/14/2020	Zinc	100	100	100		4.822	ug/L
MS-07	6/4/2020	Zinc	151	151	151		4.822	ug/L
MS-14	6/4/2020	Zinc	137	137	137		4.822	ug/L
MS-14A	6/4/2020	Zinc	63.7	63.7	63.7		4.822	ug/L
MS-07	7/18/2020	Zinc	125	125	125		4.822	ug/L
MS-14	7/18/2020	Zinc	111	111	111		4.822	ug/L
MS-14A	7/18/2020	Zinc	86.5	86.5	86.5		4.822	ug/L
MS-07	8/15/2020	Zinc	167	167	167		4.822	ug/L
MS-14	8/15/2020	Zinc	170	170	170		4.822	ug/L
MS-14A	8/15/2020	Zinc	205	205	205		4.822	ug/L
MS-07	9/16/2020	Zinc	148	148	148		4.822	ug/L
MS-14	9/16/2020	Zinc	166	166	166		4.822	ug/L
MS-14A	9/16/2020	Zinc	124	124	124		4.822	ug/L
		Average		**130**	**113**	**ug/l**	**0.113**	**mg/l**
		Maximum		**949**	**211**	**ug/l**	**0.211**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Arsenic	<6.05	3.03	3.03		6.05	ug/L
MS-03	2/6/2017	Arsenic	<6.05	3.03	3.03		6.05	ug/L
MS-03	3/8/2017	Arsenic	<8.982	4.491	4.491		8.982	ug/L
MS-03	4/6/2017	Arsenic	<8.982	4.491	4.491		8.982	ug/L
MS-03	5/8/2017	Arsenic	<8.982	4.491	4.491		8.982	ug/L
MS-03	6/21/2017	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	7/13/2017	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	8/7/2017	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	9/13/2017	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	10/26/2017	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	11/6/2017	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	1/13/2018	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	2/7/2018	Arsenic	<4.154	2.077	2.077		4.154	ug/L
MS-03	3/8/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	4/2/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	5/9/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	6/11/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	7/11/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	8/11/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	9/10/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	10/4/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	11/7/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	12/3/2018	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	1/12/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	2/6/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	3/7/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	4/1/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	5/8/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	6/8/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	7/10/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	8/10/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	9/9/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	10/10/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	11/6/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	12/2/2019	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	1/15/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	2/20/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	3/14/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	4/22/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	5/14/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	6/4/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	7/18/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	8/15/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
MS-03	9/16/2020	Arsenic	<5.728	2.864	2.864		5.728	ug/L
		Average		**2.839**	**2.839**	**ug/l**	**0.002839**	**mg/l**
		Maximum		**4.491**	**4.491**	**ug/l**	**0.004491**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Beryllium	0.396	0.396			0.26	ug/L
MS-03	2/6/2017	Beryllium	0.406	0.406			0.26	ug/L
MS-03	3/8/2017	Beryllium	0.508	0.508			0.245	ug/L
MS-03	4/6/2017	Beryllium	0.33	0.33			0.245	ug/L
MS-03	5/8/2017	Beryllium	<0.245	0.123	0.123		0.245	ug/L
MS-03	6/21/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	7/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	8/7/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	9/13/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	10/26/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	11/6/2017	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	1/13/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	2/7/2018	Beryllium	<0.213	0.107	0.107		0.213	ug/L
MS-03	3/8/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	4/2/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	5/9/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	6/11/2018	Beryllium	0.035	0.035	0.035		0.035	ug/L
MS-03	7/11/2018	Beryllium	0.061	0.061	0.061		0.035	ug/L
MS-03	8/11/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	9/10/2018	Beryllium	0.036	0.036	0.036		0.035	ug/L
MS-03	10/4/2018	Beryllium	0.04	0.04	0.040		0.035	ug/L
MS-03	11/7/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	12/3/2018	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	1/12/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	2/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	3/7/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	4/1/2019	Beryllium	0.077	0.077	0.077		0.035	ug/L
MS-03	5/8/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	6/8/2019	Beryllium	0.051	0.051	0.051		0.035	ug/L
MS-03	7/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	8/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	9/9/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	10/10/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	11/6/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	12/2/2019	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	1/15/2020	Beryllium	0.036	0.036	0.036		0.035	ug/L
MS-03	2/20/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	3/14/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	4/22/2020	Beryllium	0.042	0.042	0.042		0.035	ug/L
MS-03	5/14/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	6/4/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	7/18/2020	Beryllium	<0.035	0.018	0.018		0.035	ug/L
MS-03	8/15/2020	Beryllium	0.07	0.070	0.070		0.035	ug/L
MS-03	9/16/2020	Beryllium	0.116	0.116	0.116		0.035	ug/L
		Average		0.081	0.048	ug/l	0.000048	mg/l
		Maximum		0.508	0.123	ug/l	0.0001225	mg/l

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-03	2/6/2017	Cadmium	<0.53	0.27	0.27		0.53	ug/L
MS-03	3/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-03	4/6/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-03	5/8/2017	Cadmium	<0.596	0.298	0.298		0.596	ug/L
MS-03	6/21/2017	Cadmium	0.67	0.67			0.374	ug/L
MS-03	7/13/2017	Cadmium	0.39	0.39	0.39		0.374	ug/L
MS-03	8/7/2017	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-03	9/13/2017	Cadmium	0.39	0.39	0.39		0.374	ug/L
MS-03	10/26/2017	Cadmium	0.47	0.47	0.47		0.374	ug/L
MS-03	11/6/2017	Cadmium	0.5	0.5	0.5		0.374	ug/L
MS-03	1/13/2018	Cadmium	0.43	0.43	0.43		0.374	ug/L
MS-03	2/7/2018	Cadmium	<0.374	0.187	0.187		0.374	ug/L
MS-03	3/8/2018	Cadmium	0.42	0.42	0.42		0.297	ug/L
MS-03	4/2/2018	Cadmium	0.39	0.39	0.39		0.297	ug/L
MS-03	5/9/2018	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-03	6/11/2018	Cadmium	0.5	0.5	0.5		0.297	ug/L
MS-03	7/11/2018	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-03	8/11/2018	Cadmium	0.45	0.45	0.45		0.297	ug/L
MS-03	9/10/2018	Cadmium	0.34	0.34	0.34		0.297	ug/L
MS-03	10/4/2018	Cadmium	0.46	0.46	0.46		0.297	ug/L
MS-03	11/7/2018	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-03	12/3/2018	Cadmium	0.44	0.44	0.44		0.297	ug/L
MS-03	1/12/2019	Cadmium	0.35	0.35	0.35		0.297	ug/L
MS-03	2/6/2019	Cadmium	0.58	0.58	0.58		0.297	ug/L
MS-03	3/7/2019	Cadmium	0.39	0.39	0.39		0.297	ug/L
MS-03	4/1/2019	Cadmium	0.59	0.59	0.59		0.297	ug/L
MS-03	5/8/2019	Cadmium	0.35	0.35	0.35		0.297	ug/L
MS-03	6/8/2019	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-03	7/10/2019	Cadmium	0.43	0.43	0.43		0.297	ug/L
MS-03	8/10/2019	Cadmium	0.35	0.35	0.35		0.297	ug/L
MS-03	9/9/2019	Cadmium	0.4	0.4	0.4		0.297	ug/L
MS-03	10/10/2019	Cadmium	0.48	0.48	0.48		0.297	ug/L
MS-03	11/6/2019	Cadmium	0.46	0.46	0.46		0.297	ug/L
MS-03	12/2/2019	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-03	1/15/2020	Cadmium	0.43	0.43	0.43		0.297	ug/L
MS-03	2/20/2020	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-03	3/14/2020	Cadmium	0.34	0.34	0.34		0.297	ug/L
MS-03	4/22/2020	Cadmium	0.4	0.4	0.4		0.297	ug/L
MS-03	5/14/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-03	6/4/2020	Cadmium	0.38	0.38	0.38		0.297	ug/L
MS-03	7/18/2020	Cadmium	<0.297	0.149	0.149		0.297	ug/L
MS-03	8/15/2020	Cadmium	0.3	0.3	0.3		0.297	ug/L
MS-03	9/16/2020	Cadmium	0.38	0.38	0.38		0.297	ug/L
		Average		**0.37**	**0.37**	**ug/l**	**0.00037**	**mg/l**
		Maximum		**0.67**	**0.59**	**ug/l**	**0.00059**	**mg/l**

NEW Water
2021 Local Limits Evaluation

DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Chromium, Total	1.77		1.77		0.71	ug/L
MS-03	2/6/2017	Chromium, Total	2.9		2.9		0.71	ug/L
MS-03	3/8/2017	Chromium, Total	1.85		1.85		0.404	ug/L
MS-03	4/6/2017	Chromium, Total	1.53		1.53		0.404	ug/L
MS-03	5/8/2017	Chromium, Total	3.65		3.65		0.404	ug/L
MS-03	6/21/2017	Chromium, Total	4.04		4.04		0.6384	ug/L
MS-03	7/13/2017	Chromium, Total	2.33		2.33		0.6384	ug/L
MS-03	8/7/2017	Chromium, Total	5.96				0.6384	ug/L
MS-03	9/13/2017	Chromium, Total	3.19		3.19		0.6384	ug/L
MS-03	10/26/2017	Chromium, Total	2.25		2.25		0.6384	ug/L
MS-03	11/6/2017	Chromium, Total	4.93		4.93		0.6384	ug/L
MS-03	1/13/2018	Chromium, Total	2.77		2.77		0.6384	ug/L
MS-03	2/7/2018	Chromium, Total	3.36		3.36		0.6384	ug/L
MS-03	3/8/2018	Chromium, Total	4.26		4.26		1	ug/L
MS-03	4/2/2018	Chromium, Total	3.03		3.03		1	ug/L
MS-03	5/9/2018	Chromium, Total	2.38		2.38		1	ug/L
MS-03	6/11/2018	Chromium, Total	3.91		3.91		1	ug/L
MS-03	7/11/2018	Chromium, Total	3.65		3.65		1	ug/L
MS-03	8/11/2018	Chromium, Total	2.42		2.42		1	ug/L
MS-03	9/10/2018	Chromium, Total	3.92		3.92		1	ug/L
MS-03	10/4/2018	Chromium, Total	2.07		2.07		1	ug/L
MS-03	11/7/2018	Chromium, Total	1.7		1.7		1	ug/L
MS-03	12/3/2018	Chromium, Total	1.96		1.96		1	ug/L
MS-03	1/12/2019	Chromium, Total	2		2		1	ug/L
MS-03	2/6/2019	Chromium, Total	2.69		2.69		1	ug/L
MS-03	3/7/2019	Chromium, Total	3.17		3.17		1	ug/L
MS-03	4/1/2019	Chromium, Total	5.37		5.37		1	ug/L
MS-03	5/8/2019	Chromium, Total	2.76		2.76		1	ug/L
MS-03	6/8/2019	Chromium, Total	3.34		3.34		1	ug/L
MS-03	7/10/2019	Chromium, Total	6.59				1	ug/L
MS-03	8/10/2019	Chromium, Total	2.12		2.12		1	ug/L
MS-03	9/9/2019	Chromium, Total	4.75		4.75		1	ug/L
MS-03	10/10/2019	Chromium, Total	2.54		2.54		1	ug/L
MS-03	11/6/2019	Chromium, Total	2.1		2.1		1	ug/L
MS-03	12/2/2019	Chromium, Total	2.18		2.18		1	ug/L
MS-03	1/15/2020	Chromium, Total	2.89		2.89		1	ug/L
MS-03	2/20/2020	Chromium, Total	3.1		3.1		1	ug/L
MS-03	3/14/2020	Chromium, Total	1.93		1.93		1	ug/L
MS-03	4/22/2020	Chromium, Total	2.46		2.46		1	ug/L
MS-03	5/14/2020	Chromium, Total	1.68		1.68		1	ug/L
MS-03	6/4/2020	Chromium, Total	3.88		3.88		1	ug/L
MS-03	7/18/2020	Chromium, Total	1.45		1.45		1	ug/L
MS-03	8/15/2020	Chromium, Total	3.19		3.19		1	ug/L
MS-03	9/16/2020	Chromium, Total	2.8		2.8		1	ug/L
		Average	**3.02**		**2.86**	**ug/l**	**0.00286**	**mg/l**
		Maximum	**6.59**		**5.37**	**ug/l**	**0.00537**	**mg/l**

NEW Water
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DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Copper	125		125		2.04	ug/L
MS-03	2/6/2017	Copper	144		144		2.04	ug/L
MS-03	3/8/2017	Copper	92.3		92.3		0.745	ug/L
MS-03	4/6/2017	Copper	97.3		97.3		0.745	ug/L
MS-03	5/8/2017	Copper	152		152		0.745	ug/L
MS-03	6/21/2017	Copper	115.61		115.61		0.714	ug/L
MS-03	7/13/2017	Copper	101.9		101.9		0.714	ug/L
MS-03	8/7/2017	Copper	108.99		108.99		0.714	ug/L
MS-03	9/13/2017	Copper	149.96		149.96		0.714	ug/L
MS-03	10/26/2017	Copper	114.24		114.24		0.714	ug/L
MS-03	11/6/2017	Copper	156.18		156.18		0.714	ug/L
MS-03	1/13/2018	Copper	117		117		0.714	ug/L
MS-03	2/7/2018	Copper	138		138		0.714	ug/L
MS-03	3/8/2018	Copper	105		105		0.775	ug/L
MS-03	4/2/2018	Copper	127		127		0.775	ug/L
MS-03	5/9/2018	Copper	60.9		60.9		0.775	ug/L
MS-03	6/11/2018	Copper	182				0.775	ug/L
MS-03	7/11/2018	Copper	130		130		0.775	ug/L
MS-03	8/11/2018	Copper	101		101		0.775	ug/L
MS-03	9/10/2018	Copper	118		118		0.775	ug/L
MS-03	10/4/2018	Copper	91.8		91.8		0.775	ug/L
MS-03	11/7/2018	Copper	74.4		74.4		0.775	ug/L
MS-03	12/3/2018	Copper	93.1		93.1		0.775	ug/L
MS-03	1/12/2019	Copper	87.2		87.2		0.775	ug/L
MS-03	2/6/2019	Copper	114		114		0.775	ug/L
MS-03	3/7/2019	Copper	91.4		91.4		0.775	ug/L
MS-03	4/1/2019	Copper	104		104		0.775	ug/L
MS-03	5/8/2019	Copper	75.2		75.2		0.775	ug/L
MS-03	6/8/2019	Copper	98		98		0.775	ug/L
MS-03	7/10/2019	Copper	94.2		94.2		0.775	ug/L
MS-03	8/10/2019	Copper	88.8		88.8		0.775	ug/L
MS-03	9/9/2019	Copper	88		88		0.775	ug/L
MS-03	10/10/2019	Copper	88.5		88.5		0.775	ug/L
MS-03	11/6/2019	Copper	91.7		91.7		0.775	ug/L
MS-03	12/2/2019	Copper	81.2		81.2		0.775	ug/L
MS-03	1/15/2020	Copper	96.6		96.6		0.775	ug/L
MS-03	2/20/2020	Copper	121		121		0.775	ug/L
MS-03	3/14/2020	Copper	83.6		83.6		0.775	ug/L
MS-03	4/22/2020	Copper	139		139		0.775	ug/L
MS-03	5/14/2020	Copper	62		62		0.775	ug/L
MS-03	6/4/2020	Copper	126		126		0.775	ug/L
MS-03	7/18/2020	Copper	78.6		78.6		0.775	ug/L
MS-03	8/15/2020	Copper	94.2		94.2		0.775	ug/L
MS-03	9/16/2020	Copper	127		127		0.775	ug/L
		Average	**107**		**106**	**ug/l**	**0.106**	**mg/l**
		Maximum	**182**		**156**	**ug/l**	**0.156**	**mg/l**

NEW Water
2021 Local Limits Evaluation

DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-03	2/6/2017	Lead	<2.49	1.25	1.25		2.49	ug/L
MS-03	3/8/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-03	4/6/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-03	5/8/2017	Lead	<1.677	0.839	0.839		1.677	ug/L
MS-03	6/21/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	7/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	8/7/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	9/13/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	10/26/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	11/6/2017	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	1/13/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	2/7/2018	Lead	<2.362	1.181	1.181		2.362	ug/L
MS-03	3/8/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	4/2/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	5/9/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	6/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	7/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	8/11/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	9/10/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	10/4/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	11/7/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	12/3/2018	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	1/12/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	2/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	3/7/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	4/1/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	5/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	6/8/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	7/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	8/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	9/9/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	10/10/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	11/6/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	12/2/2019	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	1/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	2/20/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	3/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	4/22/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	5/14/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	6/4/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	7/18/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	8/15/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
MS-03	9/16/2020	Lead	<2.681	1.341	1.341		2.681	ug/L
		Average		**1.273**	**1.273**	**ug/l**	**0.001273**	**mg/l**
		Maximum		**1.341**	**1.341**	**ug/l**	**0.001341**	**mg/l**

NEW Water
2021 Local Limits Evaluation

DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Manganese	20.8		20.8		0.45	ug/L
MS-03	2/6/2017	Manganese	27.1		27.1		0.45	ug/L
MS-03	3/8/2017	Manganese	18.7		18.7		0.492	ug/L
MS-03	4/6/2017	Manganese	16.8		16.8		0.492	ug/L
MS-03	5/8/2017	Manganese	32.6		32.6		0.492	ug/L
MS-03	6/21/2017	Manganese	30.96		30.96		1.182	ug/L
MS-03	7/13/2017	Manganese	25.32		25.32		1.182	ug/L
MS-03	8/7/2017	Manganese	71.02				1.182	ug/L
MS-03	9/13/2017	Manganese	34.81		34.81		1.182	ug/L
MS-03	10/26/2017	Manganese	28.37		28.37		1.182	ug/L
MS-03	11/6/2017	Manganese	35.57		35.57		1.182	ug/L
MS-03	1/13/2018	Manganese	22.8		22.8		1.182	ug/L
MS-03	2/7/2018	Manganese	27.1		27.1		1.182	ug/L
MS-03	3/8/2018	Manganese	28.1		28.1		0.489	ug/L
MS-03	4/2/2018	Manganese	27.8		27.8		0.489	ug/L
MS-03	5/9/2018	Manganese	20		20		0.489	ug/L
MS-03	6/11/2018	Manganese	42		42		0.489	ug/L
MS-03	7/11/2018	Manganese	31.8		31.8		0.489	ug/L
MS-03	8/11/2018	Manganese	28.4		28.4		0.489	ug/L
MS-03	9/10/2018	Manganese	37.8		37.8		0.489	ug/L
MS-03	10/4/2018	Manganese	24.9		24.9		0.489	ug/L
MS-03	11/7/2018	Manganese	20.6		20.6		0.489	ug/L
MS-03	12/3/2018	Manganese	20.7		20.7		0.489	ug/L
MS-03	1/12/2019	Manganese	21		21		2.596	ug/L
MS-03	2/6/2019	Manganese	28.1		28.1		2.596	ug/L
MS-03	3/7/2019	Manganese	26.5		26.5		2.596	ug/L
MS-03	4/1/2019	Manganese	37.2		37.2		2.596	ug/L
MS-03	5/8/2019	Manganese	30.4		30.4		2.596	ug/L
MS-03	6/8/2019	Manganese	34.3		34.3		2.596	ug/L
MS-03	7/10/2019	Manganese	43.6		43.6		2.596	ug/L
MS-03	8/10/2019	Manganese	29.3		29.3		2.596	ug/L
MS-03	9/9/2019	Manganese	41.4		41.4		2.596	ug/L
MS-03	10/10/2019	Manganese	26		26		2.596	ug/L
MS-03	11/6/2019	Manganese	27.5		27.5		2.596	ug/L
MS-03	12/2/2019	Manganese	23.2		23.2		2.596	ug/L
MS-03	1/15/2020	Manganese	26.7		26.7		2.596	ug/L
MS-03	2/20/2020	Manganese	27.9		27.9		2.596	ug/L
MS-03	3/14/2020	Manganese	17.8		17.8		2.596	ug/L
MS-03	4/22/2020	Manganese	29.5		29.5		2.596	ug/L
MS-03	5/14/2020	Manganese	30.2		30.2		2.596	ug/L
MS-03	6/4/2020	Manganese	32.3		32.3		2.596	ug/L
MS-03	7/18/2020	Manganese	23.8		23.8		2.596	ug/L
MS-03	8/15/2020	Manganese	27.7		27.7		2.596	ug/L
MS-03	9/16/2020	Manganese	34.8		34.8		2.596	ug/L
		Average	**29.4**		**28.4**	**ug/l**	**0.0284**	**mg/l**
		Maximum	**71.0**		**43.6**	**ug/l**	**0.0436**	**mg/l**

