Request for Approval of Proposed POTW Pretreatment Program Modifications

- Sampling Plan
  - Submission Email dated December 30, 2022
  - Submission Letter dated December 29, 2022
  - Sampling Plan dated December 30, 2022
  - Acceptance Email dated January 3, 2023
- Local Limits
  - Submission Email dated September 22, 2023, including:
    - Table of Contents
    - Cover Letter
    - Discussion
    - Workbook
    - Appendix 1 – NPDES Permit
    - Appendix 2 – NPDES Permit Fact Sheet
    - Appendix 3 – NPDES Permit Fact Sheet Addendum
    - Attachment 1 – Basic Plant Flow Diagram
    - Attachment 2 – Process Flow Diagram
    - Attachment 3 – Sampling Plan
    - Attachment 4 – BOD Loading Workbook
    - Attachment 5 – Phosphorus and TSS Loading Workbook
    - Attachment 6 – Ammonia Loading Workbook
    - Attachment 7 – TKN Loading Workbook
    - Attachment 8 – Results by Parameter Workbook
    - Attachment 9 – Sludge to Digester and Biosolids Removed Workbook
  - Review Email dated November 27, 2023
  - Submission Email dated May 28, 2024, including:
    - Discussion
    - Water Quality Management Permit Design Loads
  - Review Email dated June 3, 2024
  - Submission Email dated July 31, 2024
    - Discussion
  - Acceptance Email dated August 15, 2024
  - Adoption Email dated November 11, 2024
  - City of Lebanon Authority Resolution No. 2024-8 dated November 12, 2024

EPA_R3_Pretreatment

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: December 30, 2022 10:21 AM
To: EPA_R3_Pretreatment
Cc: Compliance; Jonathan L. Brandau; Jenny Pesante Barreto; Antoinette Issis
Subject: Lebanon Authority PA0027316 - Local Limits Sampling Plan
Attachments: Cover Letter - Lebanon PA0027316 2023 Sampling Plan.pdf; Lebanon PA0027316 Local Limits Sampling Plan - 2023.pdf

Good Day,

Attached is the Cover Letter and Local Limits Sampling Plan for the City of Lebanon Authority WWTF – PA0027316.

Please contact me if you have any questions.

Thank You,

Cora

Cora A. Shenk|Compliance Manager
City of Lebanon Authority
2311 Ridgeview Road |Lebanon, PA 17042
Phone: 717.272.2841 | Fax: 717.272.1984 | Cell: 717.269.4129
cshenk@lebanonauthority.org
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2321 Ridgeview Road
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CITY OF LEBANON AUTHORITY
Water Quality Management
Since 1935

December 29, 2022

Steve Copeland
Pretreatment Coordinator (3WP41)
USEPA
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Mr. Steve Copeland,

The NPDES Permit for the City of Lebanon Authority (CoLA) WWTP took effect on October 1, 2022. Attached is the Required Local Limits Sampling Plan which includes the following items:

A. Permits, Limits and Items Reviewed to Determine Pollutants of Concern
B. List of Pollutants and the reason for their inclusion
C. List of Pollutants, method number, sample type and minimum detection level
D. List of Pollutants not included and reason.
E. List of Sampling Locations and protocol.

Sampling will begin after we are notified of the acceptance of this plan. Please forward any questions to Cora Shenk, Compliance Manager at cshenk@lebanonauthority.org or 717-272-2841.

Respectfully submitted,

Frank DiScuillo, Jr.
Wastewater Systems Director

cc: file

2023 Sampling Plan for Local Limits Development

City of Lebanon Authority
2311 Ridgeview Road
Lebanon, PA 17042
NPDES PA0027316

The NPDES Permit for the City of Lebanon Authority (CoLA) WWTP took effect on October 1, 2022.

The Sampling Plan contains the following information:

A. Permits, Limits and Items Reviewed to Determine Pollutants of Concern
B. List of Pollutants and the reason for their inclusion
C. List of Pollutants, method number, sample type and minimum detection level
D. List of Pollutants reviewed, but not included.
E. List of Sampling Locations and Procedure.
F. Sampling Plan Checklist

Sampling will begin after CoLA is notified of the acceptance of this plan. Goal is to have sampling completed within 3 months to allow for sufficient time to retest and resample if there are any issues or questions with the data.