NEW Water
2021 Local Limits Evaluation

DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-03	2/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-03	3/8/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-03	4/6/2017	Mercury	<0.034	0.017	0.017		0.034	ug/L
MS-03	5/8/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	6/21/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	7/13/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	8/7/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	9/13/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	10/26/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	11/6/2017	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	1/13/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	2/7/2018	Mercury	<0.0335	0.0168	0.0168		0.0335	ug/L
MS-03	3/8/2018	Mercury	0.039	0.039	0.039		0.035	ug/L
MS-03	4/2/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	5/9/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	6/11/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	7/11/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	8/11/2018	Mercury	0.055	0.055	0.055		0.035	ug/L
MS-03	9/10/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	10/4/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	11/7/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	12/3/2018	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	1/12/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	2/6/2019	Mercury	<0.035	0.018	0.018		0.035	ug/L
MS-03	3/7/2019	Mercury	0.041	0.041	0.041		0.035	ug/L
MS-03	4/1/2019	Mercury	0.0539	0.0539	0.0539		0.041	ug/L
MS-03	5/8/2019	Mercury	0.0631	0.0631	0.0631		0.041	ug/L
MS-03	6/8/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	7/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	8/10/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	9/9/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	10/10/2019	Mercury	0.0417	0.0417	0.0417		0.041	ug/L
MS-03	11/6/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	12/2/2019	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	1/15/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	2/20/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	3/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	4/22/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	5/14/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	6/4/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	7/18/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	8/15/2020	Mercury	0.23	0.23			0.041	ug/L
MS-03	9/16/2020	Mercury	<0.041	0.021	0.021		0.041	ug/L
MS-03	10/22/2020	Mercury	0.043	0.043	0.043	N4	0.041	ug/L
		Average		**0.028**	**0.023**	**ug/l**	**0.000023**	**mg/l**
		Maximum		**0.230**	**0.063**	**ug/l**	**0.000063**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Molybdenum	1.86	1.86	1.86		0.92	ug/L
MS-03	2/6/2017	Molybdenum	1.3	1.3	1.3		0.92	ug/L
MS-03	3/8/2017	Molybdenum	1.17	1.17	1.17		0.656	ug/L
MS-03	4/6/2017	Molybdenum	1.9	1.9	1.9		0.656	ug/L
MS-03	5/8/2017	Molybdenum	1.53	1.53	1.53		0.656	ug/L
MS-03	6/21/2017	Molybdenum	3.49	3.49	3.49		1.078	ug/L
MS-03	7/13/2017	Molybdenum	2.57	2.57	2.57		1.078	ug/L
MS-03	8/7/2017	Molybdenum	2.79	2.79	2.79		1.078	ug/L
MS-03	9/13/2017	Molybdenum	1.81	1.81	1.81		1.078	ug/L
MS-03	10/26/2017	Molybdenum	2.1	2.1	2.1		1.078	ug/L
MS-03	11/6/2017	Molybdenum	2.3	2.3	2.3		1.078	ug/L
MS-03	1/13/2018	Molybdenum	1.31	1.31	1.31		1.078	ug/L
MS-03	2/7/2018	Molybdenum	2.64	2.64	2.64		1.078	ug/L
MS-03	3/8/2018	Molybdenum	2.66	2.66	2.66		1.707	ug/L
MS-03	4/2/2018	Molybdenum	2.85	2.85	2.85		1.707	ug/L
MS-03	5/9/2018	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-03	6/11/2018	Molybdenum	3.61	3.61	3.61		1.707	ug/L
MS-03	7/11/2018	Molybdenum	4.37	4.37	4.37		1.707	ug/L
MS-03	8/11/2018	Molybdenum	2.44	2.44	2.44		1.707	ug/L
MS-03	9/10/2018	Molybdenum	3.93	3.93	3.93		1.707	ug/L
MS-03	10/4/2018	Molybdenum	2.69	2.69	2.69		1.707	ug/L
MS-03	11/7/2018	Molybdenum	1.86	1.86	1.86		1.707	ug/L
MS-03	12/3/2018	Molybdenum	2.82	2.82	2.82		1.707	ug/L
MS-03	1/12/2019	Molybdenum	2.23	2.23	2.23		1.707	ug/L
MS-03	2/6/2019	Molybdenum	3.31	3.31	3.31		1.707	ug/L
MS-03	3/7/2019	Molybdenum	9.04	9.04			1.707	ug/L
MS-03	4/1/2019	Molybdenum	3.46	3.46	3.46		1.707	ug/L
MS-03	5/8/2019	Molybdenum	3.16	3.16	3.16		1.707	ug/L
MS-03	6/8/2019	Molybdenum	2.38	2.38	2.38		1.707	ug/L
MS-03	7/10/2019	Molybdenum	3.21	3.21	3.21		1.707	ug/L
MS-03	8/10/2019	Molybdenum	2.73	2.73	2.73		1.707	ug/L
MS-03	9/9/2019	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-03	10/10/2019	Molybdenum	5.79	5.79			1.707	ug/L
MS-03	11/6/2019	Molybdenum	3.11	3.11	3.11		1.707	ug/L
MS-03	12/2/2019	Molybdenum	2.58	2.58	2.58		1.707	ug/L
MS-03	1/15/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-03	2/20/2020	Molybdenum	2.43	2.43	2.43		1.707	ug/L
MS-03	3/14/2020	Molybdenum	2.51	2.51	2.51		1.707	ug/L
MS-03	4/22/2020	Molybdenum	3.22	3.22	3.22		1.707	ug/L
MS-03	5/14/2020	Molybdenum	1.91	1.91	1.91		1.707	ug/L
MS-03	6/4/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-03	7/18/2020	Molybdenum	<1.707	0.854	0.8535		1.707	ug/L
MS-03	8/15/2020	Molybdenum	2.39	2.39	2.39		1.707	ug/L
MS-03	9/16/2020	Molybdenum	3.13	3.13	3.13		1.707	ug/L
		Average		**2.61**	**2.38**	**ug/l**	**0.00238**	**mg/l**
		Maximum		**9.04**	**4.37**	**ug/l**	**0.00437**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Nickel	4.26		4.26		2.62	ug/L
MS-03	2/6/2017	Nickel	4.38		4.38		2.62	ug/L
MS-03	3/8/2017	Nickel	3.49		3.49		1.716	ug/L
MS-03	4/6/2017	Nickel	3.21		3.21		1.716	ug/L
MS-03	5/8/2017	Nickel	6.9		6.9		1.716	ug/L
MS-03	6/21/2017	Nickel	10.03		10.03		1.445	ug/L
MS-03	7/13/2017	Nickel	7.19		7.19		1.445	ug/L
MS-03	8/7/2017	Nickel	13.6				1.445	ug/L
MS-03	9/13/2017	Nickel	7.48		7.48		1.445	ug/L
MS-03	10/26/2017	Nickel	8.58		8.58		1.445	ug/L
MS-03	11/6/2017	Nickel	12.6		12.6		1.445	ug/L
MS-03	1/13/2018	Nickel	8.79		8.79		1.445	ug/L
MS-03	2/7/2018	Nickel	7.81		7.81		1.445	ug/L
MS-03	3/8/2018	Nickel	7.96		7.96		1.178	ug/L
MS-03	4/2/2018	Nickel	7.5		7.5		1.178	ug/L
MS-03	5/9/2018	Nickel	6.39		6.39		1.178	ug/L
MS-03	6/11/2018	Nickel	8.08		8.08		1.178	ug/L
MS-03	7/11/2018	Nickel	6.99		6.99		1.178	ug/L
MS-03	8/11/2018	Nickel	6.69		6.69		1.178	ug/L
MS-03	9/10/2018	Nickel	6.14		6.14		1.178	ug/L
MS-03	10/4/2018	Nickel	6.6		6.6		1.178	ug/L
MS-03	11/7/2018	Nickel	6.54		6.54		1.178	ug/L
MS-03	12/3/2018	Nickel	1.89		1.89		1.178	ug/L
MS-03	1/12/2019	Nickel	1.46		1.46		1.178	ug/L
MS-03	2/6/2019	Nickel	4.48		4.48		1.178	ug/L
MS-03	3/7/2019	Nickel	4.52		4.52		1.178	ug/L
MS-03	4/1/2019	Nickel	4.49		4.49		1.178	ug/L
MS-03	5/8/2019	Nickel	3.26		3.26		1.178	ug/L
MS-03	6/8/2019	Nickel	4.12		4.12		1.178	ug/L
MS-03	7/10/2019	Nickel	3.17		3.17		1.178	ug/L
MS-03	8/10/2019	Nickel	3.51		3.51		1.178	ug/L
MS-03	9/9/2019	Nickel	4.53		4.53		1.178	ug/L
MS-03	10/10/2019	Nickel	3.69		3.69		1.178	ug/L
MS-03	11/6/2019	Nickel	3.06		3.06		1.178	ug/L
MS-03	12/2/2019	Nickel	2.11		2.11		1.178	ug/L
MS-03	1/15/2020	Nickel	2.87		2.87		1.178	ug/L
MS-03	2/20/2020	Nickel	2.45		2.45		1.178	ug/L
MS-03	3/14/2020	Nickel	2.11		2.11		1.178	ug/L
MS-03	4/22/2020	Nickel	2.92		2.92		1.178	ug/L
MS-03	5/14/2020	Nickel	1.38		1.38		1.178	ug/L
MS-03	6/4/2020	Nickel	3.72		3.72		1.178	ug/L
MS-03	7/18/2020	Nickel	4.45		4.45		1.178	ug/L
MS-03	8/15/2020	Nickel	2.8		2.8		1.178	ug/L
MS-03	9/16/2020	Nickel	4.06		4.06		1.178	ug/L
		Average	**5.28**		**5.09**	**ug/l**	**0.00509**	**mg/l**
		Maximum	**13.6**		**12.6**	**ug/l**	**0.0126**	**mg/l**

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Phosphorus	4.912		4.912		0.12	mg/L
MS-03	1/12/2017	Phosphorus	5.702		5.702		0.12	mg/L
MS-03	1/16/2017	Phosphorus	3.536		3.536		0.12	mg/L
MS-03	1/17/2017	Phosphorus	4.542		4.542		0.12	mg/L
MS-03	1/18/2017	Phosphorus	4.414		4.414		0.111	mg/L
MS-03	2/6/2017	Phosphorus	6.165		6.165		0.111	mg/L
MS-03	2/8/2017	Phosphorus	5.751		5.751		0.111	mg/L
MS-03	2/9/2017	Phosphorus	5.872		5.872		0.111	mg/L
MS-03	2/11/2017	Phosphorus	5.02		5.02		0.111	mg/L
MS-03	3/6/2017	Phosphorus	3.761		3.761		0.111	mg/L
MS-03	3/8/2017	Phosphorus	3.602		3.602		0.111	mg/L
MS-03	3/9/2017	Phosphorus	4.196		4.196		0.111	mg/L
MS-03	3/11/2017	Phosphorus	4.024		4.024		0.111	mg/L
MS-03	4/5/2017	Phosphorus	4.396		4.396		0.111	mg/L
MS-03	4/6/2017	Phosphorus	3.997		3.997		0.111	mg/L
MS-03	4/8/2017	Phosphorus	4.08		4.08		0.111	mg/L
MS-03	5/8/2017	Phosphorus	5.775		5.775		0.1108	mg/L
MS-03	5/10/2017	Phosphorus	5.325		5.325		0.1108	mg/L
MS-03	5/11/2017	Phosphorus	4.558		4.558		0.1108	mg/L
MS-03	5/13/2017	Phosphorus	4.735		4.735		0.1108	mg/L
MS-03	6/19/2017	Phosphorus	9.324				0.1108	mg/L
MS-03	6/21/2017	Phosphorus	5.205		5.205		0.1108	mg/L
MS-03	6/22/2017	Phosphorus	4.386		4.386		0.1108	mg/L
MS-03	6/24/2017	Phosphorus	4.268		4.268		0.1108	mg/L
MS-03	7/10/2017	Phosphorus	6.3		6.3		0.1108	mg/L
MS-03	7/12/2017	Phosphorus	5.145		5.145		0.1108	mg/L
MS-03	7/13/2017	Phosphorus	5.708		5.708		0.1108	mg/L
MS-03	7/15/2017	Phosphorus	5.309		5.309		0.1108	mg/L
MS-03	8/7/2017	Phosphorus	5.835		5.835		0.1108	mg/L
MS-03	8/9/2017	Phosphorus	5.879		5.879		0.1108	mg/L
MS-03	8/10/2017	Phosphorus	6.613		6.613		0.1108	mg/L
MS-03	8/12/2017	Phosphorus	4.958		4.958		0.1108	mg/L
MS-03	9/11/2017	Phosphorus	7.57		7.57		0.1108	mg/L
MS-03	9/13/2017	Phosphorus	6.745		6.745		0.1108	mg/L
MS-03	9/14/2017	Phosphorus	6.507		6.507		0.1108	mg/L
MS-03	9/16/2017	Phosphorus	5.66		5.66		0.1108	mg/L
MS-03	10/23/2017	Phosphorus	6.268		6.268		0.1108	mg/L
MS-03	10/25/2017	Phosphorus	5.802		5.802		0.1108	mg/L
MS-03	10/26/2017	Phosphorus	6.394		6.394		0.1108	mg/L
MS-03	10/28/2017	Phosphorus	5.078		5.078		0.1108	mg/L
MS-03	11/6/2017	Phosphorus	5.443		5.443		0.1108	mg/L
MS-03	11/11/2017	Phosphorus	4.588		4.588		0.1108	mg/L
MS-03	12/4/2017	Phosphorus	5.309		5.309		0.1108	mg/L
MS-03	12/6/2017	Phosphorus	4.436		4.436		0.1108	mg/L
MS-03	12/9/2017	Phosphorus	5.14		5.14		0.1108	mg/L
MS-03	12/27/2017	Phosphorus	7.949		7.949		0.1108	mg/L
MS-03	12/28/2017	Phosphorus	6.654		6.654		0.1108	mg/L
MS-03	1/10/2018	Phosphorus	6.683		6.683		0.1108	mg/L

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2018	Phosphorus	5.45		5.45		0.1108	mg/L
MS-03	1/13/2018	Phosphorus	6.39		6.39		0.1108	mg/L
MS-03	2/5/2018	Phosphorus	7.82		7.82		0.1108	mg/L
MS-03	2/7/2018	Phosphorus	7.17		7.17		0.1108	mg/L
MS-03	2/8/2018	Phosphorus	6.66		6.66		0.1108	mg/L
MS-03	2/10/2018	Phosphorus	5.94		5.94		0.1108	mg/L
MS-03	3/5/2018	Phosphorus	7.02		7.02		0.228	mg/L
MS-03	3/7/2018	Phosphorus	6.12		6.12		0.228	mg/L
MS-03	3/8/2018	Phosphorus	7.14		7.14		0.228	mg/L
MS-03	3/10/2018	Phosphorus	5.35		5.35		0.228	mg/L
MS-03	4/2/2018	Phosphorus	5.86		5.86		0.228	mg/L
MS-03	4/4/2018	Phosphorus	4.57		4.57		0.228	mg/L
MS-03	4/5/2018	Phosphorus	4.32		4.32		0.228	mg/L
MS-03	4/7/2018	Phosphorus	4.52		4.52		0.228	mg/L
MS-03	5/7/2018	Phosphorus	4.22		4.22		0.228	mg/L
MS-03	5/9/2018	Phosphorus	3.41		3.41		0.228	mg/L
MS-03	5/10/2018	Phosphorus	3.79		3.79		0.228	mg/L
MS-03	5/12/2018	Phosphorus	4.17		4.17		0.228	mg/L
MS-03	6/11/2018	Phosphorus	7.6		7.6		0.228	mg/L
MS-03	6/13/2018	Phosphorus	6.63		6.63		0.228	mg/L
MS-03	6/14/2018	Phosphorus	5.69		5.69		0.228	mg/L
MS-03	6/16/2018	Phosphorus	4.91		4.91		0.228	mg/L
MS-03	7/9/2018	Phosphorus	7.21		7.21		0.228	mg/L
MS-03	7/11/2018	Phosphorus	6.27		6.27		0.228	mg/L
MS-03	7/12/2018	Phosphorus	5.7		5.7		0.228	mg/L
MS-03	7/14/2018	Phosphorus	5.54		5.54		0.228	mg/L
MS-03	8/6/2018	Phosphorus	7.59		7.59		0.228	mg/L
MS-03	8/8/2018	Phosphorus	6.06		6.06		0.228	mg/L
MS-03	8/9/2018	Phosphorus	5.9		5.9		0.228	mg/L
MS-03	8/11/2018	Phosphorus	5.77		5.77		0.228	mg/L
MS-03	9/10/2018	Phosphorus	6.6		6.6		0.228	mg/L
MS-03	9/12/2018	Phosphorus	5.15		5.15		0.228	mg/L
MS-03	9/13/2018	Phosphorus	5.49		5.49		0.228	mg/L
MS-03	9/15/2018	Phosphorus	4.8		4.8		0.228	mg/L
MS-03	10/1/2018	Phosphorus	4.13		4.13		0.228	mg/L
MS-03	10/3/2018	Phosphorus	4.56		4.56		0.228	mg/L
MS-03	10/4/2018	Phosphorus	4.57		4.57		0.228	mg/L
MS-03	10/6/2018	Phosphorus	4.48		4.48		0.228	mg/L
MS-03	11/5/2018	Phosphorus	4.23		4.23		0.228	mg/L
MS-03	11/7/2018	Phosphorus	3.59		3.59		0.228	mg/L
MS-03	11/8/2018	Phosphorus	4.4		4.4		0.228	mg/L
MS-03	11/10/2018	Phosphorus	4.2		4.2		0.228	mg/L
MS-03	12/3/2018	Phosphorus	4.17		4.17		0.228	mg/L
MS-03	12/5/2018	Phosphorus	4.45		4.45		0.228	mg/L
MS-03	12/6/2018	Phosphorus	4.46		4.46		0.228	mg/L
MS-03	12/8/2018	Phosphorus	4.76		4.76		0.228	mg/L
MS-03	1/7/2019	Phosphorus	3.14		3.14		0.228	mg/L
MS-03	1/9/2019	Phosphorus	3.35		3.35		0.228	mg/L

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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/10/2019	Phosphorus	3.54		3.54		0.228	mg/L
MS-03	1/12/2019	Phosphorus	4.14		4.14		0.228	mg/L
MS-03	2/4/2019	Phosphorus	4.84		4.84		0.228	mg/L
MS-03	2/6/2019	Phosphorus	4.7		4.7		0.228	mg/L
MS-03	2/7/2019	Phosphorus	4.87		4.87		0.228	mg/L
MS-03	2/9/2019	Phosphorus	4.78		4.78		0.228	mg/L
MS-03	3/4/2019	Phosphorus	6		6		0.228	mg/L
MS-03	3/6/2019	Phosphorus	4.97		4.97		0.228	mg/L
MS-03	3/7/2019	Phosphorus	5.29		5.29		0.228	mg/L
MS-03	3/9/2019	Phosphorus	5.11		5.11		0.228	mg/L
MS-03	4/1/2019	Phosphorus	6.32		6.32		0.228	mg/L
MS-03	4/3/2019	Phosphorus	5.31		5.31		0.228	mg/L
MS-03	4/4/2019	Phosphorus	4.84		4.84		0.228	mg/L
MS-03	4/6/2019	Phosphorus	4.36		4.36		0.228	mg/L
MS-03	5/6/2019	Phosphorus	6.02		6.02		0.228	mg/L
MS-03	5/8/2019	Phosphorus	4.55		4.55		0.292	mg/L
MS-03	5/9/2019	Phosphorus	3.96		3.96		0.292	mg/L
MS-03	5/11/2019	Phosphorus	4.04		4.04		0.292	mg/L
MS-03	6/3/2019	Phosphorus	4.36		4.36		0.292	mg/L
MS-03	6/5/2019	Phosphorus	5.04		5.04		0.292	mg/L
MS-03	6/6/2019	Phosphorus	4.98		4.98		0.292	mg/L
MS-03	6/8/2019	Phosphorus	5.24		5.24		0.292	mg/L
MS-03	7/8/2019	Phosphorus	5.75		5.75		0.292	mg/L
MS-03	7/10/2019	Phosphorus	6.62		6.62		0.292	mg/L
MS-03	7/11/2019	Phosphorus	6.2		6.2		0.292	mg/L
MS-03	7/13/2019	Phosphorus	5.23		5.23		0.292	mg/L
MS-03	8/5/2019	Phosphorus	5.01		5.01		0.292	mg/L
MS-03	8/7/2019	Phosphorus	3.61		3.61		0.292	mg/L
MS-03	8/8/2019	Phosphorus	4.17		4.17		0.292	mg/L
MS-03	8/10/2019	Phosphorus	4.91		4.91		0.292	mg/L
MS-03	9/9/2019	Phosphorus	3.23		3.23		0.292	mg/L
MS-03	9/11/2019	Phosphorus	1.43		1.43		0.292	mg/L
MS-03	9/12/2019	Phosphorus	2.18		2.18		0.292	mg/L
MS-03	9/14/2019	Phosphorus	3.28		3.28		0.292	mg/L
MS-03	10/7/2019	Phosphorus	5.69		5.69		0.292	mg/L
MS-03	10/9/2019	Phosphorus	4.64		4.64		0.292	mg/L
MS-03	10/10/2019	Phosphorus	4.35		4.35		0.292	mg/L
MS-03	10/12/2019	Phosphorus	4.14		4.14		0.292	mg/L
MS-03	11/4/2019	Phosphorus	5.82		5.82		0.292	mg/L
MS-03	11/6/2019	Phosphorus	5.45		5.45		0.292	mg/L
MS-03	11/7/2019	Phosphorus	4.91		4.91		0.292	mg/L
MS-03	11/9/2019	Phosphorus	4.68		4.68		0.292	mg/L
MS-03	12/2/2019	Phosphorus	4.11		4.11		0.292	mg/L
MS-03	12/4/2019	Phosphorus	3.7		3.7		0.292	mg/L
MS-03	12/5/2019	Phosphorus	3.97		3.97		0.292	mg/L
MS-03	12/7/2019	Phosphorus	4.05		4.05		0.292	mg/L
MS-03	1/13/2020	Phosphorus	5.9		5.9		0.292	mg/L
MS-03	1/15/2020	Phosphorus	5.73		5.73		0.292	mg/L

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DePere Facility
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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/16/2020	Phosphorus	5.27		5.27		0.292	mg/L
MS-03	1/18/2020	Phosphorus	4.06		4.06		0.292	mg/L
MS-03	2/17/2020	Phosphorus	8.28				0.292	mg/L
MS-03	2/19/2020	Phosphorus	5.48		5.48		0.292	mg/L
MS-03	2/20/2020	Phosphorus	5.59		5.59		0.292	mg/L
MS-03	2/22/2020	Phosphorus	5.65		5.65		0.292	mg/L
MS-03	3/9/2020	Phosphorus	3.38		3.38		0.292	mg/L
MS-03	3/11/2020	Phosphorus	2.64		2.64		0.292	mg/L
MS-03	3/12/2020	Phosphorus	2.74		2.74		0.292	mg/L
MS-03	3/14/2020	Phosphorus	3.63		3.63		0.292	mg/L
MS-03	4/20/2020	Phosphorus	6.47		6.47		0.292	mg/L
MS-03	4/22/2020	Phosphorus	5.44		5.44		0.292	mg/L
MS-03	4/23/2020	Phosphorus	5.76		5.76		0.292	mg/L
MS-03	4/25/2020	Phosphorus	5.44		5.44		0.292	mg/L
MS-03	5/11/2020	Phosphorus	7.47		7.47		0.292	mg/L
MS-03	5/13/2020	Phosphorus	5.28		5.28		0.292	mg/L
MS-03	5/14/2020	Phosphorus	5.64		5.64		0.292	mg/L
MS-03	5/18/2020	Phosphorus	4.06		4.06		0.292	mg/L
MS-03	6/1/2020	Phosphorus	10.5				0.292	mg/L
MS-03	6/3/2020	Phosphorus	5.6		5.6		0.292	mg/L
MS-03	6/4/2020	Phosphorus	5.93		5.93		0.292	mg/L
MS-03	6/6/2020	Phosphorus	4.85		4.85		0.292	mg/L
MS-03	7/13/2020	Phosphorus	5.86		5.86		0.292	mg/L
MS-03	7/15/2020	Phosphorus	4.67		4.67		0.292	mg/L
MS-03	7/16/2020	Phosphorus	4.93		4.93		0.292	mg/L
MS-03	7/18/2020	Phosphorus	4.26		4.26		0.292	mg/L
MS-03	8/10/2020	Phosphorus	7.23		7.23		0.292	mg/L
MS-03	8/12/2020	Phosphorus	5.76		5.76		0.292	mg/L
MS-03	8/13/2020	Phosphorus	6.47		6.47		0.292	mg/L
MS-03	8/15/2020	Phosphorus	6.11		6.11		0.292	mg/L
MS-03	9/14/2020	Phosphorus	6.94		6.94		0.292	mg/L
MS-03	9/16/2020	Phosphorus	7.44		7.44		0.292	mg/L
MS-03	9/17/2020	Phosphorus	6.03		6.03		0.292	mg/L
MS-03	9/19/2020	Phosphorus	5.62		5.62		0.292	mg/L
MS-03	10/19/2020	Phosphorus	7.96		7.96		0.292	mg/L
MS-03	10/21/2020	Phosphorus	6.61		6.61		0.292	mg/L
MS-03	10/22/2020	Phosphorus	3.6		3.6		0.292	mg/L
MS-03	10/24/2020	Phosphorus	4.22		4.22		0.292	mg/L
MS-03	11/9/2020	Phosphorus	6.32		6.32		0.292	mg/L
		Average	5.25		5.18	mg/l		
		Maximum	10.5		8.0	mg/l		

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DePere Facility
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Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-03	2/6/2017	Selenium	<7.14	3.57	3.57		7.14	ug/L
MS-03	3/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-03	4/6/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-03	5/8/2017	Selenium	<7.224	3.612	3.612		7.224	ug/L
MS-03	6/21/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	7/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	8/7/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	9/13/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	10/26/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	11/6/2017	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	1/13/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	2/7/2018	Selenium	<4.898	2.449	2.449		4.898	ug/L
MS-03	3/8/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	4/2/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	5/9/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	6/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	7/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	8/11/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	9/10/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	10/4/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	11/7/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	12/3/2018	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	1/12/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	2/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	3/7/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	4/1/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	5/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	6/8/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	7/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	8/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	9/9/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	10/10/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	11/6/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	12/2/2019	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	1/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	2/20/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	3/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	4/22/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	5/14/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	6/4/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	7/18/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	8/15/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
MS-03	9/16/2020	Selenium	<9.474	4.737	4.737		9.474	ug/L
		Average		**4.191**	**4.191**	**ug/l**	**0.004191**	**mg/l**
		Maximum		**4.737**	**4.737**	**ug/l**	**0.004737**	**mg/l**

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DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Silver	<0.92	0.46	0.46		0.92	ug/L
MS-03	2/6/2017	Silver	<0.92	0.46	0.46		0.92	ug/L
MS-03	3/8/2017	Silver	<0.333	0.167	0.1665		0.333	ug/L
MS-03	4/6/2017	Silver	<0.333	0.167	0.1665		0.333	ug/L
MS-03	5/8/2017	Silver	<0.333	0.167	0.1665		0.333	ug/L
MS-03	6/21/2017	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	7/13/2017	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	8/7/2017	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	9/13/2017	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	10/26/2017	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	11/6/2017	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	1/13/2018	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	2/7/2018	Silver	<0.876	0.438	0.438		0.876	ug/L
MS-03	3/8/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	4/2/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	5/9/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	6/11/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	7/11/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	8/11/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	9/10/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	10/4/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	11/7/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	12/3/2018	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	1/12/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	2/6/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	3/7/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	4/1/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	5/8/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	6/8/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	7/10/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	8/10/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	9/9/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	10/10/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	11/6/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	12/2/2019	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	1/15/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	2/20/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	3/14/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	4/22/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	5/14/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	6/4/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	7/18/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	8/15/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
MS-03	9/16/2020	Silver	<0.382	0.191	0.191		0.382	ug/L
		Average		**0.246**	**0.246**	**ug/l**	**0.000246**	**mg/l**
		Maximum		**0.46**	**0.46**	**ug/l**	**0.00046**	**mg/l**

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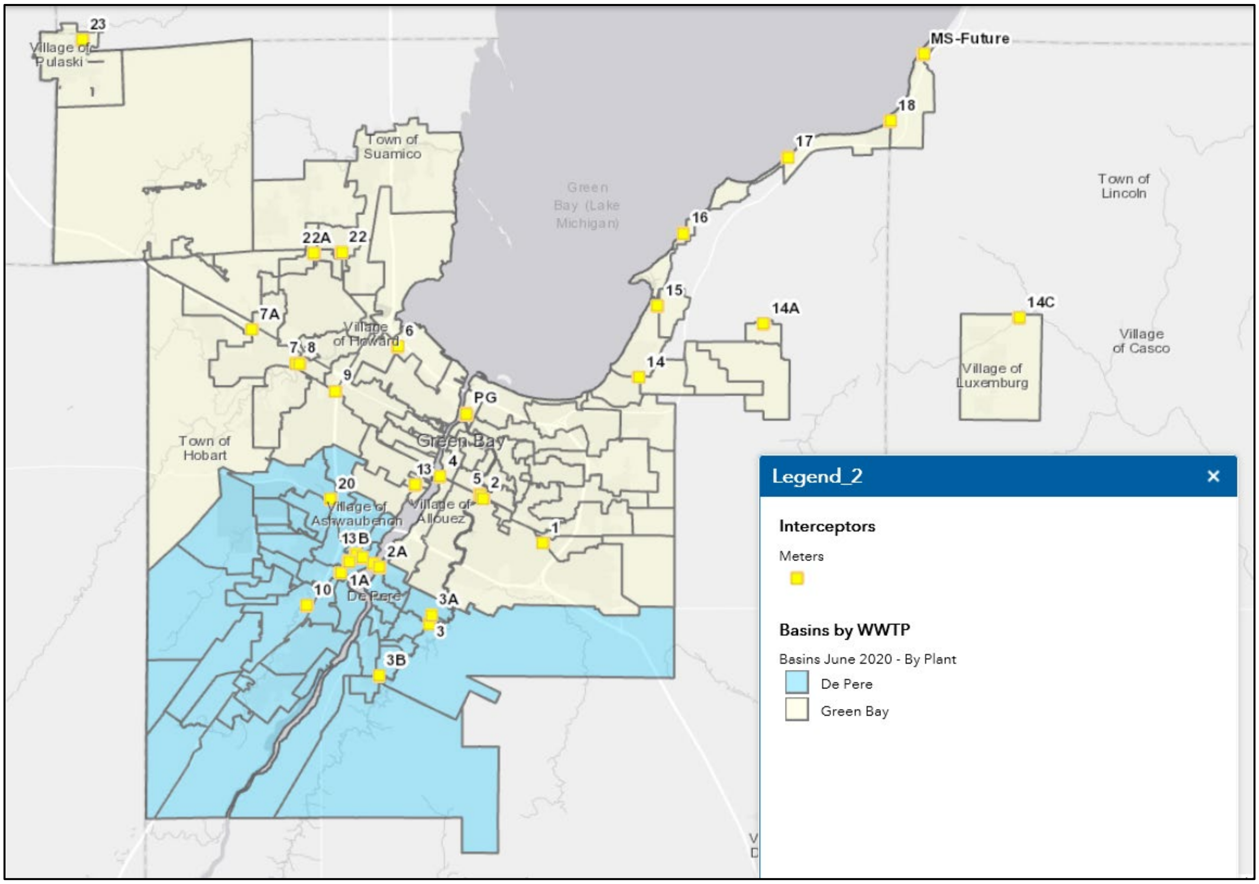
DePere Facility
Residential/Commercial Data

Sample Desc.	Sample Date	Analyte	Result	Non-Detect Edit Result	Outlier Edit Result		MDL	Units
MS-03	1/11/2017	Zinc	116		116		5.66	ug/L
MS-03	2/6/2017	Zinc	154		154		5.66	ug/L
MS-03	3/8/2017	Zinc	102		102		3.52	ug/L
MS-03	4/6/2017	Zinc	93.9		93.9		3.52	ug/L
MS-03	5/8/2017	Zinc	236		236		3.52	ug/L
MS-03	6/21/2017	Zinc	189.71		189.71		4.707	ug/L
MS-03	7/13/2017	Zinc	215.31		215.31		4.707	ug/L
MS-03	8/7/2017	Zinc	381.07				4.707	ug/L
MS-03	9/13/2017	Zinc	279.88		279.88		4.707	ug/L
MS-03	10/26/2017	Zinc	264.59		264.59		4.707	ug/L
MS-03	11/6/2017	Zinc	395.79				4.707	ug/L
MS-03	1/13/2018	Zinc	233		233		4.707	ug/L
MS-03	2/7/2018	Zinc	244		244		4.707	ug/L
MS-03	3/8/2018	Zinc	262		262		4.822	ug/L
MS-03	4/2/2018	Zinc	274		274		4.822	ug/L
MS-03	5/9/2018	Zinc	191		191		4.822	ug/L
MS-03	6/11/2018	Zinc	454				4.822	ug/L
MS-03	7/11/2018	Zinc	320		320		4.822	ug/L
MS-03	8/11/2018	Zinc	395				4.822	ug/L
MS-03	9/10/2018	Zinc	867				4.822	ug/L
MS-03	10/4/2018	Zinc	243		243		4.822	ug/L
MS-03	11/7/2018	Zinc	226		226		4.822	ug/L
MS-03	12/3/2018	Zinc	229		229		4.822	ug/L
MS-03	1/12/2019	Zinc	217		217		4.822	ug/L
MS-03	2/6/2019	Zinc	245		245		4.822	ug/L
MS-03	3/7/2019	Zinc	218		218		4.822	ug/L
MS-03	4/1/2019	Zinc	577				4.822	ug/L
MS-03	5/8/2019	Zinc	208		208		4.822	ug/L
MS-03	6/8/2019	Zinc	298		298		4.822	ug/L
MS-03	7/10/2019	Zinc	247		247		4.822	ug/L
MS-03	8/10/2019	Zinc	230		230		4.822	ug/L
MS-03	9/9/2019	Zinc	259		259		4.822	ug/L
MS-03	10/10/2019	Zinc	225		225		4.822	ug/L
MS-03	11/6/2019	Zinc	188		188		4.822	ug/L
MS-03	12/2/2019	Zinc	212		212		4.822	ug/L
MS-03	1/15/2020	Zinc	207		207		4.822	ug/L
MS-03	2/20/2020	Zinc	223		223		4.822	ug/L
MS-03	3/14/2020	Zinc	158		158		4.822	ug/L
MS-03	4/22/2020	Zinc	241		241		4.822	ug/L
MS-03	5/14/2020	Zinc	103		103		4.822	ug/L
MS-03	6/4/2020	Zinc	307		307		4.822	ug/L
MS-03	7/18/2020	Zinc	192		192		4.822	ug/L
MS-03	8/15/2020	Zinc	232		232		4.822	ug/L
MS-03	9/16/2020	Zinc	254		254		4.822	ug/L
		Average	**259**		**219**	**ug/l**	**0.219**	**mg/l**
		Maximum	**867**		**320**	**ug/l**	**0.320**	**mg/l**

APPENDIX H – Residential/Commercial Sampling Location Map

NEW Water
2020 Local Limits Evaluation

Residential/Commercial Sampling Location (Metering Stations)



Green Bay Facility: MS-07, MS-14, MS-14A
DePere Facility: MS-03

APPENDIX I – Fox River Upstream Data

I-1: Green Bay Facility

I-2: De Pere Facility

NEW Water
2021 Local Limits Evaluation

Green Bay Facility
Fox River Upstream Data

Sample Site	Sample Date	Analyte		Result	Edit Result	MDL	Units	
RB-16-B	6/20/2017	Arsenic	<	4.154	2.077	4.154	ug/L	
RB-16-B	8/15/2017	Arsenic	<	4.154	2.077	4.154	ug/L	
RB-16-B	6/27/2018	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-16-B	8/20/2018	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-16-B	6/26/2019	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-16-B	8/19/2019	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-16-B	7/20/2020	Arsenic	<	5.728	2.864	5.728	ug/L	
		Average			**2.639**	**ug/L**	**0.002639**	**mg/L**
		Maximum			**2.864**	**ug/L**	**0.002864**	**mg/L**
RB-16-B	6/20/2017	Beryllium	<	0.213	0.107	0.213	ug/L	
RB-16-B	8/15/2017	Beryllium	<	0.213	0.107	0.213	ug/L	
RB-16-B	6/27/2018	Beryllium	<	0.035	0.018	0.035	ug/L	
RB-16-B	8/20/2018	Beryllium	<	0.035	0.018	0.035	ug/L	
RB-16-B	6/26/2019	Beryllium	<	0.035	0.018	0.035	ug/L	
RB-16-B	8/19/2019	Beryllium		0.036	0.036	0.035	ug/L	
RB-16-B	7/20/2020	Beryllium		0.058	0.058	0.035	ug/L	
		Average			**0.0513**	**ug/L**	**0.0000513**	**mg/L**
		Maximum			**0.107**	**ug/L**	**0.000107**	**mg/L**
RB-16-B	6/20/2017	Cadmium	<	0.374	0.187	0.374	ug/L	
RB-16-B	8/15/2017	Cadmium	<	0.374	0.187	0.374	ug/L	
RB-16-B	6/27/2018	Cadmium	<	0.297	0.149	0.297	ug/L	
RB-16-B	8/20/2018	Cadmium	<	0.297	0.149	0.297	ug/L	
RB-16-B	6/26/2019	Cadmium		0.349	0.349	0.297	ug/L	
RB-16-B	8/19/2019	Cadmium	<	0.297	0.149	0.297	ug/L	
RB-16-B	7/20/2020	Cadmium	<	0.297	0.149	0.297	ug/L	
		Average			**0.188**	**ug/L**	**0.000188**	**mg/L**
		Maximum			**0.349**	**ug/L**	**0.000349**	**mg/L**
RB-16-B	6/20/2017	Chromium, Total		1.64	1.64	0.638	ug/L	
RB-16-B	8/15/2017	Chromium, Total		1.155	1.155	0.638	ug/L	
RB-16-B	6/27/2018	Chromium, Total		1.365	1.365	1.00	ug/L	
RB-16-B	8/20/2018	Chromium, Total		1.78	1.78	1.00	ug/L	
RB-16-B	6/26/2019	Chromium, Total	<	1.00	0.50	1.00	ug/L	
RB-16-B	8/19/2019	Chromium, Total		1.35	1.35	1.00	ug/L	
RB-16-B	7/20/2020	Chromium, Total		1.44	1.44	1.00	ug/L	
		Average			**1.32**	**ug/L**	**0.00132**	**mg/L**
		Maximum			**1.78**	**ug/L**	**0.00178**	**mg/L**

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RB-16-B	6/20/2017	Copper		1.10		0.714	ug/L	
RB-16-B	8/15/2017	Copper		1.00		0.714	ug/L	
RB-16-B	6/27/2018	Copper		1.04		0.775	ug/L	
RB-16-B	8/20/2018	Copper		1.00		0.775	ug/L	
RB-16-B	8/19/2019	Copper		1.39		0.775	ug/L	
RB-16-B	7/20/2020	Copper		2.14		0.775	ug/L	
		Average		**1.28**	**ug/L**	**0.00128**	**mg/L**	
		Maximum		**2.14**	**ug/L**	**0.00214**	**mg/L**	
RB-16-B	6/20/2017	Cyanide	<	0.0038	0.0019	0.004	mg/L	
RB-16-B	8/15/2017	Cyanide	<	0.0038	0.0019	0.004	mg/L	
RB-16-B	6/27/2018	Cyanide	<	0.009	0.0045	0.009	mg/L	
RB-16-B	8/20/2018	Cyanide	<	0.009	0.0045	0.009	mg/L	
RB-16-B	6/26/2019	Cyanide	<	0.009	0.0045	0.009	mg/L	
RB-16-B	8/19/2019	Cyanide	<	0.009	0.0045	0.009	mg/L	
RB-16-B	7/20/2020	Cyanide	<	0.018	0.0090	0.018	mg/L	
		Average			**0.0044**	**mg/L**		
		Maximum			**0.0090**	**mg/L**		
RB-16-B	6/20/2017	Lead	<	2.362	1.181	2.362	ug/L	
RB-16-B	8/15/2017	Lead	<	2.362	1.181	2.362	ug/L	
RB-16-B	6/27/2018	Lead	<	2.681	1.341	2.681	ug/L	
RB-16-B	8/20/2018	Lead	<	2.681	1.341	2.681	ug/L	
RB-16-B	6/26/2019	Lead	<	2.681	1.341	2.681	ug/L	
RB-16-B	8/19/2019	Lead	<	2.681	1.341	2.681	ug/L	
RB-16-B	7/20/2020	Lead	<	2.681	1.341	2.681	ug/L	
		Average			**1.295**	**ug/L**	**0.001295**	**mg/L**
		Maximum			**1.341**	**ug/L**	**0.001341**	**mg/L**
RB-16-B	6/20/2017	Manganese		56.51		1.182	ug/L	
RB-16-B	8/15/2017	Manganese		49.10		1.182	ug/L	
RB-16-B	6/27/2018	Manganese		49.7		0.489	ug/L	
RB-16-B	8/20/2018	Manganese		121.4		0.489	ug/L	
RB-16-B	6/26/2019	Manganese		26.45		2.596	ug/L	
RB-16-B	8/19/2019	Manganese		51.35		2.596	ug/L	
RB-16-B	7/20/2020	Manganese		44.4		2.596	ug/L	
		Average		**57.0**	**ug/L**	**0.0570**	**mg/L**	
		Maximum		**121.4**	**ug/L**	**0.1214**	**mg/L**	

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RB-16-B	6/20/2017	Mercury		7.62		0.738	ng/L	
RB-16-B	8/15/2017	Mercury		9.41		0.738	ng/L	
RB-16-B	6/27/2018	Mercury		7.24		0.135	ng/L	
RB-16-B	8/20/2018	Mercury		5.65		0.135	ng/L	
RB-16-B	6/26/2019	Mercury		1.90		0.18	ng/L	
RB-16-B	8/19/2019	Mercury		7.50		0.18	ng/L	
RB-16-B	7/20/2020	Mercury		3.55		0.135	ng/L	
		Average		**6.12**	**ng/L**		**0.00000612**	**mg/L**
		Maximum		**9.41**	**ng/L**		**0.00000941**	**mg/L**
RB-16-B	6/20/2017	Molybdenum	<	1.078	0.539	1.078	ug/L	
RB-16-B	8/15/2017	Molybdenum		1.389	1.389	1.078	ug/L	
RB-16-B	6/27/2018	Molybdenum		1.707	1.707	1.707	ug/L	
RB-16-B	8/20/2018	Molybdenum		1.707	1.707	1.707	ug/L	
RB-16-B	6/26/2019	Molybdenum		1.707	1.707	1.707	ug/L	
RB-16-B	8/19/2019	Molybdenum		1.707	1.707	1.707	ug/L	
RB-16-B	7/20/2020	Molybdenum		2.02	2.0185	1.707	ug/L	
		Average			**1.54**	**ug/L**	**0.00154**	**mg/L**
		Maximum			**2.02**	**ug/L**	**0.00202**	**mg/L**
RB-16-B	6/20/2017	Nickel		4.84	4.84	1.45	ug/L	
RB-16-B	8/15/2017	Nickel		5.40	5.40	1.45	ug/L	
RB-16-B	6/27/2018	Nickel		2.65	2.65	1.178	ug/L	
RB-16-B	8/20/2018	Nickel		2.73	2.73	1.178	ug/L	
RB-16-B	6/26/2019	Nickel	<	1.178	0.59	1.178	ug/L	
RB-16-B	8/19/2019	Nickel		1.229	1.23	1.178	ug/L	
RB-16-B	7/20/2020	Nickel	<	1.178	0.59	1.178	ug/L	
		Average			**2.57**	**ug/L**	**0.00257**	**mg/L**
		Maximum			**5.40**	**ug/L**	**0.00540**	**mg/L**
RB-16-B	6/20/2017	Selenium	<	4.898	2.449	4.898	ug/L	
RB-16-B	8/15/2017	Selenium	<	4.898	2.449	4.898	ug/L	
RB-16-B	6/27/2018	Selenium	<	9.474	4.737	9.474	ug/L	
RB-16-B	8/20/2018	Selenium	<	9.474	4.737	9.474	ug/L	
RB-16-B	6/26/2019	Selenium	<	9.474	4.737	9.474	ug/L	
RB-16-B	8/19/2019	Selenium	<	9.474	4.737	9.474	ug/L	
RB-16-B	7/20/2020	Selenium	<	9.474	4.737	9.474	ug/L	
		Average			**4.083**	**ug/L**	**0.004083**	**mg/L**
		Maximum			**4.737**	**ug/L**	**0.004737**	**mg/L**

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Sample Site	Sample Date	Analyte		Result	Edit Result	MDL	Units	
RB-16-B	6/20/2017	Silver	<	0.876	0.438	0.876	ug/L	
RB-16-B	8/15/2017	Silver	<	0.876	0.438	0.876	ug/L	
RB-16-B	6/27/2018	Silver	<	0.382	0.191	0.382	ug/L	
RB-16-B	8/20/2018	Silver	<	0.382	0.191	0.382	ug/L	
RB-16-B	6/26/2019	Silver	<	0.382	0.191	0.382	ug/L	
RB-16-B	8/19/2019	Silver	<	0.382	0.191	0.382	ug/L	
RB-16-B	7/20/2020	Silver	<	0.382	0.191	0.382	ug/L	
		Average		**0.523**	**ug/L**	**0.000523**	**mg/L**	
		Maximum		**0.876**	**ug/L**	**0.000876**	**mg/L**	
RB-16-B	6/20/2017	Zinc	<	4.707	2.354	4.707	ug/L	
RB-16-B	8/15/2017	Zinc	<	4.707	2.354	4.707	ug/L	
RB-16-B	6/27/2018	Zinc	<	4.822	2.411	4.822	ug/L	
RB-16-B	8/20/2018	Zinc		6.55	6.55	4.822	ug/L	
RB-16-B	8/19/2019	Zinc		5.00	5.00	4.822	ug/L	
RB-16-B	7/20/2020	Zinc	<	4.822	2.411	4.822	ug/L	
		Average		**2.38**	**1.76**	**ug/L**	**0.00176**	**mg/L**
		Maximum		**6.55**	**6.55**	**ug/L**	**0.00655**	**mg/L**

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RB-05-B	6/20/2017	Arsenic	<	4.154	2.077	4.154	ug/L	
RB-05-B	8/15/2017	Arsenic	<	4.154	2.077	4.154	ug/L	
RB-05-B	6/25/2018	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-05-B	8/21/2018	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-05-B	6/24/2019	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-05-B	8/19/2019	Arsenic	<	5.728	2.864	5.728	ug/L	
RB-05-B	7/21/2020	Arsenic	<	5.728	2.864	5.728	ug/L	
		Average			**2.639**	**ug/L**	**0.002639**	**mg/L**
		Maximum			**2.864**	**ug/L**	**0.002864**	**mg/L**
RB-05-B	6/20/2017	Beryllium	<	0.213	0.107	0.213	ug/L	
RB-05-B	8/15/2017	Beryllium	<	0.213	0.107	0.213	ug/L	
RB-05-B	6/25/2018	Beryllium		0.043	0.043	0.035	ug/L	
RB-05-B	8/21/2018	Beryllium	<	0.035	0.018	0.035	ug/L	
RB-05-B	6/24/2019	Beryllium		0.0465	0.0465	0.035	ug/L	
RB-05-B	8/19/2019	Beryllium		0.0355	0.0355	0.035	ug/L	
RB-05-B	7/21/2020	Beryllium		0.0505	0.0505	0.035	ug/L	
		Average			**0.058**	**ug/L**	**0.000058**	**mg/L**
		Maximum			**0.107**	**ug/L**	**0.0001065**	**mg/L**
RB-05-B	6/20/2017	Cadmium	<	0.374	0.187	0.374	ug/L	
RB-05-B	8/15/2017	Cadmium	<	0.374	0.187	0.374	ug/L	
RB-05-B	6/25/2018	Cadmium		0.3035	0.3035	0.297	ug/L	
RB-05-B	8/21/2018	Cadmium		0.2985	0.2985	0.297	ug/L	
RB-05-B	6/24/2019	Cadmium	<	0.297	0.149	0.297	ug/L	
RB-05-B	8/19/2019	Cadmium	<	0.297	0.149	0.297	ug/L	
RB-05-B	7/21/2020	Cadmium	<	0.297	0.149	0.297	ug/L	
		Average			**0.203**	**ug/L**	**0.000203**	**mg/L**
		Maximum			**0.304**	**ug/L**	**0.0003035**	**mg/L**
RB-05-B	6/20/2017	Chromium, Total		1.73		0.638	ug/L	
RB-05-B	8/15/2017	Chromium, Total		1.105		0.638	ug/L	
RB-05-B	6/25/2018	Chromium, Total		1.675		1	ug/L	
RB-05-B	8/21/2018	Chromium, Total		1.59		1	ug/L	
RB-05-B	6/24/2019	Chromium, Total		1.365		1	ug/L	
RB-05-B	8/19/2019	Chromium, Total		1.075		1	ug/L	
RB-05-B	7/21/2020	Chromium, Total		1.21		1	ug/L	
		Average		**1.39**	**ug/L**		**0.00139**	**mg/L**
		Maximum		**1.73**	**ug/L**		**0.00173**	**mg/L**

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RB-05-B	6/20/2017	Copper		1.55		0.714	ug/L	
RB-05-B	8/15/2017	Copper		0.722		0.714	ug/L	
RB-05-B	6/25/2018	Copper		1.215		0.775	ug/L	
RB-05-B	8/21/2018	Copper		0.9175		0.775	ug/L	
RB-05-B	8/19/2019	Copper		1.055		0.775	ug/L	
RB-05-B	7/21/2020	Copper		1.49		0.775	ug/L	
		Average		**1.16**	**ug/L**		**0.00116**	**mg/L**
		Maximum		**1.55**	**ug/L**		**0.00155**	**mg/L**
RB-05-B	6/20/2017	Cyanide	<	0.0038	0.0019	0.004	mg/L	
RB-05-B	8/15/2017	Cyanide	<	0.0038	0.0019	0.004	mg/L	
RB-05-B	6/25/2018	Cyanide	<	0.009	0.005	0.009	mg/L	
RB-05-B	8/21/2018	Cyanide	<	0.009	0.005	0.009	mg/L	
RB-05-B	6/24/2019	Cyanide	<	0.009	0.005	0.009	mg/L	
RB-05-B	8/19/2019	Cyanide	<	0.009	0.005	0.009	mg/L	
RB-05-B	7/21/2020	Cyanide	<	0.018	0.009	0.018	mg/L	
		Average			**0.0044**	**mg/L**		
		Maximum			**0.0090**	**mg/L**		
RB-05-B	6/20/2017	Lead	<	2.362	1.181	2.362	ug/L	
RB-05-B	8/15/2017	Lead	<	2.362	1.181	2.362	ug/L	
RB-05-B	6/25/2018	Lead	<	2.681	1.341	2.681	ug/L	
RB-05-B	8/21/2018	Lead	<	2.681	1.341	2.681	ug/L	
RB-05-B	6/24/2019	Lead	<	2.681	1.341	2.681	ug/L	
RB-05-B	8/19/2019	Lead	<	2.681	1.341	2.681	ug/L	
RB-05-B	7/21/2020	Lead	<	2.681	1.341	2.681	ug/L	
		Average			**1.295**	**ug/L**	**0.001295**	**mg/L**
		Maximum			**1.341**	**ug/L**	**0.001341**	**mg/L**
RB-05-B	6/20/2017	Manganese		53.86		1.182	ug/L	
RB-05-B	8/15/2017	Manganese		50.015		1.182	ug/L	
RB-05-B	6/25/2018	Manganese		43.45		0.489	ug/L	
RB-05-B	8/21/2018	Manganese		79.05		0.489	ug/L	
RB-05-B	6/24/2019	Manganese		26.20		2.596	ug/L	
RB-05-B	8/19/2019	Manganese		36.85		2.596	ug/L	
RB-05-B	7/21/2020	Manganese		35.50		2.596	ug/L	
		Average		**46.42**	**ug/L**		**0.04642**	**mg/L**
		Maximum		**79.05**	**ug/L**		**0.07905**	**mg/L**