The Number of Sampling Days for the locations listed in E are shown below. The facility plans to use the quarterly IPP plant sampling from 2021 and 2022 plus additional sampling to make up it to the total sampling event goal. We are excluding 2020 due to the COVID caused shut-downs and abnormal conditions.

New pollutants (Boron and Dissolved Iron) will only be addressed during the new samplings. These are Monitor and report only. Dissolved Iron may be an issue due to the filter being quickly blinded.

Parameter	POTW				Background - non permitted
	Influent	Intermediate Stages (3)	Effluent	Sludges	
National POC	25-30	20-30	25-30	6	20
Site Specific POC	25-30	20-30	25-30	6	20
% Solids				6	

Please forward any questions to Cora Shenk, Compliance Manager at cshenk@lebanonauthority.org or 717-272-2841.

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

A. Permits, Limits and Items Reviewed to Determine Pollutants of Concern

1	Current Local Limits as defined by the City of Lebanon Authority Wastewater Treatment Plant Industrial Pretreatment Regulations - February 2020
2	NPDES Permit - Signed September 26, 2022; Effective Date October 1, 2022
3	Class A - Exceptional Quality Biosolids Limits
4	WQM Part II application - Facility Design Wastewater Pollutant Loadings.
5	Priority Pollutant Scan Data - Influent, Biosolids
6	NPDES Permit renewal effluent testing data (initial testing in 2021 and additional specific parameter testing at lower detection limits in 2022).

The facility does not accept oil & gas production wastewater.
Facility is not under any TMDLs or 303(d) listing.

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

B. List of Pollutants and the reason for their inclusion.

Pollutant	Reason to Include[1]
As	Standard / Current Local Limit
Cd	Standard / Current Local Limit
Cr	Standard / Current Local Limit
Cu	Standard / Current Local Limit/NPDES Permit
Cyanide	Standard / Current Local Limit
Pb	Standard / Current Local Limit
Hg	Standard / Current Local Limit
Ni	Standard / Current Local Limit
Ag	Standard / Current Local Limit
Zn	Standard / Current Local Limit/NPDES Permit monitor
Mo	Standard / Land Application Biosolids Limit
Se	Standard / Land Application Biosolids Limit
Phenols	Previous Limit
BOD	Standard / NPDES Permit/Passthrough
TSS	Standard / NPDES Permit/Passthrough
NH4	Standard / NPDES Permit/Passthrough
Phos	NPDES Permit/Chesapeake Loading
TN	NPDES Permit/Chesapeake Loading
Boron	NPDES Permit as Monitor
Dissolved Iron 2	NPDES Permit as Monitor

1. At least 1 Reason is listed for inclusion in Local Limits Development
2. Sample Prep by filterng is very hard on

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

C. List of Pollutants, Method Number, Sample Type and Detection Level

Pollutant	Method	Sample Type Grab[1]/comp	Detection Level ppm	target permit QL
As	EPA 200.8, rev 5.4	Composite	0.001	0.003
Cd	EPA 200.8, rev 5.4	Composite	0.0010	0.002
Cr	EPA 200.8, rev 5.4	Composite	0.0010	0.004
Cu	EPA 200.8, rev 5.4	Composite	0.001	0.004
Pb	EPA 200.8, rev 5.4	Composite	0.001	0.001
Hg	EPA 245.1	Composite	0.0002	0.0002
Ni	EPA 200.8, rev 5.4	Composite	0.0010	0.004
Ag	EPA 200.8, rev 5.4	Composite	0.0005	0.0004
Zn	EPA 200.8, rev 5.4	Composite	0.005	0.005
Mo	EPA 200.8, rev 5.4	Composite	0.003	0.004
Se	EPA 200.8, rev 5.4	Composite	0.001	0.004
Cyanide	Kelada-01 rev 1.2	Grab	0.002	0.01
Phenols	EPA 420.4	Grab	0.002	0.005
BOD	SM 5210B	Composite	2	
TSS	SM 2540D	Composite	2.5	
NH4	SM 4500NH3D	Composite	0.1	
Phos	EPA 365.1	Composite	0.005	0.01
TN - TKN	EPA 351.2	Composite	0.5	1
TN - Nox	EPA 353.2	Composite	0.5	0
Boron	EPA200.7, rev 4.4	Composite	0.200	0.2
Dissolved Iron	EPA 200.8, rev 5.4	Composite	0.020	0.02
pH	SM 4500H+	Grab	2-12 S.U.	