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RB-05-B	6/20/2017	Mercury		5.0595		0.738	ng/L	
RB-05-B	8/15/2017	Mercury		3.9715		0.738	ng/L	
RB-05-B	6/25/2018	Mercury		6.555		0.135	ng/L	
RB-05-B	8/21/2018	Mercury		6.57		0.135	ng/L	
RB-05-B	6/24/2019	Mercury		2.00		0.36	ng/L	
RB-05-B	8/19/2019	Mercury		3.95		0.18	ng/L	
RB-05-B	7/21/2020	Mercury		6.225		0.135	ng/L	
		Average		**4.90**	**ng/L**		**0.00000490**	**mg/L**
		Maximum		**6.57**	**ng/L**		**0.00000657**	**mg/L**
RB-05-B	6/20/2017	Molybdenum	<	1.078	0.539	1.078	ug/L	
RB-05-B	8/15/2017	Molybdenum	<	1.078	0.539	1.078	ug/L	
RB-05-B	6/25/2018	Molybdenum	<	1.707	0.854	1.707	ug/L	
RB-05-B	8/21/2018	Molybdenum	<	1.707	0.854	1.707	ug/L	
RB-05-B	6/24/2019	Molybdenum	<	1.707	0.854	1.707	ug/L	
RB-05-B	8/19/2019	Molybdenum	<	1.707	0.854	1.707	ug/L	
RB-05-B	7/21/2020	Molybdenum	<	1.707	0.854	1.707	ug/L	
		Average		**1.527**	**0.764**	**ug/L**	**0.000764**	**mg/L**
		Maximum		**1.707**	**0.854**	**ug/L**	**0.000854**	**mg/L**
RB-05-B	6/20/2017	Nickel		5.415	5.415	1.45	ug/L	
RB-05-B	8/15/2017	Nickel		4.665	4.665	1.45	ug/L	
RB-05-B	6/25/2018	Nickel		2.66	2.66	1.178	ug/L	
RB-05-B	8/21/2018	Nickel		2.405	2.405	1.178	ug/L	
RB-05-B	6/24/2019	Nickel	<	1.178	0.589	1.178	ug/L	
RB-05-B	8/19/2019	Nickel	<	1.178	0.589	1.178	ug/L	
RB-05-B	7/21/2020	Nickel	<	1.178	0.589	1.178	ug/L	
		Average			**2.42**	**ug/L**	**0.00242**	**mg/L**
		Maximum			**5.42**	**ug/L**	**0.00542**	**mg/L**
RB-05-B	6/20/2017	Selenium	<	4.898	2.449	4.898	ug/L	
RB-05-B	8/15/2017	Selenium	<	4.898	2.449	4.898	ug/L	
RB-05-B	6/25/2018	Selenium	<	9.474	4.737	9.474	ug/L	
RB-05-B	8/21/2018	Selenium	<	9.474	4.737	9.474	ug/L	
RB-05-B	6/24/2019	Selenium	<	9.474	4.737	9.474	ug/L	
RB-05-B	8/19/2019	Selenium	<	9.474	4.737	9.474	ug/L	
RB-05-B	7/21/2020	Selenium	<	9.474	4.737	9.474	ug/L	
		Average			**4.083**	**ug/L**	**0.004083**	**mg/L**
		Maximum			**4.737**	**ug/L**	**0.004737**	**mg/L**

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Sample Site	Sample Date	Analyte		Result	Edit Result	MDL	Units	
RB-05-B	6/20/2017	Silver	<	0.876	0.438	0.876	ug/L	
RB-05-B	8/15/2017	Silver	<	0.876	0.438	0.876	ug/L	
RB-05-B	6/25/2018	Silver	<	0.382	0.191	0.382	ug/L	
RB-05-B	8/21/2018	Silver	<	0.382	0.191	0.382	ug/L	
RB-05-B	6/24/2019	Silver	<	0.382	0.191	0.382	ug/L	
RB-05-B	8/19/2019	Silver	<	0.382	0.191	0.382	ug/L	
RB-05-B	7/21/2020	Silver	<	0.382	0.191	0.382	ug/L	
		Average			**0.262**	**ug/L**	**0.000262**	**mg/L**
		Maximum			**0.438**	**ug/L**	**0.000438**	**mg/L**
RB-05-B	6/20/2017	Zinc	<	4.707	2.354	4.707	ug/L	
RB-05-B	8/15/2017	Zinc	<	4.707	2.354	4.707	ug/L	
RB-05-B	6/25/2018	Zinc		5.91	5.91	4.822	ug/L	
RB-05-B	8/21/2018	Zinc		7.40	7.4	4.822	ug/L	
RB-05-B	8/19/2019	Zinc	<	4.822	2.411	4.822	ug/L	
RB-05-B	7/21/2020	Zinc		4.866	4.866	4.822	ug/L	
		Average			**1.85**	**ug/L**	**0.00185**	**mg/L**
		Maximum			**7.40**	**ug/L**	**0.00740**	**mg/L**

APPENDIX J – NR 105 Surface Water Quality Criteria Standards

Chapter NR 105

SURFACE WATER QUALITY CRITERIA AND SECONDARY VALUES FOR TOXIC SUBSTANCES

NR 105.01 Purpose. The purpose of this chapter is to establish water quality criteria, and methods for developing criteria and secondary values for toxic substances to protect public health and welfare, the present and prospective use of all surface waters for public and private water supplies, and the propagation of fish and aquatic life and wildlife. This chapter also establishes how bioaccumulation factors used in deriving water quality criteria and secondary values for toxic and organoleptic substances shall be determined. Water quality criteria are a component of surface water quality standards. This chapter and chs. NR 102 to 104 constitute quality standards for the surface waters of Wisconsin.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89.; am. Register, August, 1997, No. 500, eff. 9−1−97.

NR 105.02 Applicability. The provisions of this chapter are applicable to surface waters of Wisconsin as specified in chs. NR 102 to 104 and in this chapter.

(1) SITE SPECIFIC CRITERIA AND SECONDARY VALUES. A criterion contained within this chapter or a secondary value calculated pursuant to this chapter may be modified for a particular surface water segment or body. A criterion or secondary value may be modified if specific information is provided which shows that the data used to derive the criterion or secondary value do not apply and if additional information is provided to derive a site−specific criterion or secondary value. Site−specific criteria are intended to be applicable to a specific surface water segment. Criteria may be modified for site−specific considerations according to the USEPA "Water Quality Standards Handbook" Second Edition, revised 1994. Any criterion modified for site−specific conditions shall be promulgated in ch. NR 104 before it can be applied on a site−specific basis. Site−specific modifications of criteria and secondary values shall be consistent with the procedures described in 40 CFR Part 132, Appendix F, Procedure 1: Site−specific modifications to criteria and values. 40 CFR Part 132, Appendix F, Procedure 1 as stated on September 1, 1997 is incorporated by reference.

Note: Copies of 40 CFR Part 132 Appendix F, Proc. 1 are available for inspection in the offices of the department of natural resources, secretary of state and the legislative reference bureau, Madison, WI or may be purchased from the superintendent of documents, US government printing office, Washington, D.C. 20402.

(2) STATEWIDE CRITERIA. (a) The department may promulgate a less stringent criterion or remove a criterion from this chapter when the department determines that the previously promulgated criterion is more stringent than necessary, or unnecessary for the protection of humans, fish and other aquatic life or wildlife. The modification shall assure that the designated uses are protected and water quality standards continue to be attained.

(b) The department may promulgate a more stringent criterion in this chapter when the department determines that the previously promulgated criterion is inadequate for the protection of humans, fish and other aquatic life or wildlife.

(3) DETERMINATION OF SECONDARY VALUES FOR EFFLUENT LIMITATIONS. If a discharge contains a toxic substance, and if data to calculate a water quality criterion for that substance are not available, then, on a case−by−case basis, the department may calculate a secondary value as defined in this chapter and establish an effluent limitation for the toxic substance if the conditions contained in s. NR 106.05 (1) (b) are met.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; am. (1) and (2), cr. (3), Register, August, 1997, No. 500, eff. 9−1−97.

NR 105.03 Definitions. (1) "Acute toxicity" means the ability of a substance to cause mortality or an adverse effect in an organism which results from a single or short−term exposure to the substance.

(2) "Acute toxicity criterion" or "ATC" means the maximum daily concentration of a substance which ensures adequate protection of sensitive species of aquatic life from the acute toxicity of that substance and will adequately protect the designated fish and aquatic life use of the surface water if not exceeded more than once every 3 years. If the available data indicate that one or more life stages of a particular species are more sensitive to a substance than other life stages of the same species, the ATC shall represent the acute toxicity of the most sensitive life stage.

(3) "Adequate protection" means a level of protection which ensures survival of a sufficient number of healthy individuals in a population of aquatic species to provide for the continuation of an unreduced population of these species.

(4) "Adverse effect" means any effect resulting in a functional impairment or a pathological lesion, or both, which may affect the performance of the whole organism, or which contributes to a reduced ability to respond to an additional challenge. Adverse effects include toxicant−induced mutagenic, teratogenic, or carcinogenic effects or impaired, developmental, immunological or reproductive effects.

(5) "Baseline BAF" means for organic chemicals, a bioaccumulation factor normalized to 100% lipid that is based on the concentration of a freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism. For inorganic chemicals, a bioaccumulation factor is based on the wet weight of the tissue.

(6) "Baseline BCF" means for organic chemicals, a bioconcentration factor normalized to 100% lipid that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism. For inorganic chemicals, a bioconcentration factor is based on the wet weight of the tissue.

(7) "Bioaccumulation" means the net accumulation of a substance by an organism as a result of uptake from all environmental sources.

(8) "Bioaccumulation factor" or "BAF" means the ratio (in L/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where both the organism and its food are exposed to the substance and where the ratio does not change substantially over time.

(9) "Bioaccumulative chemical of concern" or "BCC" means any substance that has the potential to cause adverse effects which, upon entering the surface waters, accumulates in aquatic organisms by a human health or wildlife bioaccumulation factor greater than 1000.

(10) "Bioconcentration" means the net accumulation of a substance by an aquatic organism as a result of uptake directly from the ambient water through its gill membranes or other external body surfaces.

(11) "Bioconcentration factor" or "BCF" means the ratio (in L/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and where the ratio does not change substantially over time.

(12) "Biota−sediment accumulation factor" or "BSAF" means the ratio (in kg of organic carbon/kg of lipid) of a substance's lipid−normalized concentration in the tissue of an aquatic organism to its organic carbon−normalized concentration in surface sediment, in situations where the ratio does not change substantially over time, both the organism and its food are exposed, and where the surface sediment is representative of the average surface sediment in the vicinity of the organism.

(13) "Carcinogen" means any substance listed in Table 9 or a substance for which the induction of benign or malignant neoplasms has been demonstrated in:

(a) Humans; or

(b) Two mammalian species; or

(c) One mammalian species, independently reproduced; or

(d) One mammalian species, to an unusual degree with respect to increased incidence, shortened latency period, variety of site, tumor type, or decreased age at onset; or

(e) One mammalian species, supported by reproducible positive results in at least 3 different types of short−term tests which are indicative of potential oncogenic activity.

(14) "Chronic toxicity" means the ability of a substance to cause an adverse effect in an organism which results from exposure to the substance for a time period representing that substantial portion of the natural life expectancy of that organism.

(15) "Chronic toxicity criterion" or "CTC" means the maximum 4−day concentration of a substance which ensures adequate protection of sensitive species of aquatic life from the chronic toxicity of that substance and will adequately protect the designated fish and aquatic use of the surface water if not exceeded more than once every 3 years.

(16) "Depuration" means the loss of a substance from an organism as a result of any active or passive process.

(17) "EC_{50}" means a concentration of a toxic substance which causes an adverse effect including mortality in 50% of the exposed organisms in a given time period.

(18) "Food−chain multiplier" or "FCM" means the ratio of a BAF to an appropriate BCF.

(19) "LC_{50}" means a concentration of a toxic substance which is lethal to 50% of the exposed organisms in a given time period.

(20) "LD_{50}" means a dose of a toxic substance which is lethal to 50% of the exposed organisms in a given time period.

(21) "Lipid−soluble substance" means a substance which is soluble in nonpolar organic solvents and which tends to accumulate in the fatty tissues of an organism exposed to the substance.

(22) "Lowest observable adverse effect level" or "LOAEL" means the lowest tested concentration that caused an adverse effect in comparison with a control when all higher test concentrations caused the same effect.

(23) "No observable adverse effect level" or "NOAEL" means the highest tested concentration that did not cause an adverse effect in comparison with a control when no lower test concentration caused an adverse effect.

(24) "Octanol/water partition coefficient" or "K_{OW}" means the ratio of the concentration of a substance in the octanol phase to its concentration in the aqueous phase in an equilibrated 2−phase octanol−water system. For log K_{OW}, the log of the octanol−water partition coefficient is a base 10 logarithm.

(25) "Secondary value" means a temporary value that represents the concentration of a substance which ensures adequate protection of sensitive species of aquatic life, wildlife or human health from the toxicity of that substance and will adequately protect the designated use of the surface water until database requirements are fulfilled to calculate a water quality criterion.

(26) "Steady state" means that an equilibrium condition in the body burden of a substance in an organism has been achieved and is assumed when the rate of depuration of a substance matches its rate of uptake.

(27) "Toxic substance" means a substance or mixture of substances which through sufficient exposure, or ingestion, inhalation or assimilation by an organism, either directly from the environment or indirectly by ingestion through the food chain, will cause death, disease, behavioral or immunological abnormalities, cancer, genetic mutations, or developmental or physiological malfunctions, including malfunctions in reproduction or physical deformations, in such organisms or their offspring.

(28) "Trophic level" means a functional classification of taxa within a community that is based on feeding relationships (e.g., aquatic plants comprise the first trophic level, herbivores comprise the second, small fish comprise the third, predatory fish the fourth, etc.).

(29) "Uptake" means the acquisition of a substance from the environment by an organism as a result of any active or passive process.

(30) "Water quality parameter" means one of the indicators available for describing the distinctive quality of water including, but not limited to, hardness, pH, or temperature.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; renum. (5) to (19) to be (11), (13) to (15), (17), (19) to (24), (26), (27) and (30), cr. (5) to (7), (9), (10), (12), (16), (18), (25), (28) and (29) and am. (8), (11) and (24), Register, August, 1997, No. 500, eff. 9−1−97.

NR 105.04 Determination of adverse effects. **(1)** Substances may not be present in surface waters at concentrations which adversely affect public health or welfare, present or prospective uses of surface waters for public or private water supplies, or the protection or propagation of fish or other aquatic life or wild or domestic animal life.

(2) A substance shall be deemed to have adverse effects on fish or other aquatic life if it exceeds any of the following more than once every 3 years:

(a) The acute toxicity criterion as specified in s. NR 105.05, or

(b) The chronic toxicity criterion as specified in s. NR 105.06.

(c) The acute and chronic toxicity criteria for ammonia nitrogen shall be determined on a case−by−case basis by the department for the appropriate aquatic life use category.

(3) A substance shall be deemed to have adverse effects on wildlife if it exceeds the wildlife criterion as specified in s. NR 105.07.

(4) A substance shall be deemed to have adverse effects on public health and welfare if it exceeds any of the following:

(a) The human threshold criterion as specified in s. NR 105.08; or

(b) The human cancer criterion as specified in s. NR 105.09; or

(c) The taste and odor criterion as specified in s. NR 102.14.

(5) A substance shall be deemed to have adverse effects or the reasonable potential to have adverse effects on aquatic life, wildlife or human health, if it exceeds a secondary value determined according to the procedures in ss. NR 105.05 to 105.08.

(6) The determination of the criteria or secondary values for substances as calculated under ss. NR 105.05 to 105.09 shall be based upon the available scientific data base. References to be used in obtaining scientific data may include, but are not limited to:

(a) "Water Quality Criteria 1972", EPA−R3−73−033, National Academy of Sciences, National Academy of Engineering, United States Government Printing Office, Washington, D.C., 1974.

(b) "Quality Criteria for Water", EPA−440/9−76−003, United States Environmental Protection Agency, Washington, D.C., 1976.

(c) October 1980 and January 1985 U.S. Environmental Protection Agency (EPA) ambient water quality criteria documents.

(d) "Public Health Related Groundwater Standards: Summary of Scientific Support Documentation for NR 140.10", Wisconsin Department of Health and Social Services, Division of Health, September 1985.

(e) "Public Health Related Groundwater Standards − 1986: Summary of Scientific Support Documentation for NR 140.10", Wisconsin Department of Health and Social Services, Division of Health, June 1986.

(f) Health advisories published on March 31, 1987 by EPA, Office of Drinking Water.

(g) Any other reports, documents or information published by EPA or any other federal agency.

(h) Any other reports, documents or information that the department, deems to be reliable.

(7) When reviewing any of the references in sub. (6) to determine the effect of a substance, the department:

(a) Shall use scientific studies on the toxicity of a substance to fish and other aquatic life and wild and domestic animals, indigenous to the state;

(b) May use scientific studies on the toxicity of a substance to fish or other aquatic life, plant, mammalian, avian, and reptilian species not indigenous to the state; and

(c) May consider biomonitoring information to determine the aquatic life toxicity of complex mixtures of toxic substances in addition to the chemical specific criteria specified in this chapter.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; am. (3), renum. (5) and (6) to be (7) and am. (6) (intro.) and (7) (intro.), cr. (5), Register, August, 1997, No. 500, eff. 9−1−97.

NR 105.05 Acute toxicity criteria and secondary acute values for aquatic life. (1) MINIMUM DATABASE FOR ACUTE CRITERION DEVELOPMENT. (a) To derive an acute toxicity criterion for aquatic life, the minimum information required shall be the results of acceptable acute toxicity tests with one or more species of freshwater animal in at least 8 different families provided that of the 8 species:

1. At least one is a salmonid fish in the family Salmonidae in the class Osteichthyes,

2. At least one is a non−salmonid fish from another family in the class Osteichthyes, preferably a commercially or recreationally important warmwater species,

3. At least one is a planktonic crustacean (e.g., cladoceran, copepod),

4. At least one is a benthic crustacean (e.g., ostracod, isopod, amphipod, crayfish),

5. At least one is an insect (e.g., mayfly, dragonfly, damselfly, stonefly, caddisfly, mosquito, midge),

6. At least one is a fish or amphibian from a family in the phylum Chordata not already represented in one of the other subdivisions.

7. At least one is an organism from a family in a phylum other than Arthropoda or Chordata (e.g., Rotifera, Annelida, Mollusca), and

8. At least one is an organism from a family in any order of insect or any other phylum not already represented in subds. 1. to 7.

9. If all 8 of the families in subds. 1. to 8. are represented, an acute toxicity criterion may be developed for surface waters classified as cold water using information on all of those families. If an acute toxicity criterion is developed for surface waters classified as cold water, acute toxicity criteria may also be developed for any of the surface water classifications in s. NR 102.04 (3) (b) to (e) using the procedure in sub. (2) or (3) and data on families in subds. 1. to 8. which are representative of the aquatic life communities associated with those classifications. For each substance, in no case may the criterion for a lower quality fish and aquatic life subcategory as defined in s. NR 102.04 be less than the criterion for a higher quality fish and aquatic life subcategory.

10. For a substance, if all of the families in subds. 1. to 8. are not represented, an acute toxicity criterion may not be developed for that substance. Instead, any available data may be used to develop a secondary acute value (SAV) for that substance according to s. NR 105.02 (3) and sub.(4).

(b) The acceptability of acute toxicity test results shall be judged according to the guidelines in section IV of the United States environmental protection agency's 1985 "Guidelines for Deriving National Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses" or 40 CFR Part 132, Appendix A. II, IV and V, as stated on September 1, 1997, is incorporated by reference.

Note: Copies of 40 CFR Part 132, Appendix A Sections II, IV and V are available for inspection in the offices of the department of natural resources, secretary of state and the legislative reference bureau, Madison, WI or may be purchased from the superintendent of documents, US government printing office, Washington, D.C. 20402.

(2) ACUTE TOXICITY CRITERIA FOR SUBSTANCES WITH TOXICITY UNRELATED TO WATER QUALITY PARAMETERS. If the acute toxicity of a substance has not been adequately shown to be related to a water quality parameter (i.e., hardness, pH, temperature, etc.), the acute toxicity criterion (ATC) is calculated using the procedures specified in this subsection.

(a) 1. For each species for which at least one acute value is available, the species mean acute value (SMAV) is calculated as the geometric mean of all acceptable acute toxicity tests using the guidelines in sub. (1) (b).

2. For each genus for which one or more SMAVs are available, the genus mean acute value (GMAV) is calculated as the geometric mean of the SMAVs available for the genus.

(b) The GMAVs are ordered from high to low.

(c) Ranks (R) are assigned to the GMAVs from 1 for the lowest to N for the highest. If 2 or more GMAVs are identical, successive ranks are arbitrarily assigned.

(d) The cumulative probability (P) is calculated for each GMAVs as P=R/(N + 1).

(e) The 4 GMAVs are selected which have P closest to 0.05. If there are less than 59 GMAVs, these will always be the lowest GMAVs.

(f) Using the selected GMAVs and Ps, the ATC is calculated using the following:

1. Let EV = sum of the 4 ln GMAVs,
EW = sum of the 4 squares of the ln GMAVs,
EP = sum of the 4 P values,
EPR = sum of the 4 square roots of P, and
JR = square root of 0.05.

2. $S = ((EW - (EV)^2/4)/(EP-(EPR)^2/4))^{0.5.}$

3. $L = (EV - S(EPR))/4$.

4. $A = (JR)(S) + L$.

5. Final Acute Value (FAV)= e^A.

6. ATC = FAV/2.

(g) If, for a commercially, recreationally or ecologically important species, the geometric mean of the acute values from flow−through tests in which the concentration of test material was measured is lower than the calculated ATC [FAV], then that geometric mean is used as the ATC [FAV] instead of the calculated one.

(h) Table 1 contains the acute toxicity criteria for fish and aquatic life subcategories listed in s. NR 102.04 (3) that are calculated using the procedures described in this subsection for substances meeting the database requirements indicated in sub. (1) (a).

(3) ACUTE TOXICITY CRITERIA FOR SUBSTANCES WITH TOXICITY RELATED TO WATER QUALITY PARAMETERS. If data are available on a substance to show that acute toxicity to 2 or more species is similarly related to a water quality parameter (i.e., hardness, pH, temperature, etc.), the acute toxicity criterion (ATC) is calculated using the procedures specified in this subsection.

(a) For each species for which acceptable acute toxicity tests using the guidelines in sub. (1) (b) are available at 2 or more different values of the water quality parameter, a least squares regression of the acute toxicity values on the corresponding values of the water quality parameter is performed to obtain the slope of the curve that best describes the relationship. Because the most commonly documented relationship is that between hardness and acute toxicity of metals and a log−log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality are used in the rest of this subsection to illustrate this method. For relationships based on other water quality parameters, no transformation or a different transformation might fit the data better, and appropriate changes shall be made as necessary throughout this subsection.

(b) For each species, the geometric mean of the available acute values (W) is calculated and then each of those acute values is divided by the mean for that species. This normalizes the acute values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0.

(c) For each species, the geometric mean of the available corresponding water quality parameter values (X) is calculated and then each of those water quality parameter values is divided by the mean for that species. This normalizes the water quality parameter values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0.

(d) A least squares regression of all the normalized acute values on the corresponding normalized values of the water quality parameter is performed to obtain the pooled acute slope (V). If the coefficient of determination, or r value, calculated from that regression is found not to be significant based on a standard F−test at a 0.05 level, then the pooled acute slope shall be set equal to zero.

(e) For each species the logarithmic intercept (Y) is calculated using the equation: Y = ln W − V(ln X).

(f) 1. For each species the species mean acute intercept (SMAI) is calculated as e^Y.

2. For each genus for which one or more SMAIs are available, the genus mean acute intercept (GMAI) is calculated as the geometric mean of the SMAIs available for the genus.

(g) The GMAIs are ordered from high to low.

(h) Ranks (R) are assigned to the GMAIs from 1 for the lowest to N for the highest. If 2 or more GMAIs are identical, successive ranks are arbitrarily assigned.

(i) The cumulative probability (P) is calculated for each GMAI as P=R/(N+1).

(j) The 4 GMAIs are selected which have P closest to 0.05. If there are less than 59 GMAIs, these will always be the lowest GMAIs.

(k) Using the selected GMAIs and Ps, the ATC is calculated using the following:

1. Let EV = sum of the 4 ln GMAIs,
EW = sum of the 4 squares of the ln GMAIs,
EP = sum of the 4 P values,
EPR = sum of the 4 square roots of P, and
JR = square root of 0.05.

2. $S = ((EW - (EV)^2/4) / (EP - (EPR)^2/4))^{0.5.}$

3. L = (EV − S(EPR))/4.

4. A = (JR)(S) + L.

5. Final Acute Intercept (FAI) = e^A.

6. Acute Criterion Intercept (ACI) = FAI/2.

(L) The acute toxicity equation (ATE) is written as:

ATC = $_e$(V ln(water quality parameter) + ln ACI).

The ATE shall be applicable only over the range of water quality parameters equivalent to the mean plus or minus 2 standard deviations using the entire fresh water acute toxicity data base and the water quality parameter transformation employed in par. (a). If the value at a specific location is outside of that range, the endpoint of the range nearest to that value shall be used to determine the criterion. Additional information may be used to modify those ranges. The final acute value (FAV) equals 2 times the ATC (acute toxicity criterion) calculated using the formula in this paragraph.

(m) If, for a commercially, recreationally or ecologically important species, the SMAI is lower than the calculated ACI, then that SMAI is used as the ACI instead of the calculated one.

(n) Table 2 contains the acute toxicity criteria for the fish and aquatic life subcategories listed in s. NR 102.04 (3) that are calculated using the procedures described in this subsection for substances meeting the database requirements indicated in sub. (1) (a). Table 2A contains the water quality parameter ranges calculated in par. (L).

(4) SECONDARY ACUTE VALUES. If all 8 minimum data requirements for calculating acute toxicity criteria in sub. (1) (a) are not met, secondary acute values (SAVs) shall be determined using the procedure in this subsection.

(a) In order to calculate a SAV, the database shall contain, at a minimum, a genus mean acute value (GMAV) for one of the following 3 genera in the family Daphnidae − *Ceriodaphnia sp.*, *Daphnia sp.*, or *Simocephalus sp.* To calculate a SAV, the lowest GMAV in the database is divided by the Secondary Acute Factor (SAF). The SAF is an adjustment factor corresponding to the number of satisfied minimum data requirements, listed in sub. (1) (a). SAFs are listed in Table 2B.

(b) Whenever appropriate, the effects of variable water quality parameters shall be considered when calculating a SAV, consistent with the procedures described in sub. (3).

(c) Whenever, for a commercially, recreationally or ecologically important species, the SMAV is lower than the calculated SAV, that SMAV shall be used as the SAV instead of the calculated SAV.

(5) ACUTE TOXICITY CRITERIA EXPRESSED IN THE DISSOLVED FORM. Acute water quality criteria may be expressed as a dissolved concentration. The conversion of an acute water quality criterion expressed as a total recoverable concentration, to an acute water quality criterion expressed as a dissolved concentration, the portion of the substance which will pass through a 0.45 um filter, shall be done using the equations in pars. (a) and (b). Substances which may have criteria expressed as a dissolved concentration are listed in par. (a) with corresponding conversion factors.

(a) The conversion of the water quality criterion expressed as total recoverable ($WQC_{Total\ R.}$) to the water quality criterion expressed as dissolved (WQC_D) shall be performed as follows:

$WQC_D = (CF)(WQC_{Total\ R.})$

Where: $WQC_{Total\ R.}$ = Criteria from NR 105, Table 1 or 2.

CF = Conversion factor for total recoverable to dissolved.

Conversion factors are as follows:

Arsenic	1.000
Cadmium	0.850
Chromium (III)	0.316
Chromium (VI)	0.982
Copper	0.960
Lead	0.875
Mercury	0.850
Nickel	0.998
Selenium	0.922
Silver	0.850
Zinc	0.978

(b) The translation of the WQC_D into the water quality criterion which accounts for site−specific conditions (WQC_{TRAN}) shall be performed as follows:

$WQC_{TRAN} = (Translator)(WQC_D)$

Where: Translator (unitless) = $((M_P)(TSS) + M_D)/M_D$

M_P = Particle−bound concentration of the pollutant (ug/g) in receiving water.

M_D = Dissolved concentration of the pollutant in receiving water (ug/L).

TSS = Total Suspended Solids (g/L) concentration in receiving water.

(c) The procedures in pars. (a) and (b) may also be used for the conversion of secondary values from total recoverable to dissolved.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; am. (1) (a) 1. to 5., (1) (b), (2) (a) to (f), (3) (a) and (f) to (L), r. and recr. (1) (a) 6., cr. (1) (a) 7. to 10., (4) and (5), Register, August, 1997, No. 500, eff. 9−1−97; CR 03−050: am. (3) (L) and (m) Register February 2004 No. 578, eff. 3−1−04.

NR 105.06 Chronic toxicity criteria and secondary chronic values for fish and aquatic life. (1) MINIMUM DATABASE FOR CHRONIC CRITERION DEVELOPMENT. (a) To derive a chronic toxicity criterion for aquatic life, the minimum information required shall be results of acceptable chronic toxicity tests with one or more species of freshwater animal in at least 8 different families provided that of the 8 species:

1. At least one is a salmonid fish, in the family Salmonidae in the class Osteichthyes,

2. At least one is a non−salmonid fish, from another family in the class Osteichthyes, preferably a commercially or recreationally important warmwater species,

3. At least one is a planktonic crustacean (e.g., cladoceran, copepod),

4. At least one is a benthic crustacean (e.g., ostracod, isopod, amphipod, crayfish),

5. At least one is an insect (e.g., mayfly, dragonfly, damselfly, stonefly, caddisfly, mosquito, midge),

6. At least one is a fish or amphibian from a family in the phylum Chordata not already represented in one of the other subdivisions,

7. At least one is an organism from a family in a phylum other than Arthropoda or Chordata (e.g., Rotifera, Annelida, Mollusca), and

8. At least one is an organism from a family in any order of insect or any other phylum not already represented in subds. 1. to 7.

9. If all 8 of the families in subds. 1. to 8. are represented, a chronic toxicity criterion may be developed for surface waters classified as cold water using information on all of those families. If a chronic toxicity criterion is developed for surface waters classified as cold water, chronic toxicity criteria may also be developed for any of the surface water classifications in s. NR 102.04 (3) (b) to (e) using the procedure in sub. (2) or (3) and data on families in subds. 1. to 8. which are representative of the aquatic life communities associated with those classifications. For each substance, in no case may the criterion for a lower quality fish and aquatic life subcategory as defined in s. NR 102.04 be less than the criterion for a higher quality fish and aquatic life subcategory.

10. For a substance, if all the families in subds. 1. to 8. are not represented, acute−chronic ratios as calculated in sub. (5) may be used to generate the chronic toxicity values necessary to calculate a chronic toxicity criterion.

11. For a substance, if all of the families in subds. 1. to 8. are not represented, a chronic toxicity criterion may not be developed for that substance except as provided in subd. 10. Instead, any available data may be used to develop a secondary acute value (SAV) for that substance according to sub. (4).

(b) The acceptability of chronic toxicity test results shall be judged according to the guidelines in section VI of the United States environmental protection agency's 1985 "Guidelines for Deriving National Numerical Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses" or 40 CFR Part 132 Appendix A, sections VI and VII as stated on September 1, 1997, is incorporated by reference.

Note: Copies of 40 CFR Part 132, Appendix A, Sections VI and VII are available for inspection in the offices of the department of natural resources, secretary of state and the legislative reference bureau, Madison, WI or may be purchased from the superintendent of documents, US government printing office, Washington, D.C. 20402.

(2) CALCULATION OF A CHRONIC CONCENTRATION. A chronic concentration is obtained by calculating the geometric mean of the chronic lowest observable adverse effect level and the chronic no observable adverse effect level.

(3) CHRONIC TOXICITY CRITERIA FOR SUBSTANCES WITH TOXICITY UNRELATED TO WATER QUALITY PARAMETERS. If the chronic toxicity of a substance has not been adequately shown to be related to a water quality parameter, i.e., hardness, pH, temperature, etc., the chronic toxicity criterion (CTC) is calculated using the procedures specified in this subsection.

(a) 1. For each species for which at least one chronic value is available, the species mean chronic value (SMCV) is calculated as the geometric mean of all acceptable chronic toxicity tests using the guidelines in sub. (1) (b).

2. For each genus for which one or more SMCVs are available, the genus mean chronic value (GMCV) is calculated as the geometric mean of the SMCVs available for the genus.

(b) The GMCVs are ordered from high to low.

(c) Ranks (R) are assigned to the GMCVs from 1 for the lowest to N for the highest. If 2 or more GMCVs are identical, successive ranks are arbitrarily assigned.

(d) The cumulative probability (P) is calculated for each GMCVs as P=R/(N + 1).

(e) The 4 GMCVs are selected which have P closest to 0.05. If there are less than 59 GMCVs, these will always be the lowest GMCVs.

(f) Using the selected GMCVs and Ps, the final chronic value (FCV) is calculated using the following:

1. Let EV = sum of the 4 ln GMCVs,
EW = sum of the 4 squares of the ln GMCVs,
EP = sum of the 4 P values,
EPR = sum of the 4 square roots of P, and
JR = square root of 0.05.

2. $S = ((EW - (EV)^2/4)/(EP-(EPR)^2/4))^{0.5}$

3. L = (EV − S(EPR))/4.

4. A = (JR)(S) + L.

5. $FCV = e^{A}$.

(g) If, for a commercially, recreationally or ecologically important species, the geometric mean of the chronic values is lower than the calculated FCV then that geometric mean is used as the FCV instead of the calculated one.

(h) The chronic toxicity criterion (CTC) equals the lower of the FCV and the final plant value calculated using the procedure in s. NR 105.11.

(i) Table 3 contains the chronic toxicity criteria for the fish and aquatic life subcategories listed in s. NR 102.04 (3) that are calculated using the procedures described in this subsection for substances meeting the database requirements indicated in sub. (1).

(4) CHRONIC TOXICITY CRITERIA FOR SUBSTANCES WITH TOXICITY RELATED TO WATER QUALITY PARAMETERS. (a) If data are available on a substance to show that chronic toxicity to 2 or more species is similarly related to a water quality parameter (i.e., hardness, pH, temperature, etc.), the chronic toxicity criterion (CTC) is calculated using the procedures specified in this paragraph.

1. For each species for which acceptable chronic toxicity tests using the guidelines in sub. (1) (b) are available at 2 or more different values of the water quality parameter, a least squares regression of the chronic toxicity values on the corresponding values of the water quality parameter is performed to obtain the slope of the curve that best describes the relationship. Because the most commonly documented relationship is that between hardness and the chronic toxicity of metals and a log−log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality are used in the rest of this subsection to illustrate this method. For relationships based on other water quality parameters, no transformation or a different transformation might fit the data better, and appropriate changes shall be made as necessary throughout this subsection.

2. For each species, the geometric mean of the available chronic values (W) is calculated and then each of the chronic values is divided by the mean for that species. This normalizes the chronic values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0.

3. For each species, the geometric mean of the available corresponding water quality parameter values (X) is calculated and then each of the water quality parameter values is divided by the mean for that species. This normalizes the water quality parameter values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0.

4. A least squares regression of all the normalized chronic values on the corresponding normalized values of the water quality parameter is performed to obtain the pooled chronic slope (V). If the coefficient of determination, or r value, calculated from that regression is found not to be significant based on a standard F−test at a 0.05 level, then the pooled chronic slope shall be set equal to zero.

5. For each species the logarithmic intercept (Y) is calculated using the equation: $Y = \ln W - V(\ln X)$.

6. a. For each species the species mean chronic intercept (SMCI) is calculated as e^{Y}.

b. For each genus for which one or more SMCIs are available, the genus mean chronic intercept (GMCI) is calculated as the geometric mean of the SMCIs available for the genus.

7. The GMCIs are ordered from high to low.

8. Ranks (R) are assigned to the GMCIs from 1 for the lowest to N for the highest. If 2 or more GMCIs are identical, successive ranks are arbitrarily assigned.

9. The cumulative probability (P) is calculated for each GMCI as $P=R/(N + 1)$.

10. The 4 GMCIs are selected which have P closest to 0.05. If there are less than 59 GMCIs, these will always be the lowest GMCIs.

11. Using the selected GMCIs and Ps, the final chronic value (FCV) is calculated using the following:

a. Let EV = sum of the 4 ln GMCIs,
EW = sum of the 4 squares of the ln GMCIs,
EP = sum of the 4 P values,
EPR = sum of the 4 square roots of P, and
JR = square root of 0.05.

b. $S = ((EW-(EV)^2/4)/(EP-(EPR)^2/4))^{0.5}$

c. $L = (EV - S(EPR))/4$.

d. $A = (JR)(S) + L$.

e. Final Chronic Intercept (FCI) = e^{A}.

12. The final chronic equation (FCE) is written as:

$FCV = _{e}(V \ln(\text{water quality parameter}) + \ln FCI)$.

The FCE shall be applicable only over the range of water quality parameters equivalent to the mean ± 2 standard deviations using the entire freshwater chronic toxicity data base and the water quality parameter transformation employed in subd. 1. If the value at a specific location is outside of that range, the endpoint of the range nearest to that value shall be used to determine the criterion. Additional information may be used to modify those ranges.

13. If, for a commercially, recreationally or ecologically important species, the SMCI is lower than the calculated FCI, then that SMCI is used as the FCI instead of the calculated one.

(b) At a value of the water quality parameter, the chronic toxicity criterion (CTC) equals the lower of the FCV and the final plant value calculated using the procedure in s. NR 105.11.

(c) Table 4 contains the chronic toxicity criteria for the fish and aquatic life subcategories listed in s. NR 102.04 (3) that are calculated using the procedures described in this subsection for substances meeting the database requirements indicated in sub. (1). Table 4A contains the water quality parameter ranges calculated in par. (a) 1.

(5) ACUTE−CHRONIC RATIOS. (a) The acute−chronic ratio is used to estimate the chronic toxicity of a substance to fish or other aquatic species when the database of sub. (1) (a) is not satisfied.

(b) The acute−chronic ratio for a species equals the acute concentration from data considered under s. NR 105.05 (1) divided by the chronic concentration from data calculated under sub. (1), subject to the following conditions:

1. If the acute toxicity of a substance is related to any water quality parameter, the acute−chronic ratio shall be based on acute and chronic toxicity data obtained from organisms exposed to test water with similar, if not identical, values of those water quality parameters. Preference under this paragraph shall be given to data from acute and chronic tests done by the same author or reference in order to increase the likelihood of comparable test conditions.

2. If the acute and chronic toxicity data indicate that the acute−chronic ratio varies with changes in the values of the water quality parameters, the acute−chronic ratio used at specified values of the water quality parameters shall be based on the ratios at values closest to that specified.

3. If the acute toxicity of a substance is unrelated to water quality parameters, the acute−chronic ratio may be derived from any acute and chronic test on a species regardless of the similarity in values of those parameters. Preference under this paragraph shall be given to data from acute and chronic tests done by the same author or reference to increase the likelihood of comparable test conditions.

(c) A final chronic value shall be calculated for a substance under this subsection only if at least one acute−chronic ratio is available for at least one species of aquatic animal in at least 3 different families, provided that of the 3 species, one is a fish, one is an invertebrate, and the third is a relatively sensitive freshwater species on an acute toxicity basis. The other 2 may be saltwater species.

(d) The geometric mean acute−chronic ratio is calculated for each species using the available acute−chronic ratios for that species. That mean ratio shall be called the species mean acute−chronic ratio (SMACR).

(e) For a given substance, if the SMACR appears to increase or decrease as the species or genus mean acute values (SMAVs or GMAVs) calculated for that substance using the procedure described in s. NR 105.05 increase, the final acute−chronic ratio (FACR) shall be equal to the geometric mean of the SMACRs for species with SMAVs closest to the final acute value.

(f) For a given substance, if no trend is apparent regarding changes in SMACRs and GMAVs, the FACR shall be equal to the geometric mean of all SMACRs available for that substance.

(g) For a given substance, the final chronic value (FCV) shall be equal to the final acute value (FAV) divided by the final acute−chronic ratio (FACR). The chronic toxicity criterion shall be equal to the lower of the FCV and the final plant value as calculated using the procedure in s. NR 105.11, if available.

(h) Chronic toxicity criteria for the fish and aquatic life subcategories listed in s. NR 102.04 (3) that are calculated using acute−chronic ratios are listed in Table 5 for substances with acute toxicity unrelated to water quality parameters and in Table 6 for substances with acute toxicity related to water quality parameters. Equations listed in Table 6 are applicable over the range of water quality parameters as contained in Table 4A. Table 2A should be used where no range is listed in Table 4A.

(6) SECONDARY CHRONIC VALUES. If all 8 minimum data requirements for calculating FCVs in sub. (1) (a) are not met for a substance, secondary chronic values (SCVs) shall be calculated for that substance using the procedure in this subsection.

(a) If any one of the combinations of information in subds. 1. to 3. is available, a SCV may be calculated. To calculate a SCV for a substance, the acute value from subds. 1. to 3. is divided by the applicable acute−chronic ratio in the same subdivision.

1. Calculate a FAV using the procedure in s. NR 105.05 (2) and divide it by a secondary acute−chronic ratio (SACR) using the procedure in sub. (7).

2. Calculate a SAV using the procedure in s. NR 105.05 (4) and divide it by a final acute−chronic ratio (FACR) using the procedure in sub. (5).

3. Calculate a SAV using the procedure in s. NR 105.05 (4) and divide it by a SACR using the procedure in sub. (7).

(b) If appropriate, the SCV shall be made a function of a water quality characteristic in a manner similar to that described in sub. (4) (a).

(c) If, for a commercially, recreationally or ecologically important species, the SMCV is lower than the calculated SCV, that SMCV shall be used as the SCV instead of the calculated SCV.

(d) If there is an FPV available using the procedure in s. NR 105.11 which is lower than the calculated SCV, that FPV shall be used as the SCV instead of the calculated SCV.

(7) SECONDARY ACUTE−CHRONIC RATIOS. (a) If a FACR cannot be calculated using the procedure in sub. (5) because SMACRs are not available for a fish, an invertebrate or an acutely sensitive freshwater species, a secondary acute−chronic ratio (SACR) may be calculated using the procedure in this subsection.

(b) The SACR shall be equal to the geometric mean of 3 acute−chronic ratios. Those ratios consist of the SMACRs available for the species in sub. (5) (c). When SMACRs are not available for the species in par. (a), the default acute−chronic ratio to be used is 18. Use of a SACR will result in the calculation of a secondary chronic value.

(8) CHRONIC TOXICITY CRITERIA EXPRESSED IN THE DISSOLVED FORM. Chronic water quality criteria may be expressed as a dissolved concentration. The conversion of a chronic water quality criterion expressed as a total recoverable concentration to a chronic water quality criterion expressed as a dissolved concentration, the portion of the substance which will pass through a 0.45 um filter, shall be done using the equations in pars. (a) and (b). Substances which may have criteria expressed as a dissolved concentration are listed in par. (a) with corresponding conversion factors.

(a) The conversion of the water quality criterion expressed as total recoverable ($WQC_{Total\ R.}$) to the water quality criterion expressed as dissolved (WQC_D) shall be performed as follows:

$$WQC_D = (CF)(WQC_{Total\ R.})$$

Where: $WQC_{Total\ R.}$ = Criteria from NR 105, Table 5 or 6.
CF = Conversion factor for total recover−able to dissolved.

Conversion factors are as follows:

Arsenic	1.000
Cadmium	0.850
Chromium (III)	0.860
Chromium (VI)	0.962
Copper	0.960
Lead	0.792
Mercury	0.85
Nickel	0.997
Selenium	0.922
Zinc	0.986

(b) The translation of the WQC_D into the water quality criterion which accounts for site−specific conditions (WQC_{TRAN}) shall be performed as follows:

$$WQC_{TRAN} = (Translator)(WQC_D)$$

Where: Translator (unitless) = $((M_P)(TSS) + M_D)/M_D$

M_P = Particle−bound concentration of the pollutant (ug/g) in receiving water.

M_D = Dissolved concentration of the pollutant in receiving water (ug/L).

TSS = Total Suspended Solids (g/L) concentration in receiving water.

(c) The procedures in pars. (a) and (b) may also be used for the conversion of secondary values from total recoverable to dissolved.

Table 1
Acute Toxicity Criteria for Substances With Toxicity Unrelated to Water Quality
(in ug/L except where indicated)

Substance	Cold Water	Warm Water Sportfish, Warm Water Forage, and Limited Forage Fish	Limited Aquatic Life
Arsenic (+3)*	339.8	339.8	339.8
Chromium (+6)*	16.02	16.02	16.02
Mercury (+2)*	0.83	0.83	0.83
Cyanide, free	22.4	45.8	45.8
Chloride	757,000	757,000	757,000
Chlorine*	19.03	19.03	19.03
Gamma − BHC	0.96	0.96	0.96
Dieldrin	0.24	0.24	0.24
Endrin	0.086	0.086	0.12
Toxaphene	0.73	0.73	0.73
Chlorpyrifos	0.041	0.041	0.041
Parathion	0.057	0.057	0.057

Note: * − Criterion listed is applicable to the “total recoverable” form except for chlorine which is applicable to the “total residual” form.

Table 2
Acute Toxicity Criteria for Substances With Toxicity Related to Water Quality
(all in ug/L)

Water Quality Parameter: Hardness (in ppm as $CaCO_3$)

$ATC=e^{(V \text{ in hardness}) + \ln ACI)}$

Substance	V	ln ACI	ATC at Various Hardness (ppm) Levels 50	100	200
Total Recoverable Cadmium:					
Cold Water	1.147	−3.8104	1.97	4.36	9.65
Warm Water Sportfish, Warm Water Forage and Limited Forage Fish	1.147	−2.9493	4.65	10.31	22.83
Limited Aquatic Life	1.147	−1.9195	13.03	28.87	63.92
Total Recoverable Chromium (+3):					
All Surface Waters	0.819	3.7256	1022	1803	3181
Total Recoverable Copper:					
All Surface Waters	0.9436	−1.6036	8.07	15.51	29.84
Total Recoverable Lead:					
All Surface Waters	0.9662	0.2226	54.73	106.92	208.90
Total Recoverable Nickel:					
All Surface Waters	0.846	2.255	261	469	843
Total Recoverable Zinc:					
All Surface Waters	0.8745	0.7634	65.66	120.4	220.7

Water Quality Parameter: pH

$ATC = e^{(V(pH) + \ln ACI)}$

Substance	V	ln ACI	6.5	7.8	8.8
Pentachlorophenol:					
All Surface Waters	1.0054	−4.877	5.25	19.40	53.01

Table 2A
Water Quality Parameter Ranges for Substances With Acute Toxicity Related to Water Quality

Substance	Parameter	Applicable Range
Cadmium	Hardness (ppm)	6 − 457
Chromium (+3)	Hardness (ppm)	13 − 301
Copper	Hardness (ppm)	13 − 495
Lead	Hardness (ppm)	12 − 356
Nickel	Hardness (ppm)	13 − 268
Zinc	Hardness (ppm)	12 − 333
Pentachlorophenol	pH (s.u.)	6.6 − 8.8

Table 2B
Secondary Acute Factors

Number of minimum data requirements satisfied	Adjustment factor
1	21.9
2	13.0
3	8.0
4	7.0
5	6.1
6	5.2
7	4.3

Table 2C
Acute Toxicity Criteria for Ammonia With Toxicity Related to Water Quality(all in mg/L)

Cold Water (CW) Categories 1−5 are applicable only to ammonia criteria.[1]

Water Quality Parameter: pH

ATC (in mg/L) = $[A / (1 + 10^{(7.204 - pH)})] + [B / (1 + 10^{(pH - 7.204)})]$

Substance	**A**	**B**	**7.5**	**8.0**	**8.5**
Ammonia (as N) in mg/L:					
CW Category 1 & 4	0.275	39.0	13.28	5.62	2.14
CW Category 2 & 3	0.343	48.7	16.59	7.01	2.67
CW Category 5, Warm Water Sport Fish, Warm Water Forage, and Limited Forage Fish	0.411	58.4	19.89	8.41	3.20
Limited Aquatic Life	0.633	90.0	30.64	12.95	4.93

[1] For ammonia, along with data on all warm water fish species and invertebrates, the cold water criteria are calculated using data on all cold water fish species with the following exceptions:

CW Category 1 = Default category of cold water classification. This category includes all fish. [Note: CW Category 1 is always applicable in Lake Superior, Lake Michigan, and Green Bay north of 44° 32' 30" north latitude.]