1. Grab samples for Cyanide and Phenols, will be a composite of 3 or 6 individual grabs depending on Location. (Collection System sampling will have fewer grabs.)
update: 12/28/2022

City of Lebanon Authority WWTP – PA0027316
Local Limits Development Sampling Plan
D. List of Pollutants reviewed, but not included.

A detection limit for Free Cyanide higher than the Target Quantitation Limit with the analysis of pollutants for the 2021 NPDES Permit renewal had a possible effluent limit proposed. This was resampled and analyzed at the TQL and Limit or monitoring were not included.

There were no other pollutants with above the quantitation limit that were of concern.

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

E. Sampling Locations and considerations

	Sampling Locations:		Description
1	POTW	Influent	After barscreen and detritor
2	POTW	Primary	Primary Clarifier Effluent
3	POTW	Bioreactor Influent	Convergence of Trickling Filter (Intermed Clarifier) effluent and bypassed Primary Clarifier Effluent. Primary Clarifer Effluent bypasses the Trickling Filters for the BOD to be used in the Bioreactors for denitrificiation.
4	POTW	Denitrification Filters Influent	Final Clarifier Effluent.
5	POTW	Plant Effluent	Prior to UV disinfection and Post Aeration
6	POTW	Primary Clarifier Sludge	Taken from Primary Sludge Pumps.
7	POTW	sludge to disposal	Dried Product - Class A /EQ Biosolids
8	Collection System	background / unregulated samples	Taken throughout the Collection Area - in areas that do not include the 4 permited industries.
9	Collection System	Domestic Samples	Taken thoughout the collection area - in areas that contain only domestic wastewater. Used to characterize wastestream.

Composite Samplers utilized within the POTW are refrigerated - the portable samplers that will be used in the collection system will be iced.
Samples will be preserved as required by the method.
Sampling events will occur throughout the week - with the minimum of 4 samples taken on weekends (2 on Saturday and 2 on Sunday).
Sampling events will not occur when there is POTW upset, high flows, power outage, equipment failure, Holidays or anytime that would be considered abnormal.
Sample 6 will be run for Cyanide, Phenols and NH4. Plant Removal efficiencies will be used for Metals.

Sampling Plan Checklist

	Y/N
List of Pollutants to be Evaluated	
• Standard 15 pollutants?[3]	Y
• Existing local limit pollutants?	Y
• Other pollutants listed in the NPDES permit?	Y
• Toxic pollutants listed in other disposal requirements (sludge, air, etc.)	Y
• Other pollutants identified in priority pollutant scans?	Y - none
• Other pollutants identified in an applicable TMDL or 303(d) listing?	NA
• If POTW accepts oil & gas waste, does plan address pollutants in this waste?	NA
• If no to any of the above, is appropriate justification provided?	—
Appropriate Sampling Points	
• Influent (prior to any recycle stream)?	Y
• Effluent?	Y
• Background (including unregulated commercial and industrial)?	Y
• Digester influent (for non-conservative pollutants w/inhibition criteria)?	Y
• Internal points (influent to treatment units with inhibition criteria)?	Y
• Hauled waste?	NA
Number of Samples	
• Use of existing data?	Y
• At least 20 sample events?	Y
Sample Type	
• Grab for required pollutants?[4]	Y
• 24-hour composite for all others?	Y
Analytical Methods	
• Use of EPA approved methods?	Y
• Use of most sensitive methods?	QL's

[3] Arsenic, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, zinc, BOD, TSS, and ammonia

[4] Cyanide, total phenols, volatile organics, oil & grease, sulfide, and pH

Possler, Aron

From: Possler, Aron
Sent: January 3, 2023 1:17 PM
To: Cora Shenk
Cc: Compliance; Jonathan L. Brandau; Jenny Pesante Barreto; Antoinette Issis; Sanchez Gonzalez, Natalie
Subject: PA0027316 City of Lebanon Authority Pretreatment Program Sampling Plan Acceptance
Attachments: Region 3 Local Limits & Removals PA v5-4.xlsx; Spreadsheet Users Manual v5-4.docx

Categories: EZ Record - Shared

Good afternoon Cora, and Happy New Year!

Thank you for submitting the Pretreatment Program Local Limits Sampling Plan on behalf of the **City of Lebanon Authority ("Authority")**. I have completed review of the Authority's sampling plan, which was submitted in accordance with § C.II(E) of the POTW's NPDES permit (issued September 26, 2022) and dated **December 30, 2022**. Based on this review, the proposed sampling plan is considered acceptable. Section C.II(E) of the POTW's NPDES permits indicate that the "permittee shall submit to EPA a reevaluation of its local limits based on a headworks analysis of its treatment plant within one (1) year of permit issuance". For your reference, find attached the EPA Region 3 Local Limits Spreadsheet and Spreadsheet User's Manual recommended to be used for the local limits reevaluation.

Additionally, please note that the Pretreatment Team is no longer assigning cases to specific team members—Steve Copeland has retired several years ago. Further, EPA Region 3's mailing address has changed since May 2, 2022, which is found below. Please ensure future correspondence are updated to reflect our new address.

Attn: U.S. EPA Region 3 Pretreatment [3WD41]
Four Penn Center
1600 John F Kennedy Blvd
Philadelphia, PA 19103-2852

If you have any questions or comments regarding this matter, please contact me or any member of the EPA Region 3 Pretreatment Team.

Thank you.

Aron Possler (*he/him*)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: December 30, 2022 10:21 AM
To: EPA_R3_Pretreatment <EPA_R3_Pretreatment@epa.gov>
Cc: Compliance <Compliance@lebanonauthority.org>; Jonathan L. Brandau <JBrandau@lebanonauthority.org>; Jenny Pesante Barreto <JPesanteBarreto@lebanonauthority.org>; Antoinette Issis <AIssis@lebanonauthority.org>
Subject: Lebanon Authority PA0027316 - Local Limits Sampling Plan

Good Day,

Attached is the Cover Letter and Local Limits Sampling Plan for the City of Lebanon Authority WWTF – PA0027316.

Please contact me if you have any questions.

Thank You,

Cora

Cora A. Shenk|Compliance Manager
City of Lebanon Authority
2311 Ridgeview Road |Lebanon, PA 17042
Phone: 717.272.2841 | Fax: 717.272.1984 | Cell: 717.269.4129
cshenk@lebanonauthority.org
www.lebanonauthority.org

File 1

City of Lebanon Authority Local Limits

Contents of e-folder

NPDES - PA0027316

Submitted; 9/22/2023

Section	Title	Click Hyperlink
	Contents of e-folder	This document
	Cover Letter	2- Cover Letter.pdf
	Discussion	3 - Discussion 2023.docx
	Region 3 Local Limits removals PA 5-3	4 - Region 3 Local Limits & Removals PA v5-4.xlsx
	Attachments & Supporting Documents	
Appendix 1	NPDES Permit - current	App 1_NPDES Permt - PA0027316_NPDES_PERMIT_20220512_Final_v1.pdf
Appendix 2	NPDES Fact Sheet Draft, 48 pages	App 2 Fact Sheet Draft 1PA0027316_FACT_SHEET_20220424_Draft_v1.pdf
Appendix 3	NPDES Fact Sheet Final Addendum, 2 pages	App 3 Fact Sheet Final Addendum PA0027316_FACT_SHEET_20220915_Final.pdf
Attachment 1	Flow Diagram - Plant Basic	Attach 1 - Flow Diagram - Plant Basic 2023.pdf
Attachment 2	Flow Diagram - Process	Attach 2 - Flow Diagram - Process 2023.pdf
Attachment 3	Sampling Plan	Attach 3 Local Limits Sampling Plan - 2023.pdf
Attachment 4	BOD Loading Calculations	Attach 4 - BOD Loading Calculations 2023.xlsx
Attachment 5	Phosphorus and TSS Loading	Attach 5- Phosphorus and TSS loading 2023.xlsx
Attachment 6	Ammonia Loading	Attach 6 Ammonia Loading 2023.xlsx
Attachment 7	TKN - TN Loading Worksheet	Attach 7 - TKN loading calculations 2023 (Recovered).xlsx
Attachment 8	Results by Parameter	Attach 8 Results By Parameter.xlsx
Attachment 9	Sludge to Digester & Biosolids/day	Attach 9 Sludge to Digester & Biosolids Removed 2023.xlsx

CITY OF LEBANON AUTHORITY
Wastewater Treatment Plant
2321 Ridgeview Road
Lebanon, PA 17042
717-272-2841
717-272-1984 Fax

CITY OF LEBANON AUTHORITY
Water Quality Management
Since 1935

September 18, 2023

Attn: U.S. EPA Region 3 Pretreatment [3WD41]
Four Penn Center
1600 John F Kennedy Blvd
Philadelphia, PA 19103-2852

Greetings,

Accompanying is the Headworks Loading Analysis submitted as a requirement of our present NPDES Permit for your review.