CW Category 2 = Inland lakes with populations of cisco, lake trout, brook trout or brown trout, but no other trout or salmonid species. This category excludes data on genus *Onchorhynchus*.

CW Category 3 = Inland lakes with populations of cisco, but no trout or salmonid species. This category excludes data on genera *Onchorhynchus*, *Salmo*, and *Salvelinus*.

CW Category 4 = Inland trout waters with brook, brown, or rainbow trout, but no whitefish or cisco. This category excludes data on genus *Prosopium*.

CW Category 5 = Inland trout waters with brook and brown trout, but no whitefish, cisco, or other trout or salmonid species. This category excludes data on genera *Prosopium* and *Onchorhynchus*.

Table 3
Chronic Toxicity Criteria for Substances With Toxicity Unrelated to Water Quality(all in ug/L)

Substance	Cold Water	Warm Water Sportfish, Warm Water Forage and Limited Forage Fish	Limited Aquatic Life
		(Reserved)	

Note: This table is reserved for criteria that USEPA has indicated may be available in the near future.

Table 4
Chronic Toxicity Criteria for Substances With Toxicity Related to Water Quality (all in ug/L)

Water Quality Parameter: Hardness (in ppm as $CaCO_3$

$CTC = e^{(V \ln(hardness) + \ln CCI)}$

Substance	V	ln CCI	CTC at Various Hardness (ppm) Levels: 50	100	175
Total Recoverable Cadmium:					
All Surface Waters	0.7852	−2.7150	1.43	2.46	3.82

Table 4A
Water Quality Parameter Ranges for Substances With Chronic Toxicity Related to Water Quality

Substance	Parameter	Applicable Range
Cadmium	Hardness (ppm)	18−175

Table 4B
Chronic Toxicity Criteria for Ammonia with Toxicity Related to Water Quality (all in mg/L)

Substance: Ammonia (as N)
Water Quality Parameters: Temperature in degrees Celsius, pH

30−Day CTC:
$CTC = E\ X\ ((0.0676/(1 + 10^{(7.688 - pH)})) + (2.912/(1 + 10^{(pH - 7.688)}))) X\ C$

4−Day CTC = 30−Day CTC X 2.5

Cold Water (all periods), Warm Water Sport Fish and Warm Water Forage Fish (periods with Early Life Stages Present):
C = minimum of (2.85) or $(1.45\ X\ 10^{(0.028\ X\ (25 - T))})$
T = Temperature in degrees Celsius
E = 0.854

Warm Water Sport Fish and Warm Water Forage Fish (periods with Early Life Stages Absent):
$C = (1.45\ X\ 10^{(0.028\ X\ (25 - T))})$
T = Maximum of (actual temperature in degrees Celsius) and (7)
E = 0.854

Limited Forage Fish (periods with Early Life Stages Present):
C = minimum of (3.09) or $(3.73\ X\ 10^{(0.028\ X\ (25 - T))})$
T = temperature in degrees Celsius
E = 1

Limited Forage Fish (periods with Early Life Stages Absent):
$C = (3.73\ X\ 10^{(0.028\ X\ (25 - T))})$
T = Maximum of (actual temperature in degrees Celsius) and (7)
E = 1

Limited Aquatic Life (all periods):
$C = (8.09\ X\ 10^{(0.028\ X\ (25 - T))})$
T = Maximum of (actual temperature in degrees Celsius) and (7)
E = 1

	30−day CTC in mg/L @ pH of:		
	7.5	8.0	8.5
Cold Water, Warm Water Sport Fish (Early Life Stages Present), and Warm Water Forage Fish (Early Life Stages Present):			
@ 25 degrees Celsius	2.22	1.24	0.55
@ 14.5 degrees Celsius or less	4.36	2.43	1.09
Warm Water Sport Fish (Early Life Stages Absent), and Warm Water Forage Fish (Early Life Stages Absent):			
@ 25 degrees Celsius	2.22	1.24	0.55
@ 7 degrees Celsius or less	7.09	3.95	1.77
Limited Forage Fish (Early Life Stages Present):			
@ 27 degrees Celsius or less	5.54	3.09	1.38
Limited Forage Fish (Early Life Stages Absent):			
@ 25 degrees Celsius	6.69	3.73	1.67
@ 7 degrees Celsius or less	21.34	11.90	5.33
Limited Aquatic Life:			
@ 25 degrees Celsius	14.50	8.09	3.62
@ 7 degrees Celsius or less	46.29	25.82	11.56

Note: The terms “early life stage present” and “early life stage absent” are defined in subch. III of ch. NR 106.

Table 5

Chronic Toxicity Criteria Using Acute−Chronic Ratios for Substances with Toxicity Unrelated to Water Quality (all in ug/L)

Substance	Cold Water	Warm Water Sportfish and Warm Water Forage	Limited Forage Fish and Limited Aquatic Life
Arsenic (+3)*	148	152.2	152.2
Chromium (+6)*	10.98	10.98	10.98
Mercury (+2)*	0.44	0.44	0.44
Cyanide, free	5.22	11.47	11.47
Chloride	395,000	395,000	395,000
Selenium	5.0	5.0	46.5
Chlorine*	7.28	7.28	7.28
Dieldrin	0.055	0.077	0.077
Endrin	0.036	0.050	0.050
Parathion	0.011	0.011	0.011

Note: *Criterion listed is applicable to the "total recoverable" form except for chlorine which is applicable to the "total residual" form.

Table 6

Chronic Toxicity Criteria Using Acute−Chronic Ratios for Substances With Toxicity Related to Water Quality (all in ug/L)

Water Quality Parameter: Hardness (in ppm as $CaCO_3$)					
	$CTC=e^{(V \ln(hardness) + \ln CCI)}$		CTC at Various Hardness (ppm) Levels		
Substance	V	ln CCI	50	100	200
Total Recoverable Chromium (+3):					
Cold Water	0.819	0.6851	48.86	86.21	152.1
Warm Water Sportfish	0.819	1.112	74.88	132.1	233.1
All others	0.819	1.112	74.88	132.1	233.1
Total Recoverable Copper:					
All Surface Waters	0.8557	−1.6036	5.72	10.35	18.73
Total Recoverable Lead:					
All Surface Waters	0.9662	−1.1171	14.33	28.01	54.71
Total Recoverable Nickel:					
Cold Water, Warm Water Sportfish, Warm Water Forage, and Limited Forage Fish	0.846	0.059	29.0	52.2	93.8
Limited Aquatic Life	0.846	0.4004	40.8	73.4	132.0
Total Recoverable Zinc					
All Surface Waters	0.8745	0.7634	65.66	120.4	220.7
Water Quality Parameter: pH					
	$CTC=e^{(V(pH) + \ln CCI)}$		CTC at Various pH (s.u.) Levels		
Substance	V	ln CCI	6.5	7.8	8.8
Pentachlorophenol:					
Cold Water	1.0054	−5.1468	4.43	14.81	40.48
All Other Surface Waters	1.0054	−4.9617	5.33	17.82	48.70

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; am. (5) (f) and Tables 2, 2a, 4, 4a and 6, Register, July, 1995, No. 475, eff. 8−1−95; am. (1) (a) 1., 2., 4., and 5., (1) (b), (3) (intro.), (a) to (g), (4) (a) 1., 7. to 13., (5) (c), renum. (1) (a) 6. to be (1) (a) 10., (3) (h) to be (3) (i) and am. (1) (a) 10, (4) (a) 6. to be (4) (a) 6. a., (4) (b) to be (4) (c), (5) (e) to (i) to be (5) (d) to (h) and am. (5) (e) to (g), cr. (3) (h), (4) (a) 6. b., (4) (b), (5) (b) 3., (6) to (8), r. and recr., Tables 1 to 2a, 3 to 6, r. (5) (d); am. Tables 1 and 5, Register, January, 2000, No. 529, eff. 2−1−00**;** CR 03−050: am. Tables 2 and 6, cr. Tables 2C and 4B Register February 2004 No. 578, eff. 3−1−04; CR 07−110: am Tables 2, 2A, 5 and 6 Register November 2008 No. 635, eff. 12−1−08; **CR 09−123: am. (5) (h), (8) (a), Tables 4B and 5 Register July 2010 No. 655, eff. 8−1−10.**

NR 105.07 Wildlife criteria. (1) The wildlife criterion is the concentration of a substance which if not exceeded protects Wisconsin's wildlife from adverse effects resulting from ingestion of surface waters of the state and from ingestion of aquatic organisms taken from surface waters of the state.

(a) For any substance not shown in Table 7, the wildlife criterion (WC) is the lower of the available mammalian or avian wildlife values (WVs) calculated pursuant to sub. (2). A wildlife criterion protective of Wisconsin's reptile fauna may be calculated pursuant to sub. (2) whenever data specific to reptiles are available.

(b) Table 7 contains the wildlife criteria calculated according to the procedures of this chapter.

Table 7
Wildlife Criteria

Substance	Criteria (in ng/L, except where indicated)
DDT & Metabolites	0.011
Mercury	1.3
Polychlorinated Biphenyls	0.12
2,3,7,8 − TCDD	0.003 (pg/L)

(2) (a) Mammalian and avian wildlife values shall be calculated as follows using information available from scientifically acceptable studies of animal species exposed repeatedly to the substance via oral routes including gavage:

$$WV = \frac{NOAEL \times Wt_A \times SSF}{W + \Sigma[F_{TLi} \times BAF_{TLi}]}$$

Where:

WV= Wildlife value in milligrams per liter (mg/L).

NOAEL= No observed adverse effect level in milligrams of substance per kilogram of body weight per day (mg/kg−d) as derived from subchronic or chronic mammalian or avian studies or as specified in subs. (3) to (5).

Wt= Average weight in kilograms (kg) of the representative species.

W= Average daily volume of water in liters consumed per day (L/d) by the representative species or as specified in sub. (6).

SSF= Species sensitivity factor, ranging between 0.01 and 1 to account for interspecies differences in sensitivity.

F_{TLJ}= Average daily amount of food consumed from trophic level i by the representative species in kilograms per day (kg/d) or as specified in sub. (6).

BAF_{TLJ}= Bioaccumulation factor for wildlife food in trophic level i with units of liter per kilogram (L/kg) as derived in s. NR 105.10. For consumption of piscivorous birds by other birds (e.g., herring gull by eagles), the BAF is derived by multiplying the trophic level 3 BAF for fish by a biomagnification factor to account for the biomagnification from fish to the consumed birds.

(b) The selection of the species sensitivity factor (SSF) shall be based on the available toxicological data base and available physicochemical and toxicokinetic properties of the substance and the amount and quality of available data.

(c) The bald eagle, kingfisher, herring gull, mink and otter are representative of avian and mammalian species to be protected by wildlife criteria. A NOAEL specific to each taxonomic class is used to calculate WVs for each of the 5 representative species. The avian WV is the geometric mean of the WVs calculated for the 3 representative avian species. The mammalian WV is the geometric mean of the WVs calculated for the 2 representative mammalian species.

(d) In those cases in which more than one NOAEL is available, the following shall apply:

1. If more than one NOAEL is available within a taxonomic class, based on the same endpoint of toxicity, the NOAEL from the most sensitive species shall be used.

2. If more than one NOAEL is available for a given species, based on the same enpoint of toxicity, the NOAEL for that species shall be calculated using the geometric mean of those NOAELs.

(e) Because wildlife consume fish from both trophic levels 3 and 4, baseline BAFs shall be available for both trophic levels 3 and 4 to calculate either a criterion or secondary value for a chemical. When appropriate, ingestion through consumption of invertebrates, plants, mammals and birds in the diet of wildlife species to be protected shall be included.

(3) In those cases in which a no observed adverse effect level (NOAEL) is available from studies of mammalian or avian species exposed repeatedly to the substance via oral routes including gavage, but is available in units other than mg/kg−d as specified in sub. (2), the following procedures shall be used to express the NOAEL prior to calculating the wildlife value:

(a) If the NOAEL is given in milligrams of toxicant per liter of water consumed (mg/L), the NOAEL shall be multiplied by the daily average volume of water consumed by the test animals in liters per day (L/d) and divided by the average weight of the test animals in kilograms (kg).

(b) If the NOAEL is given in milligrams of toxicant per kilogram of food consumed (mg/kg), the NOAEL shall be multiplied by the average amount of food in kilograms consumed daily by the test animals (kg/d) and divided by the average weight of the test animals in kilograms (kg).

(4) In those cases in which a NOAEL is unavailable and a lowest observed adverse effect level (LOAEL) is available from studies of animal species exposed repeatedly to the substance via oral routes including gavage, the LOAEL may be substituted with proper adjustment to estimate the NOAEL. An uncertainty factor of between one and 10 may be applied to the LOAEL, depending on the sensitivity of the adverse effect, to reduce the LOAEL into the range of a NOAEL. If the LOAEL is available in units other than mg/kg−d, the LOAEL shall be expressed in the same manner as that specified for the NOAEL in sub. (3).

(5) In instances where a NOAEL is based on subchronic data, an uncertainty factor may be applied to extrapolate from subchronic to chronic levels. The value of the uncertainty factor may not be less than 0.1 and may not exceed 1.0. This factor is to be used when assessing highly bioaccumulative substances where toxicokinetic considerations suggest that a bioassay of limited length underestimates chronic effects.

(6) If drinking or feeding rates are not available for representative species, drinking (W) and feeding rates (F_{TLi}) shall be calculated for representative mammalian or avian species by using the allometric equations given in pars. (a) and (b).

(a) For mammalian species the allometric equations are as follows:

1. $F_{TLi}=0.0687 \times (Wt)^{0.82}$

Where: F_{TLi} = Feeding rate of mammalian species in kilograms per day (kg/d).

Wt = Average weight in kilograms (kg) of the test animals.

2. $W=0.099 \times (Wt)^{0.90}$

Where: W = Drinking rate of mammalian species in liters per day (L/d).

Wt = Average weight in kilograms (kg) of the test animals.

(b) For avian species the allometric equations are as follows:

1. $F_{TLi} = 0.0582\ (Wt)^{0.65}$

Where: F_{TLi} = Feeding rate of avian species in kilograms per day (kg/d).

Wt = Average weight in kilograms (kg) of the test animals.

2. $W= 0.059 \times (Wt)^{0.67}$

Where: W = Drinking rate of avian species in liters per day (L/d).

Wt = Average weight in kilograms (kg) of the test animals.

Note: Criteria to protect domestic animals will be considered on an as needed basis using a model that accounts for domestic animal exposure through drinking water. Because domestic animals do not regularly consume aquatic organisms, the wildlife exposure model is not appropriate.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; am. table 7, Register, July, 1991, No. 427, eff. 8−1−91; am. (1), (2) (a), (b), (3) (intro.), (6) (intro.), r. and recr. (2) (c), (5), cr. (2) (d), (e), r. (6) (a), renum. (6) (b) and (c) to be (6) (a) and (b) and am., Register, August, 1997, No. 500, eff. 9−1−97.

NR 105.08 Human threshold criteria. (1) The human threshold criterion (HTC) is the maximum concentration of a substance established to protect humans from adverse effects resulting from contact with or ingestion of surface waters of the state and from ingestion of aquatic organisms taken from surface waters of the state. Human threshold criteria are derived for those toxic substances for which a threshold dosage or concentration can be estimated below which no adverse effect or response is likely to occur.

(2) For noncarcinogenic components of mixtures in effluents, interactions among substances may be additive, antagonistic or synergistic and may be accounted for by a model that is supported by credible scientific evidence. The risks are assumed to be additive when substances are members of the same structural class and cause potential adverse effects via the same mechanism of action, influencing the same kind of endpoint, and shall be accounted for by a model that is supported by credible scientific evidence.

(3) Human threshold criteria are listed in Table 8. Criteria for the same substance may be different depending on the surface water classification, due to the lipid value of representative fish, a component of the BAF, and whether or not the water may be a source of drinking water. Further application of these criteria to protect drinking water and downstream uses in the Great Lakes system shall be according to s. NR 106.06 (1)

(4) To derive human threshold criteria for substances not included in Table 8 the following methods shall be used:

(a) The human threshold criterion shall be calculated as follows:

$$HTC = \frac{ADE \times 70\ kg \times RSC}{W_H + (F_H \times BAF)}$$

Where: HTC = Human threshold criterion in milligrams per liter (mg/L).

ADE = Acceptable daily exposure in milligrams toxicant per kilogram body weight per day (mg/kg−d) as specified in sub. (5).

70 kg = Average weight of an adult male in kilograms (kg).

RSC = Relative source contribution factor used to account for routes of exposure other than consumption of contaminated water and aquatic organisms. In the absence of sufficient data on alternate sources of exposure, including but not limited to non−fish diet and inhalation, the relative source contribution factor shall be set equal to 0.8.

W_H = Average per capita daily water consumption of 2 liters per day (L/d) for surface waters classified as public water supplies or, for all other surface waters, 0.01 liters per day (L/d) for exposure through body contact or ingestion of small volumes of water during swimming or other recreational activities.

F_H = Average per capita daily consumption of sport−caught fish by Wisconsin anglers equal to 0.02 kilograms per day (kg/d).

BAF = Aquatic organism bioaccumulation factor with units of liter per kilogram (L/kg) as derived in s. NR 105.10.

Table 8
Human Threshold Criteria
(ug/L unless specified otherwise)

		Public Water Supply		Non−Public Water Supply		
	Substance	Warm Water Sport Fish Communities	Cold Water[4] Communities	Warm Water Forage, Limited Forage, and Warm Water Sport Fish Communities	Cold Water Communities	Limited Aquatic Life
1.	Acrolein	7.2	3.4	15	4.4	2,800
2.	Antimony	5.6	5.6	373	373	1,120
3.	Benzene[2]	5	5	610	260	4,000
4.	Bis(2−chloroisopropyl) ether	1,100	1,100	55,000	34,000	220,000
5.	Cadmium	4.4	4.4	370	370	880
6.	*Chlordane (ng/L)	2.4	0.70	2.4	0.70	310,000
7.	Chlorobenzene[2]	100	100	1,210	400	28,000
8.	Chromium, total[2]	100	100			
9.	Chromium (+3)	41,750	41,750	3,818,000	3,818,000	8,400,000
10.	Chromium (+6)	83.5	83.5	7,636	7,636	16,800
11.	Cyanide, Total[2]	138.6	138.6	9,300	9,300	28,000
12.	*4.4’−DDT (ng/L)	3.0	0.88	3.0	0.88	2800000
13.	1,2−Dichlorobenzene[2]	446	273	1,509	481	126,000
14.	1,3−Dichlorobenzene	1,400	710	3,300	1,000	500,000
15.	cis−1,2−Dichloroethene[2]	70	70	14,000	9,000	56,000
16.	trans−1,2−Dichloroethene[2]	100	100	24,000	13,000	110,000
17.	Dichloromethane[2] (methylene chloride)	5	5	95,000	72,000	328,000
18.	2,4−Dichlorophenol	74	58	580	180	17,000
19.	Dichloropropenes[3] (1,3−Dichloropropene)	8.3	8.2	420	260	1,700
20.	*Dieldrin (ng/L)	0.59	0.17	0.59	0.17	280,000
21.	2,4−Dimethylphenol	450	430	11,000	4,500	94,000
22.	Diethyl phthalate[2]	5,000	5,000	68,000	21,000	4,500,000
23.	Dimethyl phthalate (mg/L)	241	184	1,680	530	56,000
24.	4,6−Dinitro−o−cresol	100	96	1,800	640	22,000
25.	Dinitrophenols[3] (2,4−Dinitrophenol)	55	55	2,800	1,800	11,000
26.	2,4−Dinitrotoluene	0.51	0.48	13	5.3	110
27.	Endosulfan	87	41	181	54	33,600
28.	Ethylbenzene[2]	567	401	2,920	931	140,000
29.	Fluoranthene	890	610	4,300	1,300	220,000
30.	*Hexachlorobenzene	0.075	0.022	0.075	0.022	4,500
31.	Hexachlorocyclopentadiene	34.7	25.6	195	65.3	8,400
32.	Hexachloroethane	8.7	3.3	13	3.7	5,600
33.	*gamma−BHC (lindane)[2]	0.20	0.20	0.84	0.25	1,900
34.	Isophorone	5,500	5,300	180,000	80,000	1,100,000
35.	Lead	10	10	140	140	2,240
36.	*Mercury[5]	0.0015	0.0015	0.0015	0.0015	336
37.	Nickel[2]	100	100	43,000	43,000	110,000
38.	*Pentachlorobenzene	0.46	0.14	0.47	0.14	4,500
39.	Selenium[2]	50	50	2,600	2,600	28,000
40.	Silver	140	140	28,000	28,000	28,000
41.	*2,3,7,8−TCDD (pg/L)	0.11	0.032	0.11	0.032	7,300
42.	*1,2,4,5−Tetrachlorobenzene	0.54	0.17	0.58	0.17	1,700
44.	Toluene[2]	1,000	1,000	15,359	5,201	280,000
45.	1,1,1−Trichloroethane[2]	200	200	270,000	110,000	2,000,000
46.	2,4,5−Trichlorophenol	1,600	830	3,900	1,200	560,000

* Indicates substances that are BCCs.

1 A human threshold criterion expressed in micrograms per liter (ug/L) can be converted to milligrams per liter (mg/L) by dividing the criterion by 1000.

2 For this substance the human threshold criteria for public water supply receiving water classifications equal the maximum contaminant level pursuant to s. NR 105.08 (4) (b).

3 The human threshold criteria for this chemical class are applicable to each isomer.

4 For BCCs, these criteria apply to all water of the Great Lakes system.

5 The mercury criteria were calculated using 20 g/day fish consumption and the human non−cancer criteria derivation procedure in 40 CFR Part 132, Appendix C. For these criteria, 40 CFR Part 132, Appendix C as stated on September 1, 1997 is incorporated by reference.

(b) For surface waters classified as public water supplies, if the human threshold criterion for a toxic substance as calculated in par. (a) exceeds the maximum contaminant level (MCL) for that substance as specified in ch. NR 809 or the July 8, 1987 Federal Register (52 FR 25690), the MCL shall be used as the human threshold criterion.

(5) The acceptable daily exposure (ADE) referenced in sub. (4) represents the maximum amount of a substance which if ingested daily for a lifetime results in no adverse effects to humans. Paragraphs (a) to (c) list methods for determining the acceptable daily exposure.

(a) The department shall review available references for acceptable daily exposure or equivalent values, such as a reference dose (RfD) as used by the U.S. environmental protection agency, and for human or animal toxicological data from which an acceptable daily exposure can be derived. Suitable references for review include, but are not limited to, those presented in s. NR 105.04 (5).

(b) When human or animal toxicological data are available, the department may derive an acceptable daily exposure by using as guidance procedures presented by the U.S. environmental protection agency in "Water Quality Criteria Documents; Availability" (45 FR 79318, November 28, 1986). Additional guidance for deriving acceptable daily exposures from toxicological data are given in subds. 1. to 4. Alternate procedures may be used if supported by credible scientific evidence.

1. No observable adverse effect levels (NOAELs) and lowest observable adverse effect levels (LOAELs) from studies of humans or mammalian test species shall be divided by an uncertainty factor to derive an acceptable daily exposure. Uncertainty factors reflect uncertainties in predicting acceptable exposure levels for the general human population based upon experimental animal data or limited human data. Factors to be considered when selecting an uncertainty factor include, but are not limited to, interspecies and individual variations in response and susceptibility to a toxicant, and the quality and quantity of the available data. The following guidelines shall be considered when selecting an uncertainty factor:

a. Use an uncertainty factor of 10 when extrapolating from valid experimental results from studies on prolonged ingestion by humans. This 10−fold factor protects sensitive members of the human population.

b. Use an uncertainty factor of 100 when extrapolating from valid results of long−term feeding studies on experimental animals with results of studies of human ingestion not available or insufficient (e.g., acute exposure only). This represents an additional 10−fold uncertainty factor in extrapolating data from the average animal to the average human.

c. Use an uncertainty factor of 1000 when extrapolating from less than chronic results on experimental animals with no useful long−term or acute human data. This represents an additional 10−fold uncertainty factor in extrapolating from less than chronic to chronic exposures.

d. Use an additional uncertainty factor of between 1 and 10 depending on the severity of the adverse effect when deriving an acceptable daily exposure from a lowest observable adverse effect level (LOAEL). This uncertainty factor reduces the LOAEL into the range of a no observable adverse effect level (NOAEL).

e. Use an additional uncertainty factor of 10 when deriving an acceptable daily exposure for a substance which the U.S. environmental protection agency classifies as a "group C" carcinogen, but which is not defined as a carcinogen in s. NR 105.03 (13).

2. Results from studies of humans or mammalian test species used to derive acceptable daily exposures shall have units of milligrams of toxicant per kilogram of body weight per day (mg/kg−d). When converting study results to the required units, a water consumption of 2 liters per day (L/d) and a body weight of 70 kilograms (kg) is assumed for humans. The following examples and procedures illustrate the conversion of units:

a. Results from human studies which are expressed in milligrams of toxicant per liter of water consumed (mg/L) are converted to mg/kg−d by multiplying the results by 2 L/d and dividing by 70 kg.

b. Results from animal studies which are expressed in milligrams of toxicant per liter of water consumed (mg/L) are converted to mg/kg−d by multiplying the results by the daily average volume of water consumed by the test animals in liters per day (L/d) and dividing by the average weight of the test animals in kilograms (kg).

c. Results from animal studies which are expressed in milligrams of toxicant per kilogram of food consumed (mg/kg) are converted to mg/kg−d by multiplying the results by the average amount of food consumed daily by the test animals in kilograms per day (kg/d) and dividing by the average weight of the test animals in kilograms (kg).

d. If a study does not specify water or food consumption rates, or body weight of the test animals, standard values taken from appropriate references, such as the National Institute of Occupational Safety and Health, 1980, Registry of Toxic Effects of Chemical Substances, may be used to convert units.

e. Results from animal studies in which test animals were not exposed to the toxicant each day of the test period shall be multiplied by the ratio of days that the test animals were dosed to the total days of the test period. For the purposes of this adjustment, the test period is defined as the interval beginning with the administration of the first dose and ending with the administration of the last dose, inclusive.

3. When assessing the acceptability and quality of human or animal toxicological data from which an acceptable daily exposure can be derived, the department may use the following documents as guidance:

a. "Guidelines for Mutagenicity Risk Assessment", (51 FR 34006, September 24, 1986).

b. "Guidelines for the Health Risk Assessment of Chemical Mixtures", (51 FR 34014, September 24, 1986).

c. "Guidelines for the Health Assessment of Suspect Development Toxicants", (51 FR 34028, September 24, 1986).

d. "Guidelines for Exposure Assessment", (51 FR 34042, September 24, 1986).

e. Any other documents that the department deems reliable.

4. When the available human or animal toxicological data contains conflicting information, the department may consult with experts outside of the department for guidance in the selection of the appropriate data.

(c) Using sound scientific judgment, the department shall select an acceptable daily exposure as derived in pars. (a) and (b) for calculation of the human threshold criterion. When selecting an acceptable daily exposure, the department shall adhere to the following guidelines unless a more appropriate procedure is supported by credible scientific evidence:

1. Acceptable daily exposures based on human studies are given preference to those based on animal studies.

2. When deriving an acceptable daily exposure from animal studies preference is given to chronic studies involving oral routes of exposure, including gavage, over a significant portion of the animals' life span. If acceptable studies using oral exposure routes are not available, acceptable daily exposures derived from studies using alternate exposure routes, such as inhalation, may be used.

3. When 2 or more acceptable daily exposure values are available and have been derived from studies having equal preference as defined in subds. 1. and 2., the lowest acceptable daily exposure is generally selected. If the acceptable daily exposure values differ significantly, the department may consult with experts outside of the department for guidance in the selection of the more appropriate acceptable daily exposure.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; correction in (3) (b) made under s. 13.93 (2m) (b) 7., Stats., Register, September, 1995, No. 477; renum.

(2) to (4) to be (3) to (5) and am., cr. (2), r. and recr. Table 8, am. (5) (intro.), 1. (intro.), d., e., 2 (intro.) and (c) and am., Register, August, 1997, No. 500, eff. 9−1−97; CR 03−050: am. Table 8 Register February 2004 No. 578, eff. 3−1−04; CR 07−110: am. Table 8 Register November 2008 No. 635, eff. 12−1−08; **CR 09−123: am Table 8 Register July 2010 No. 655, eff. 8−1−10.**

NR 105.09 Human cancer criteria. (1) The human cancer criterion (HCC) is the maximum concentration of a substance or mixture of substances established to protect humans from an unreasonable incremental risk of cancer resulting from contact with or ingestion of surface waters of the state and from ingestion of aquatic organisms taken from surface waters of the state. Human cancer criteria are derived for those toxic substances which are carcinogens as defined in s. NR 105.03 (13).

(2) For any single carcinogen or any mixture of carcinogens the incremental cancer risk from exposure to surface waters and aquatic organisms taken from surface waters may not exceed one in 100,000. The combined cancer risk of individual carcinogens in a mixture is assumed to be additive unless an alternate model is supported by credible scientific evidence.

(3) Human cancer criteria are listed in Table 9. Criteria for the same substance may be different depending on the surface water classification, due to the lipid value of representative fish, a component of the BAF, and whether or not the water may be a source of drinking water. Further application of these criteria to protect drinking water and downstream uses in the Great Lakes system shall be according to s. NR 106.06 (1).

Table 9
Human Cancer Criteria
(ug/L unless specified otherwise[1])

		Public Water Supply		Non−Public Water Supply		
	Substance	Warm Water Sport Fish Communities	Cold Water[4] Communities	Warm Water Forage, Limited Forage, and Warm Water Sport Fish Communities	Cold Water Communities	Limited Aquatic Life
1.	Acrylonitrile	0.57	0.45	4.6	1.5	130
2.	Arsenic[2]	0.2	0.2	13.3	13.3	40
3.	*alpha−BHC	0.012	0.0037	0.013	0.0039	11
4.	*gamma−BHC (lindane)	0.052	0.018	0.064	0.019	54
5.	*BHC, technical grade	0.038	0.013	0.047	0.014	39
6.	Benzene[2]	5	5	140	45	1300
7.	Benzidine (ng/L)	1.5	1.5	81	55	300
8.	Beryllium	0.054	0.054	0.33	0.33	16
9.	Bis(2−chloroethyl) ether	0.31	0.29	7.6	3.0	64
10.	Bis(chloromethyl) ether (ng/L)	1.6	1.6	96	79	320
11.	Carbon tetrachloride	2.5	2.1	29	9.5	540
12.	*Chlordane (ng/L)	0.41	0.12	0.41	0.12	54000
13.	Chloroethene (vinyl chloride)	0.18	0.18	10	6.8	37
14.	Chloroform (trichloromethane)	55	53	1960	922	11200
15.	*4,4'−DDT (ng/L)	0.22	0.065	0.22	0.065	206000
16.	1,4−Dichlorobenzene	14	12	163	54	2940
17.	3,3'−Dichlorobenzidine	0.5	0.3	1.3	0.4	140
18.	1,3−Dichloropropene	3.4	3.4	173	108	700
19.	1,2−Dichloroethane	3.8	3.8	217	159	770
20.	Dichloromethane[2] (methylene chloride)	5	5	2700	2100	9600
21.	*Dieldrin (ng/L)	0.0091	0.0027	0.0091	0.0027	4400
22.	2,4−Dinitrotoluene	0.51	0.48	13	5.3	110
23.	1,2−Diphenylhydrazine	0.38	0.31	3.3	1.04	88
24.	Halomethanes[3]	55	53	1960	922	11200
25.	*Hexachlorobenzene (ng/L)	0.73	0.22	0.73	0.22	44000
26.	*Hexachlorobutadiene	0.59	0.19	0.69	0.2	910
27.	Hexachloroethane	7.7	2.9	11	3.3	5000
28.	N−Nitrosodiethylamine (ng/L)	2.3	2.3	150	140	460
29.	N−Nitrosodimethylamine	0.0068	0.0068	0.46	0.46	1.4
30.	N−Nitrosodi−n−butylamine	0.063	0.062	2.5	1.3	13
31.	N−Nitrosodiphenylamine	44	23	116	34	13000
32.	N−Nitrosopyrrolidine	0.17	0.17	11	11	34
33.	*Polychlorinated biphenyls (ng/L)	0.01	0.003	0.01	0.003	9100
34.	*2,3,7,8−Tetrachlorodibenzo−p−dioxin (pg/L)	0.014	0.0041	0.014	0.0041	930
35.	1,1,2,2−Tetrachloroethane	1.7	1.6	52	22	350
36.	Tetrachloroethene[2]	5.0	4.6	46	15	1300
37.	*Toxaphene (ng/L)	0.11	0.034	0.14	0.034	63600
38.	1,1,2−Trichloroethane[2]	5.0	5.0	195	87	1200
39.	Trichloroethene[2]	5	5	539	194	6400
40.	2,4,6−Trichlorophenol	29	24	300	97	6400

* Indicates substances that are BCCs.

[1] A human cancer criterion expressed in micrograms per liter (ug/L), nanograms per liter (ng/L) or picograms per liter (pg/L) can be converted to milligrams per liter (mg/L) by dividing the criterion by 1000, 1,000,000 or 1,000,000,000, respectively.

[2] For this substance the human cancer criteria for public water supply receiving water classifications equal the maximum contaminant level pursuant to s. NR 105.09 (4) (b).

[3] Human cancer criteria for halomethanes are applicable to any combination of the following chemicals: bromomethane (methyl bromide), chloromethane (methyl chloride), tribromomethane (bromoform), bromodichloromethane (dichloromethyl bromide), dichlorodifluoromethane (fluorocarbon 12) and trichlorofluoromethane (fluorocarbon 11).

[4] For BCCs, these criteria apply to all waters of the Great Lakes system.

(4) To derive human cancer criteria for substances not included in Table 9 the following methods shall be used:

(a) The human cancer criterion shall be calculated as follows:

$$HCC = \frac{RAD \times 70\ kg}{W_H + (F_H \times BAF)}$$

Where:

HCC = Human cancer criterion in milligrams per liter (mg/L).

RAD = Risk associated dose in milligrams toxicant per kilogram body weight per day (mg/kg−d) that is associated with a lifetime incremental cancer risk equal to one in 100,000 as derived in sub. (5).

70 kg = Average weight of an adult male in kilograms (kg).

W_H = Average per capita daily water consumption of 2 liters per day (L/d) for surface waters classified as public water supplies or, for other surface waters, 0.01 liters per day (L/d) for exposure through contact or ingestion of small volumes of water during swimming or during other recreational activities.

F_H = Average per capita daily consumption of sport−caught fish by Wisconsin anglers equal to 0.02 kilograms per day (kg/d).

BAF = Aquatic life bioaccumulation factor with units of liter per kilogram (L/kg) as derived in s. NR 105.10.

(b) For surface waters classified as public water supplies, if the human cancer criterion for a toxic substance as calculated in par. (a) exceeds the maximum contaminant level (MCL) for that substance as specified in ch. NR 809 or the July 8, 1987 Federal Register (52 FR 25690), the MCL shall be used as the human cancer criterion.

(5) The risk associated dose (RAD) referenced in sub. (4) represents the maximum amount of a substance which if ingested daily for a lifetime of 70 years has an incremental cancer risk equal to one case of human cancer in a population of 100,000. Methods for deriving the risk associated dose are specified in pars. (a) to (d).

(a) The department shall review available references for acceptable human and animal studies from which the risk associated dose can be derived. The department shall use sound scientific judgment when determining the acceptability of a study and may use the U.S. environmental protection agency's "Guidelines for Carcinogen Risk Assessment" (FR 51 33992, September 24, 1986) as guidance for judging acceptability. Suitable references for review include, but are not limited to, those presented in s. NR 105.04 (5).

(b) If an acceptable human epidemiologic study is available, contains usable exposure data, and indicates a carcinogenic effect, the risk associated dose shall be set equal to the lifetime average exposure which would produce an incremental cancer risk of one in 100,000 based on the exposure information from the study and assuming the excess cancer risk is proportional to the lifetime average exposure. If more than one human epidemiologic study is judged to be acceptable, the most protective risk associated dose derived from the studies is generally used to calculate the human cancer criterion. If the risk associated dose values differ significantly, the department may consult with experts outside of the department for guidance in the selection of the more appropriate value.

(c) In the absence of an acceptable human epidemiologic study, the risk associated dose shall be derived from available studies which use mammalian test species and which are judged acceptable. Methods for deriving the risk associated dose are specified in subds. 1. to 4.

1. A linear, non−threshold dose−response relationship as applied by the U.S. environmental protection agency in "Water Quality Criteria Documents; Availability" (45 FR 79318, November 28, 1980) shall be assumed unless a more appropriate dose−response relationship or extrapolation model is supported by credible scientific evidence.

Note: The linear non−threshold dose−response model used by the U.S. environmental protection agency provides an upper−bound estimate (i.e., the one−sided 95% upper confidence limit) of incremental cancer risk. The true cancer risk is unknown. While the true cancer risk is not likely to be greater than the upper bound estimate, it may be lower.

2. When a linear, non−threshold dose−response relationship is assumed, the risk associated dose shall be calculated using the following equation:

$$RAD = \frac{1}{q_1^*} \times 0.00001$$

Where:

RAD = Risk associated dose in milligrams toxicant per kilogram body weight per day (mg/kg−d).

0.00001 = Incremental risk of human cancer equal to one in 100,000.

q_1^* = Upper 95% confidence limit (one−sided) of the carcinogenic potency factor in days per milligram toxicant per kilogram body weight (d−kg/mg) as derived from the procedures referenced in subd. 1. and the guidance presented in subd. 3.

3. The department shall adhere to the following guidance for deriving carcinogenic potency factors, or corresponding values if an alternate dose−response relationship or extrapolation model is used, unless more appropriate procedures are supported by credible scientific evidence:

a. If 2 or more mammalian studies are judged acceptable, but vary in either species, strain or sex of the test animals, or in tumor type or site, the study giving the greatest carcinogenic potency factor shall be used. Studies which produce a spuriously high carcinogenic potency factor due to the use of a small number of test animals may be excluded.

b. If 2 or more mammalian studies are judged acceptable, are comparable in size and are identical in regard to species, strain and sex of the test animals and to tumor sites, the geometric mean of the carcinogenic potency factors derived from each study shall be used.

c. If in an acceptable study, tumors were induced at more than one site, the number of animals with tumors at one or more of the sites shall be used as incidence data when deriving the cancer potency factor.

d. The combination of benign and malignant tumors shall be used as incidence data when deriving the cancer potency factor.

e. Calculation of an equivalent dose between animal species and humans using a surface area conversion, and conversion of units of exposure to milligrams of toxicant per day (mg/d) shall be performed as specified by the U.S. environmental protection agency in "Water Quality Criteria Documents; Availability" (45 FR 79318, November 28, 1980).

f. If the duration of the mammalian study (D) is less than the natural life span of the test animal (LS), the carcinogenicity potency factor is multiplied by the factor (D/LS)3.

4. When available mammalian studies contain conflicting information, the department shall consult with the department of health and social services and may consult with experts outside of the department for guidance in the selection of the appropriate study.

(d) If both a human epidemiologic study and a study of mammalian test species are judged reliable but only the animal study indicates a carcinogenic effect, it is assumed that a risk of cancer to humans exists but that it is less than could have been detected in the epidemiologic study. An upper limit of cancer incidence may be calculated assuming that the true incidence is just below the level of detection in the cohort of the epidemiologic study. The department may consult with experts outside of the department for guidance in the selection of the appropriate study.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; am. table 9 and (6), Register, July, 1991, No. 427, eff. 8−1−91; correction in (4) (b) made under s. 13.93 (2m) (b) 7., Stats., Register, September, 1995, No. 477; am. (1), (3), r. and recr. Table 9, am. (4) (a), (b), (5) (intro.), (a) (b), (c) (intro.) and 2., r. (6), Register, August, 1997, No. 500, eff. 9−1−97; CR 03−050: am. Table 9 Register February 2004 No. 578, eff. 3−1−04; CR 07−110: am. Table 9 Register November 2008 No. 635, eff. 12−1−08; **CR 09−123: am. Table 9 Register July 2010 No. 655, eff. 8−1−10.**

NR 105.10 Bioaccumulation factor. (1) The bioaccumulation factor used to derive wildlife, human threshold, human cancer and taste and odor criteria or secondary values is determined from a baseline BAF using the methodology provided in Appendix B to 40 CFR part 132. 40 CFR part 132, Appendix B as stated on September 1, 1997, is incorporated by reference. BAFs shall be used to calculate criteria and secondary values for human health and wildlife. Use of a BAF greater than 1000, as determined from either of the methods referred to in sub. (2) (c) or (d) for organic substances, will result in the calculation of a secondary value. The baseline BAF is based on the concentration of freely dissolved substances in the ambient water to facilitate extrapolation from one water to another.

(2) Baseline BAFs shall be derived using one of the following 4 methods, which are listed from most preferred to least preferred.

(a) A measured baseline BAF for an organic or inorganic substance derived from a field study of acceptable quality;

(b) A predicted baseline BAF for an organic substance derived using field−measured BSAFs of acceptable quality;

(c) A predicted baseline BAF for an organic or inorganic substance derived from a BCF measured in a laboratory study of acceptable quality and a food−chain multiplier. Food−chain multipliers are provided in 40 CFR part 132, Appendix B; or

(d) A predicted baseline BAF for an organic substance derived from a K_{OW} of acceptable quality and a food−chain multiplier.

(3) REVIEW AND SELECTION OF DATA. Measured BAFs, BSAFs and BCFs shall meet the quality assurance requirements provided in 40 CFR part 132, Appendix B and shall be obtained from available sources including the following:

(a) EPA Ambient Water Quality Criteria documents issued after January 1, 1980.

(b) Published scientific literature.

(c) Reports issued by EPA or other reliable sources.

(d) Unpublished data.

(4) HUMAN HEALTH AND WILDLIFE BAFS FOR ORGANIC SUBSTANCES. (a) To calculate human health and wildlife BAFs for organic substances, the K_{OW} of the substance shall be used with a POC concentration of 0.00000004 kg/L and a DOC concentration of 0.000002 kg/L to yield the fraction freely dissolved:

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(K_{ow})}{10} + (POC)(Kow)}$$

$$= \frac{1}{1 + \frac{(0.000002\ kg/L)(K_{ow})}{10} + (0.00000004\ kg/L)(Kow)}$$

$$= \frac{1}{1 + (0.00000024\ kg/L)(K_{ow})}$$

Where:

DOC = concentration of dissolved organic carbon, kg of dissolved organic carbon/L of water.

POC = concentration of particulate organic carbon, kg of particulate organic carbon/L of water.

(b) The human health BAFs for an organic substance shall be calculated using the following equations:

For warm water communities:

Human Health BAF = [(baseline BAF)(0.013)+ 1](f_{fd})

For cold water communities:

Human Health BAF = [(baseline BAF)(0.044)+ 1](f_{fd})

Where: 0.013 and 0.044 are the fraction lipid values for warm and cold water fish and aquatic life communities, respectively, that are required to derive human health criteria and secondary values.

baseline BAF = the baseline BAF calculated according to 40 CFR part 132, Appendix B.

(c) The wildlife BAFs for an organic substance shall be calculated using the following equations:

1. For trophic level 3:
Wildlife BAF = [(baseline BAF)(0.0646)+ 1](f_{fd})

2. For trophic level 4:
Wildlife BAF = [(baseline BAF)(0.1031)+ 1](f_{fd})

Where: 0.0646 and 0.1031 are the standardized fraction lipid values for dietary consumption from trophic level 3 and 4 fish taxa, respectively, that are required to derive wildlife criteria and secondary values.

baseline BAF = the baseline BAF calculated according to 40 CFR part 132, Appendix B.

(5) HUMAN HEALTH AND WILDLIFE BAFS FOR INORGANIC SUBSTANCES. (a) *Human health.* 1. Measured BAFs and BCFs used to determine human health BAFs for inorganic substances shall be based on edible tissue (e.g., muscle) of freshwater fish. If it is demonstrated that whole−body BAFs or BCFs are similar to edible−tissue BAFs or BCFs, then these data are acceptable. BCFs and BAFs based on measurements of aquatic plants and invertebrates may not be used in the derivation of human health criteria and values.

2. If one or more field−measured baseline BAFs for an inorganic substance are available from studies conducted in the Great Lakes system with the muscle of fish, the geometric mean of the species mean baseline BAFs shall be used as the human health BAF for that substance.

3. If an acceptable measured baseline BAF is not available for an inorganic substance and one or more acceptable edible−portion BCFs are available for the substance, a predicted baseline BAF shall be calculated by multiplying the geometric mean of the BCFs times a FCM. The FCM will be 1.0 unless chemical−specific biomagnification data support using a multiplier other than 1.0. The predicted baseline BAF shall be used as the human health BAF for that substance.

(b) *Wildlife.* 1. Measured BAFs and BCFs used to determine wildlife BAFs for inorganic substances shall be based on whole−body freshwater fish and invertebrate data. If it is demonstrated that edible−tissue BAFs or BCFs are similar to whole−body BAFs or BCFs, then these data are acceptable.

2. If one or more field−measured baseline BAFs for an inorganic substance is available from studies conducted in the Great Lakes system with whole body of fish or invertebrates, then the following apply:

a. For each trophic level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than one measured BAF is available for a given species.

b. For each trophic level, the geometric mean of the species mean measured baseline BAFs shall be used as the wildlife BAF for that substance.

3. If an acceptable measured baseline BAF is not available for an inorganic substance and one or more acceptable whole−body BCFs are available for the substance, a predicted baseline BAF shall be calculated by multiplying the geometric mean of the BCFs times a FCM. The FCM shall be 1.0 unless chemical−specific biomagnification data support using a multiplier other than 1.0. The predicted baseline BAF shall be used as the wildlife BAF for that substance.

Note: Copies of 40 CFR Part 132, Appendix B are available for inspection in the offices of the department of natural resources, secretary of state and the legislative reference bureau, Madison, WI or may be purchased from the superintendent of documents, US government printing office, Washington, D.C. 20402.

History: Cr. Register, February, 1989, No. 398, eff. 3−1−89; r. and recr., Register, August, 1997, No. 500, eff. 9−1−97.

NR 105.11 Final plant values. (1) A Final Plant Value (FPV) is the lowest plant value that was obtained with an important aquatic plant species in an acceptable toxicity test for which the concentrations of the test substance were measured and the adverse effect was biologically important. Appropriate measures of the toxicity of the substance to aquatic plants are used to compare the relative sensitivities of aquatic plants and animals.

(2) A plant value is the result of a 96−hour test conducted with an algae or a chronic test conducted with an aquatic vascular plant. A test of the toxicity of a metal to a plant may not be used if the medium contained an excessive amount of a complexing agent, such as EDTA, that might affect the toxicity of the metal. Concentrations of EDTA above 200 μg/L should be considered excessive.

(3) The FPV shall be established by selecting the lowest result from a test with an important aquatic plant species in which the concentrations of test material are measured and the endpoint is biologically important.

Note: Although procedures for conducting and interpreting the results of toxicity tests with plants are not well advanced, results of tests with plants usually indicate that criteria which adequately protect aquatic animals and their uses will, in most cases, also protect aquatic plants and their uses.

History: Cr. Register, August, 1997, No. 500, eff. 9−1−97.