If you require any additional information or explanation please contact Cora Shenk, Compliance Manager at 717-272-2841 or cshenk@lebanonauthority.org.

Respectfully submitted,

Frank DiScuillo, Jr.
Wastewater Systems Director

cc: file

City of Lebanon Authority Wastewater Treatment Facility
Local Limits Calculation

NPDES: PA0027316
2311 Ridgeview Road
Lebanon, PA 17042

Discussion

I. Introduction

This calculation of Local Limits, were completed as required by the New NPDES Permit for PA0027316, City of Lebanon Authority WWTP, which took effect on October 1, 2022. A copy of the NPDES Permit is included as Appendix 1 and the NPDES Fact Sheet is included as Appendix 2.

The EPA supplied worksheet – "Region 3 Local Limits Removals Pa 5-3" is used for calculations and included with this submission. The document is also supplied as a PDF. Table info is reviewed at the end of the discussion.

II. POTW Information & Data Handling

The City of Lebanon Authority (CoLA) WWTP was originally built in the early 1960's. The WWTP is rated for 8 MGD, currently treating 5.2495 MGD (average 1/1/2023 to 08/30/23. Effluent discharges into the Quittapahilla Creek, immediately upstream of the confluence with the Snitz Creek. The facility receives wastewater from the following townships and boroughs:

1. City of Lebanon
2. Cleona Borough
3. West Lebanon Township
4. Heidelburg Township
5. Swatara Township
6. North Lebanon Township
7. South Lebanon Township
8. South Annville Township
9. North Cornwall Township
10. West Cornwall Township

Only the City of Lebanon collection system is owned and maintained by the City of Lebanon Authority. Each Borough or Township takes responsibility for their own system.

A construction project is planned to begin in 2024 which is to include:

1. New Headworks building and grit removal system. The Headworks is a newer version of the one in current use, however the grit removal system is replacing a plant original system which is expected to perform much better.
2. Centrate/Bleed off storage tank to allow for a slower release of the liquids into plant to spread out the current loads over time. There is no change in the quantity of return, just giving the plant more time to treat.
3. Addition of a primary sludge pump station, which moves the pumps out of the control building basement. This should not have significant changes to the solids pumped to the digester.
4. Back-up chlorine disinfection changing from 1 ton chlorine cylinders to hypochlorite solution, for safety concerns.

The current plant process flow is shown in the attachments 1 & 2.

There are four (4) permitted Industries - all non-categorical SIU's- dairy, 2 food processors and a landfill.

Parameters to be reviewed:

The following parameters were included in the Study and calculation

Table 1: List of Pollutants, Method Number, Sample Type and Detection Level – from Sampling plan. (Attachment 3).

Pollutant	Method	Sample Type Grab[1]/comp	Detection Level ppm
As	EPA 200.8, rev 5.4	Composite	0.001
Cd	EPA 200.8, rev 5.4	Composite	0.0002
Cr	EPA 200.8, rev 5.4	Composite	0.0010
Cu	EPA 200.8, rev 5.4	Composite	0.001
Pb	EPA 200.8, rev 5.4	Composite	0.001
Hg	EPA 245.1	Composite	0.00008
Ni	EPA 200.8, rev 5.4	Composite	0.0010
Ag	EPA 200.8, rev 5.4	Composite	0.0003
Zn	EPA 200.8, rev 5.4	Composite	0.005
Mo	EPA 200.8, rev 5.4	Composite	0.003
Se	EPA 200.8, rev 5.4	Composite	0.001
Cyanide	Kelada-01 rev 1.2	Grab	0.006
Phenols	EPA 420.4	Grab	0.002
BOD	SM 5210B	Composite	2
TSS	SM 2540D	Composite	2.5
NH4	SM 4500NH3D	Composite	0.1
Phos	EPA 365.1	Composite	0.005
TN - TKN	EPA 351.2	Composite	0.5
TN - Nox	EPA 353.2	Composite	0.5
Boron	EPA200.7, rev 4.4	Composite	0.200
Dissolved Iron	EPA 200.8, rev 5.4	Composite	0.020
pH	SM 4500H+	Grab	2-12 S.U.