APPENDIX K – Acute & Chronic Water Quality Standards Calculations

NEW Water
2021 Local Limits Evaluation

Acute Chronic Water Quality Standard Calculations

Acute Formula ATC = $e^{(V*\ln(hardness) + \ln ACI)}$

Chronic Formula CTC = $e^{(V*\ln(hardness) + \ln CCI)}$

Hardness = 195
from 9/18/2019 WQBEL

Based on NR 105.05 & 105.06 (July 2010 version) - Warm water sport fish community, non-public water supply

Pollutant					
Cadmium					
	ATC=col D	exp[V*ln(H)+lnACI]	V	ln(H)	ln ACI
ug/l	22.2		1.147	5.273	-2.9493
mg/l	**0.0222**	22.2			
	CTC=col D	exp[V*ln(H)+lnCCI)	V	ln(H)	ln CCI
ug/l	4.16		0.7852	5.273	-2.715
mg/l	**0.00416**	4.16			
Cr +3					
	ATC=col D	exp[V*ln(H)+lnACI]	V	ln(H)	ln ACI
ug/l	3116		0.819	5.273	3.7256
mg/l	**3.116**	3116			
	CS=col D	exp[V*ln(H)+lnCCI)	V	ln(H)	ln CCI
ug/l	228		0.819	5.273	1.112
mg/l	**0.228**	228			
Copper					
	ATC=col D	exp[V*ln(H)+lnACI]	V	ln(H)	ln ACI
ug/l	29.1		0.9436	5.273	-1.6036
mg/l	**0.0291**	29.1			
	CS=col D	exp[V*ln(H)+lnCCI)	V	ln(H)	ln CCI
ug/l	18.3		0.8557	5.273	-1.6036
mg/l	**0.0183**	18.3			
Lead					
	ATC=col D	exp[V*ln(H)+lnACI]	V	ln(H)	ln ACI
ug/l	204		0.9662	5.273	0.2226
mg/l	**0.204**	204			
	CS=col D	exp[V*ln(H)+lnCCI)	V	ln(H)	ln CCI
ug/l	53.4		0.9662	5.273	-1.1171
mg/l	**0.0534**	53.4			
Nickel					
	ATC=col D	exp[V*ln(H)+lnACI]	V	ln(H)	ln ACI
ug/l	825		0.846	5.273	2.255
mg/l	**0.825**	825			
	CS=col D	exp[V*ln(H)+lnCCI)	V	ln(H)	ln CCI
ug/l	92		0.846	5.273	0.059
mg/l	**0.092**	92			
Zinc					
	ATC=col D	exp[V*ln(H)+lnACI]	V	ln(H)	ln ACI
ug/l	216		0.8745	5.273	0.7634
mg/l	**0.216**	216			
	CS=col D	exp[V*ln(H)+lnCCI)	V	ln(H)	ln CCI
ug/l	216		0.8745	5.273	0.7634
mg/l	**0.216**	216			

NEW Water
2021 Local Limits Evaluation

Acute Chronic Water Quality Standard Calculations

Arsenic	
	ATC
ug/l	339.8
mg/l	**0.3398**
	CTC
ug/l	152.2
mg/l	**0.1522**
Chromium +6	
	ATC
ug/l	16.02
mg/l	**0.01602**
	CTC
ug/l	10.98
mg/l	**0.01098**
Cyanide	
	ATC
ug/l	45.8
mg/l	**0.0458**
	CTC
ug/l	11.47
mg/l	**0.01147**
Mercury	
	ATC
ug/l	0.83
mg/l	**0.00083**
	CTC
ug/l	0.44
mg/l	**0.00044**
Selenium	
	CTC
ug/l	5
mg/l	**0.005**

APPENDIX L – NEW Water 2019 Sewage Sludge Incinerator Report – Air Emission Reporting Estimate

40 CFR Part 503 AIR EMISSION REPORTING ESTIMATE
2019
Fluid Bed Incinerator

2019 Dry Tons	=	8,652	(English)
2019 Dry Tons	=	7,847	(Metric)
2019 Burn Days	=	211.3	
2019 Dry Solids	=	37.7 %	

(DF) Dispersion Factor = 0.36 (ug/m3)/(g/s) @10,385 #/hr wet
(CE) Control Efficiency (%) Beryllium = 2018 Stack Test @ 3,900 #/hr dry
(CE) (%) As, Cr, Ni = 2011 and 2012 Stack Test (Multiple hearth incinerators) @ 2,211 #/hr dry
(CE) (%) Cd, Pb, Hg = 2018 Stack Test @3,900 #/hr dry
(SF) Sludge Feed Rate = Metric tons (dry) / Burn days
37.14 M.T./Day
3,412 lbs/hour dry solids
9,051 lbs/hour wet @37.7% D.S.

Parameter	Sewage Sludge Pollutant Limit (mg/Kg) Avg Value	Max Value	503 Calc Value	(DF)	(CE)	(SF)	(RSC/NAAQS)	
Arsenic	2.8	3.5	11,433	0.36	98.70	37.14	0.023	
Beryllium (1)	0.02	0.03	1346.3	0.36	99.98	37.14	10	
Cadmium	0.6	0.8	920,877	0.36	99.96	37.14	0.057	(3)
Chromium	90.8	122.0	413,587	0.36	99.90	37.14	0.064	
Lead	12.1	14.4	3,231,149	0.36	99.97	37.14	1.50	
Mercury (2a)	0.359	0.502	30,773	0.36	99.72	37.14	3200	(4)
Mercury -GAC (2b)	0.376	0.413	287,213	0.36	25.55	37.14	3200	
Nickel	108	144	32,311,487	0.36	99.96	37.14	2.000	(5)

(1) Beryllium emission rate from 3 stack test runs - 2018
(2a) Mercury emission rate from stack 10/17/18. All pollution control equipment operating. Applies to emissions January-October 2019.
(2b) Mercury emission rate from stack 12/12/2019. All pollution control equipment except GAC operating due to malfunction. Applies to emissions November-December 2019.
(3) NESHAP = < 10 grams / 24 hrs. (40 CFR Part 61, subpart C)
(4) NAAQS = 1.5 ug/m3 , 503 limit is 10 % of NAAQS (.15 ug/m3) (1978 NAAQS standard in effect until 1 year after area designation.)
(5) NESHAP = < 3200 grams / 24 hrs (40 CFR Part 61, subpart E)
RSC = Risk Specific Concentration
NAAQS = National Ambient Air Quality Standard

APPENDIX M – Incinerator Air Emission Calculations

NEW Water
2020 Local Limits Evaluation

Incinerator Air Emissions Evaluation

From NEW Water 2019 - 503 Air Emission Report (Fluid Bed Incinerator)								Allowable Headworks Loading Calculations				
Pollutant	DF (ug/m^3)	CE (%)	SF (tons/day)	RSC (ug/m^3)	NAAQS (ug/m^3)	NESHAP (grams/day)	$C_{(slgstd)}$ (mg/kg)	PS (%)	Q_{sldg} (mgd)	G_{sldg} (kg/L)	R_{POTW}	AHL (lbs/day)
Arsenic	0.36	98.7	37.14	0.023	---	---	11,433	37.7	0.0183	1	0.23	2,847
Beryllium	0.36	99.98	37.14	---	---	10	1,346	37.7	0.0183	1	0.17	446.7
Cadmium	0.36	99.96	37.14	0.057	---	---	920,840	37.7	0.0183	1	0.46	115,122
Chromium	0.36	99.9	37.14	0.23	---	---	1,486,268	37.7	0.0183	1	0.87	98,329
Lead	0.36	99.97	37.14	---	1.5	---	3,231,018	37.7	0.0183	1	0.83	223,868
Mercury	0.36	99.72	37.14	---	---	3200	30,772	37.7	0.0183	1	0.80	2,224
Nickel	0.36	99.96	37.14	2	---	---	32,310,178	37.7	0.0183	1	0.17	10,753,923

DF = Dispersion Factor
CE = Control Efficiency
SF = Sludge Feed Rate
RSC = Risk Specific Concentration
NAAQS = National Ambient Air Quality Standard
NESHAP = National Emissions Standards for Hazardous Air Pollutants
C(slgstd) = Daily conc of applicable metal in sewage sludge. Per USEPA Local Limits Manual use this value to determine AHL.

PS = Percent Solids
Q_{sldg} = Sludge Flow to Disposal
G_{sldg} = Specific Gravity of Sludge
R_{POTW} = POTW Removal Rate of Pollutant, as decimal
AHL = Allowable Headworks Loading used in Table 6A

AHL is Equation 5.9 from 2004 EPA Local Limits Guidance Manual
AHL_{SLDG}= $((8.34)(C_{slgstd})(PS/100)(Q_{sldg})(G_{sldg})/R_{POTW}$

APPENDIX N – Incinerator Sludge Flow Data

NEW Water
2020 Local Limits Evaluation

SLUDGE FLOW TO INCINERATOR

Month-Year	Total Gallons	GPD	MGD
Jun-18	139,156	13,916	0.0139
Jul-18	186,177	16,925	0.0169
Aug-18	189,156	14,550	0.0146
Sep-18	546,168	21,847	0.0218
Oct-18	751,422	24,239	0.0242
Nov-18	279,146	14,692	0.0147
Dec-18	595,527	19,211	0.0192
Jan-19	503,219	16,233	0.0162
Feb-19	460,664	17,718	0.0177
Mar-19	466,820	17,955	0.0180
Apr-19	449,215	16,043	0.0160
May-19	561,080	19,348	0.0193
Jun-19	510,029	19,617	0.0196
Jul-19	463,401	17,823	0.0178
Aug-19	258,715	18,480	0.0185
Sep-19	583,796	20,131	0.0201
Oct-19	390,952	20,576	0.0206
Nov-19	152,603	19,075	0.0191
Dec-19	258,914	18,494	0.0185
Jan-20	227,550	16,254	0.0163
Feb-20	361,573	20,087	0.0201
Mar-20	490,655	17,523	0.0175
Apr-20	488,224	17,437	0.0174
May-20	474,695	16,953	0.0170
Jun-20	523,943	19,405	0.0194
Jul-20	523,976	17,466	0.0175
Aug-20	460,554	18,422	0.0184
Sep-20	326,781	18,155	0.0182
Oct-20	515,817	16,639	0.0166
Nov-20	491,293	17,546	0.0175
Dec-20	486,461	16,215	0.0162
Jan-21	565,046	19,484	0.0195
Feb-21	389,226	16,923	0.0169
Mar-21	623,434	20,781	0.0208
Apr-21	589,130	20,315	0.0203
May-21	603,965	20,132	0.0201
Jun-21	543,634	20,135	0.0201
	TOTAL	**18,290**	**0.0183**

APPENDIX O – Industrial User Flow Allocation

O-1: Green Bay Facility

O-2: De Pere Facility

NEW Water
2020 Local Limits Evaluation

Green Bay Facility
Industrial User Flow Allocation

IU Pollutant Flow (MGD)					
Pollutant	WWTP Influent Average (mg/l)	Percentage (%)	Unpermitted IU Flow (mgd)	Permitted IU Flow (mgd)	**IU Pollutant Flow (MGD) (Qind)**
Arsenic	0.002954	1%	0.324	0.000	**0.324**
Beryllium	0.000037	1%	0.324	0.000	**0.324**
Cadmium	0.00054	1%	0.324	0.060	**0.384**
Chromium	0.00454	1%	0.324	2.469	**2.793**
Hex. Chrom.	0.002	1%	0.324	0.000	**0.324**
Copper	0.100	1%	0.324	2.172	**2.496**
Cyanide	0.007	1%	0.324	0.001	**0.325**
Lead	0.00327	1%	0.324	0.156	**0.480**
Manganese	0.0798	1%	0.324	0.000	**0.324**
Mercury	0.000058	1%	0.324	0.001	**0.325**
Molybdenum	0.0092	1%	0.324	0.000	**0.324**
Nickel	0.0134	1%	0.324	3.867	**4.191**
Phosphorus	4.36	2%	0.647	2.962	**3.609**
Selenium	0.004675	1%	0.324	0.000	**0.324**
Silver	0.000206	1%	0.324	0.031	**0.355**
Zinc	0.100	1%	0.324	3.407	**3.731**

Criteria: *1% for all pollutants except Phosphorus*
2% for Phosphorus due to potential sources from industrial and commercial

2017-2020 Average WWTP Influent Flow = 32.361 MGD

	Average MGD Usage Based on Lab Reports											
Pollutant	American Metal Finishing	Badger Sheet Metal Works SP1	Badger Sheet Metal Works SP2	Bay Valley Foods	Cintas	EH Wolf & Sons	Georgia Pacific - Landfill	Green Bay Beef - Acme	Green Bay Beef - East River	Green Bay Beef - Northland	Green Bay Packaging - Shipping Div	Green Bay Packaging - Milling Div
Arsenic	---	---	---	---	---	---	---	---	---	---	---	---
Beryllium	---	---	---	---	---	---	---	---	---	---	---	---
Cadmium	---	---	---	---	0.050	---	---	---	---	---	---	---
Chromium	0.010	0.0004	0.0003	0.467	0.050	---	---	---	---	0.057	0.012	0.364
Hex. Chrom.	---	---	---	---	---	---	---	---	---	---	---	---
Copper	0.010	0.0004	---	---	0.050	---	---	0.618	0.041	---	0.012	---
Cyanide	---	---	---	---	---	---	---	---	---	---	---	---
Lead	---	---	---	---	0.050	---	---	---	---	---	0.012	---
Manganese	---	---	---	---	---	---	---	---	---	---	---	---
Mercury	---	---	---	---	---	---	---	---	---	---	---	---
Molybdenum	---	---	---	---	---	---	---	---	---	---	---	---
Nickel	0.010	0.0004	0.0003	0.467	0.050	---	0.328	0.618	0.041	0.057	0.012	0.364
Phosphorus	---	0.0004	---	0.467	---	---	---	0.618	---	0.057	0.012	0.364
Selenium	---	---	---	---	---	---	---	---	---	---	---	---
Silver	---	---	---	---	---	---	---	---	---	---	---	---
Zinc	0.010	0.0004	---	0.467	0.050	0.002	---	0.618	0.041	0.057	0.012	0.364

NEW Water
2020 Local Limits Evaluation

Green Bay Facility
Industrial User Flow Allocation

Pollutant	Average MGD Usage Based on Lab Reports										
	Industrial Engraving	JBS Green Bay	KI	Klemm Tank Lines	Medalcraft Mint	Microstar Logistics	Nouryon - Howard Silica	Packerland Whey	PCMC Northern Engraving SP1	PCMC Northern Engraving SP2	PCMC - Ashland Ave
Arsenic	---	---	---	---	---	---	---	---	---	---	---
Beryllium	---	---	---	---	---	---	---	---	---	---	---
Cadmium	---	---	---	0.002	0.003	---	---	---	---	---	---
Chromium	---	1.306	0.027	0.002	0.003	0.060	---	---	0.0004	---	---
Hex. Chrom.	---	---	---	---	---	---	---	---	---	---	---
Copper	---	1.306	---	0.002	0.003	0.060	---	---	0.0004	0.0009	0.001
Cyanide	---	---	---	---	---	---	0.001	---	---	---	---
Lead	---	---	0.027	---	---	0.060	0.001	---	---	---	---
Manganese	---	---	---	---	---	---	---	---	---	---	---
Mercury	---	---	---	---	---	---	---	---	---	---	---
Molybdenum	---	---	---	---	---	---	---	---	---	---	---
Nickel	0.0004	1.306	0.027	0.002	0.003	0.060	---	---	0.0004	0.0009	0.001
Phosphorus	---	1.306	0.027	---	---	0.060	---	---	---	---	---
Selenium	---	---	---	---	---	---	---	---	---	---	---
Silver	---	---	0.027	---	0.003	---	---	---	---	---	0.001
Zinc	---	1.306	0.027	0.002	0.003	---	0.001	---	0.0004	0.0009	0.001

Pollutant	Average MGD Usage Based on Lab Reports										
	ProActive Solutions SP1	ProActive Solutions SP2	Procter & Gamble SP1	Procter & Gamble SP2	R-Tek Coatings	Sanimax USA	Schreiber Foods	Schwabe North America	Tosca Ltd	Ultra Plating	Valley Plating & Fabrication
Arsenic	---	---	---	---	---	---	---	---	---	---	---
Beryllium	---	---	---	---	---	---	---	---	---	---	---
Cadmium	0.001	0.001	---	---	---	---	---	---	---	0.002	0.001
Chromium	0.001	0.001	---	---	---	---	0.044	0.033	0.029	0.002	0.001
Hex. Chrom.	---	---	---	---	---	---	---	---	---	---	---
Copper	0.001	0.001	---	---	0.001	---	---	0.033	0.029	0.002	---
Cyanide	---	---	---	---	---	---	---	---	---	---	---
Lead	0.001	0.001	---	---	---	---	---	---	---	0.002	0.001
Manganese	---	---	---	---	---	---	---	---	---	---	---
Mercury	---	0.001	---	---	---	---	---	---	---	---	---
Molybdenum	---	---	---	---	---	---	---	---	---	---	---
Nickel	0.001	0.001	---	---	0.001	0.407	0.044	0.033	0.029	0.002	0.001
Phosphorus	0.001	0.001	---	---	0.001	---	0.044	---	---	0.002	0.001
Selenium	---	---	---	---	---	---	---	---	---	---	---
Silver	---	---	---	---	---	---	---	---	---	---	---
Zinc	0.001	0.001	---	---	0.001	0.407	---	0.033	---	---	0.001

NEW Water
2020 Local Limits Evaluation

De Pere Facility
Industrial User Flow Allocation

IU Pollutant Flow (MGD)					
Pollutant	WWTP Influent Average (mg/l)	Percentage (%)	Unpermitted IU Flow (mgd)	Permitted IU Flow (mgd)	**IU Pollut. Flow (MGD) (Qind)**
Arsenic	0.002864	1%	0.081	0.143	**0.224**
Beryllium	0.000036	1%	0.081	0.000	**0.081**
Cadmium	0.00042	1%	0.081	0.244	**0.325**
Chromium	0.0555	1%	0.081	1.503	**1.584**
Hex. Chrom.	0.011	1%	0.081	0.000	**0.081**
Copper	0.138	1%	0.081	0.636	**0.717**
Cyanide	---	1%	0.081	0.000	**0.081**
Lead	0.00148	1%	0.081	0.524	**0.605**
Manganese	0.0911	1%	0.081	0.000	**0.081**
Mercury	0.00001	1%	0.081	0.998	**1.079**
Molybdenum	0.0276	1%	0.081	0.000	**0.081**
Nickel	0.0712	1%	0.081	1.503	**1.584**
Phosphorus	5.21	2%	0.162	1.213	**1.375**
Selenium	0.004737	1%	0.081	0.000	**0.081**
Silver	0.000385	1%	0.081	0.000	**0.081**
Zinc	0.137	1%	0.081	1.363	**1.444**

Criteria: *1% for all pollutants except Phosphorus*
2% for Phosphorus due to potential at both industrial & commercial businesses

2017-2020 Average WWTP Influent Flow = 8.097 MGD

	Average MGD Usage Based on Lab Reports				
Pollutant	Ahlstrom-Munksjo	Astro Industries	Austin Staubel Airport	Bay Towel	Brown County Landfill
Arsenic	---	---	---	---	---
Beryllium	---	---	---	---	---
Cadmium	---	---	---	0.102	---
Chromium	---	0.001	---	0.102	0.020
Hex. Chrom.	---	---	---	---	---
Copper	---	0.001	---	0.102	---
Cyanide	---	---	---	---	---
Lead	---	---	---	0.102	---
Manganese	---	---	---	---	---
Mercury	---	---	---	---	---
Molybdenum	---	---	---	---	---
Nickel	---	0.001	---	0.102	0.020
Phosphorus	---	---	---	0.102	---
Selenium	---	---	---	---	---
Silver	---	---	---	---	---
Zinc	---	---	---	0.102	---

NEW Water
2020 Local Limits Evaluation

De Pere Facility
Industrial User Flow Allocation

Pollutant	Average MGD Usage Based on Lab Reports				
	Dean Dairy Fluid	Sustana Fiber	Green Bay Anodizing	Green Bay Nonwovens - Plant 1	Green Bay Nonwovens - Plant 2
Arsenic	---	---	---	---	---
Beryllium	---	---	---	---	---
Cadmium	---	---	---	---	---
Chromium	0.090	0.742	0.007	---	0.099
Hex. Chrom.	---	---	---	---	---
Copper	---	---	0.007	0.128	0.099
Cyanide	---	---	---	---	---
Lead	---	---	---	---	---
Manganese	---	---	---	---	---
Mercury	---	0.742	---	---	---
Molybdenum	---	---	---	---	---
Nickel	0.090	0.742	0.007	---	0.099
Phosphorus	0.090	0.742	---	---	---
Selenium	---	---	---	---	---
Silver	---	---	---	---	---
Zinc	0.090	0.742	0.007	---	---

Pollutant	Average MGD Usage Based on Lab Reports				
	Green Bay Packaging	Infinity Machine & Engineering	Pioneer Metal SP1	Pioneer Metal SP2	RR Donnelley - Broadway
Arsenic	---	---	---	---	---
Beryllium	---	---	---	---	---
Cadmium	---	---	---	---	---
Chromium	0.019	0.0003	0.256	---	0.007
Hex. Chrom.	---	---	---	---	---
Copper	0.019	0.0003	0.256	---	0.007
Cyanide	---	---	---	---	---
Lead	---	---	0.256	---	0.007
Manganese	---	---	---	---	---
Mercury	---	---	0.256	---	---
Molybdenum	---	---	---	---	---
Nickel	0.019	0.0003	0.256	---	0.007
Phosphorus	---	0.0003	0.256	---	0.007
Selenium	---	---	---	---	---
Silver	---	---	---	---	---
Zinc	---	0.0003	0.256	---	0.007

NEW Water
2020 Local Limits Evaluation

De Pere Facility
Industrial User Flow Allocation

Pollutant	Average MGD Usage Based on Lab Reports				
	RR Donnelley - Scheuring Rd	US Paper Mills - Sonoco			
Arsenic	---	0.143			
Beryllium	---	---			
Cadmium	---	0.143			
Chromium	0.017	0.143			
Hex. Chrom.	---	---			
Copper	0.017	---			
Cyanide	---	---			
Lead	0.017	0.143			
Manganese	---	---			
Mercury	---	---			
Molybdenum	---	---			
Nickel	0.017	0.143			
Phosphorus	0.017	---			
Selenium	---	---			
Silver	---	---			
Zinc	0.017	0.143			

APPENDIX P – Mass Based Limit Calculations

BAXTER & WOODMAN
Consulting Engineers

NEW Water
2021 Local Limits Evaluation
De Pere Facility Mass Limits

Pollutant	Proposed Local Limit (mg/L)	Contributory IU Flow (mgd)	Number of IUs	Avg IU Flow (mgd)	Proposed Mass Local Limit (lb/day)
Arsenic	0.12	0.22	1	0.22	0.22
Beryllium	---	---	---	---	---
Cadmium	0.23	0.33	2	0.16	0.31
Chromium, Tot	3.54	1.58	12	0.13	3.90
Chromium, +6	---	---	---	---	---
Copper	2.16	0.72	9	0.08	1.44
Cyanide	---	---	---	---	---
Manganese	---	---	---	---	---
Lead	0.66	0.60	5	0.12	0.67
Mercury	0.0004	---	---	---	---
Molybdenum	---	---	---	---	---
Nickel	3.00	1.58	12	0.13	3.30
Phosphorus	---	---	---	---	---
Selenium	---	---	---	---	---
Silver	---	---	---	---	---
Zinc	1.06	1.44	8	0.18	1.60

NEW Water
2021 Local Limits Evaluation
Green Bay Facility Mass Limits

Pollutant	Proposed Local Limit (mg/L)	Contributory IU Flow (mgd)	Number of IUs	Avg IU Flow (mgd)	Proposed Mass Local Limit (lb/day)
Arsenic	0.38	0.324	0	0.32	1.03
Beryllium	---	---	---	---	---
Cadmium	0.30	0.384	7	0.05	0.14
Chromium, Tot	5.01	2.793	21	0.13	5.56
Chromium, +6	---	---	---	---	---
Copper	2.65	2.496	19	0.13	2.90
Cyanide	---	---	---	---	---
Lead	4.03	0.480	9	0.05	1.79
Manganese	---	---	---	---	---
Mercury	0.0004	---	---	---	---
Molybdenum	---	---	---	---	---
Nickel	2.56	4.191	29	0.14	3.09
Phosphorus	---	---	---	---	---
Selenium	---	---	---	---	---
Silver	---	---	---	---	---
Zinc	2.34	3.731	24	0.16	3.04
Acrylonitrile	---	---	---	---	---