update: 9/18/23

Cd - detection limit lowered from 0.0010 to 0.0002 mg/l
HG - detection limit lowered from 0.0002 to 0.00008 mg/l
Ag - detection limit lowered from 0.0005 to 0.0003 mg/l

Data from 2019 and the first month of 2020 is shown in the worksheet. Starting the 2nd quarter, abnormal conditions were thought possible during the COVID shutdowns. (Metals and common pollutants)

The new NPDES permit brought several new parameters we were to monitor only (Boron, Dissolved Iron and Zinc, and included a Copper effluent limit. The corresponding data sets are limited prior tothe permit effective date in 2022/

Handling of Non-detects and Outliers

The Local Limits Worksheet developed by the EPA – using the PA version was used for calculations. The following were standard practice, except where noted.

1. Data that was more than 2 standard deviations from average were eliminated from calculations. These were marked with an x and shaded gray.
2. The Default color coding described in the worksheet was utilized on all worksheets, including those developed by CoLA.
3. The use of data points below the detection limit are described in relation to the data table for which they are used, i.e. those for Cd are described in the discussion for cadmium.

Discussion

Common Pollutants

For Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Phosphorus and Ammonia. No limits are proposed. Loading is less than 80% of design for BOD, TSS & Phosphorus. Ammonia is at 91.97% using 1.6 yearsrs of data and 90.7% using 2021, 2022 and 2023 (to date). See Table 2.

Table 2. Common Pollutants

Parameter	Design Loading lbs/day	Actual Loading lbs/day	% of Loading
BOD	22,350	16,569	74.1
TSS	17,550	10,694	60.9
Phosphorus	375	266	71.0
Ammonia	1,570	1,444	91.97

Though Ammonia loading is above 90%, the loading is very stable. The monthly daily averages consistently fall below 85% and normally average 76% of the maximum monthly average of 1870 lbs/day. These percentages are calculated in Attachment 6: Ammonia Loading Spreadsheet – 2nd page after the Description (NH3-N inf 21-23, lbs.).

Additionally, effluent Ammonia limits are based on Water Quality of the stream. From the NPDES permit fact sheet "A summer monthly average of 1.8 mg/l of NH3 and a winter limit of 3.6mg/l are necessary to protect the aquatic life from toxicity effects". This is based on a flow of 8 mgd. Seeing as our discharge to the Creek is significantly lower than our influent due to sale of reuse water to Ironwood cogeneration plant, if we adjust the influent daily loading to remove the portion that is destined to be reused our influent loading decreases to less than 70% of design.

Attachment 4: BOD Loading Calculation Spreadsheet

Attachment 5: Phosphorus and TSS Loading Spreadsheet

Attachment 6: Ammonia Loading Spreadsheet

Total Nitrogen (TKN)

The basis of design for the facility does not list a Total Nitrogen (TN) loading. It does list a Total Kjeldahl Nitrogen Loading annual average of 2,380 lbs/day – effluent Total Nitrogen includes Nitrate+Nitrite that is negligible within the influent. This loading, is based not just on the plant loading, but the loading limit is on the stream. Our flow going to the stream is on average about 68 % of total flow. The difference is plant recycle water and water sold to Ironwood cogeneration plant for cooling Water. See Table 3.

Table 3: TKN Stream Loading

	Total Influent Flow - Annual Average, MGD	Total Effluent Flow-Annual Average, MGD	Annual Average Plant Water, mgd	Annual Average Reuse Water - Ironwood, mgd		Percent of flow reused & recycled	Percent of flow to stream	Percent of Total TKN Influent Loading	Annual Percent of Total Influent loading Reaching Stream
2021	5.7351	5.8017	.2758	.9974		22%	78%	89%	0.70
2022	5.235	5.325	.3996	1.1193		29%	71%	89%	0.64
2023	5.249	5.1135	0.400	1.256		32%	68%	89%	0.62
					Average Percent of flow to stream		72%		
					Percent of Total TKN Influent Design Loading		89%		
					Percent of Total Influent Loading Reaching Stream		64%		

When the Current Percent TKN loading is multiplied the percent of the flow that actually reaches the effluent- there is a loading of 64%. No Limit is proposed. Additional proof that we are not over loaded is the annual effluent stream loadings. See Table 4. The CAP Load here is Total Nitrogen (sum of NOx and TKN).

Table 4. Percent of Capload + Offsets used for reporting Year

	CAP Load lbs/year	additional Offsets lbs/year	Total N Allowed lbs/year	TN lbs for year	Percent of CAP used
Report Year 2021	146,117	10,375	156,492	124,113	79%
Report Year 2022	146,117	10,375	156,492	82,595	53%
Report Year 2023	146,117	10,375	156,492	61,187	39%

See Attachment 7 TKN – TN Loading Worksheet.

NPDES Permit – Monitor Only Parameters

The New NPDES Permit included three new Parameters that are monitor only. One of them is already part of the Local Limits, Zinc – the other two are Dissolved Iron and Boron

Parameters of Concern and those with Previous Local Limits

For the Parameters Listed in Table 5 below, the POTW would like to adopt the calculated Limit as given in "Table 19 of the Region 3 Local Limits Removals Pa5-3.xls" or adjust them to the current levels whichever is less. Limits will be shortened to 2 decimal places where limit is greater than 0.1 mg/l. (Mercury will be 3 decimal places). Phenols will go to no decimal places.

Table 5: Standard Parameters - Using Calculated Local Limits

Parameter	Current Limit [1]	Calculated Uniform Limit	Source of Calculated Limit	Proposed Limit	Source
Arsenic	0.2118	0.1644	Sludge	0.1644	Sludge
Cadmium	0.0326	0.0706	Water Quality	0.0706	Water Quality- Chronic
Chromium	1.6385	0.8802	Water Quality	0.8802	Water Quality – Chronic
Copper	1.2792	2.4518	Inhibition	2.4518	Inhibition-Nitrification
Cyanide	0.9297	0.4716	Water Quality	0.4716	Water Quality – AHL Human Health
Lead	1.2838	1.3145	Water Quality	1.3145	Water Quality – Chronic
Mercury	0.0074	0.0057	Water Quality	0.0057	Water Quality –Human Health
Molybdenum		0.4991	Sludge	no limit	
Nickel	4.8158	4.3593	Sludge	4.3593	Sludge
Selenium		0.4085	Sludge	no limit	
Silver	1.0783	2.6307	Water Quality	2.6307	Water Quality - Acute
Zinc	4.0904	2.8049	Inhibition	2.8049	Inhibition-Nitrification
Phenols		12.094	Water Quality	no limit	

1. Blank Spaces - No current limit

Arsenic and Cadmium readings were almost all below the reporting Limit. The analyzing laboratory reviewed data – estimating levels between the Reporting Limit and the MDL. These numbers affirm for Arsenic the use of 0.0005 for the effluent (reporting limit – 0.001) and for Cadmium the use of 0.0002 mg/l for the effluent – reporting limit 0.001 mg/l. Data can be located in worksheet: Attachment 8 – Results by Parameter.

No Limit is proposed for Molybdenum, Selenium and Phenols – their maximum percent Loaded from Worksheet Table 20 is 19%, 6% and <1 % respectfully. These parameters will continue to be monitored for the plant influent and background samples.

MAHL & MAIL Review

The POTW would like to adopt the uniform concentration.

The Non-industrial Loading was 74 % or less of the MAHL. The highest being Zinc (73.8%), Mercury (64.9% and and Cyanide (50%).

Region 3 Local Limits Removals Pa 5-4

Attachment 1: Worksheet Input & Data

"Monitoring Data" & "Inhibition Removals" Sheet

Outliers more than 2 SD from the average were not included in the calculations**.**

Included 2019 and 1 2020 sample in the calculations if they were consistent with the newer results.

Surrogates were used for the following:

Arsenic – ½ the detection limit – only results above the detection limit were biosolids. The 2019 & 2020 results for all samples were not used for calculation due to high DL.

Cadmium – Almost all results below detection limit; excluded outliers – used ½ the detection limit for table. Detection Limit increased due to change in the mandated MDL method. Method was the same. The 2019 & 2020 results for all samples were not used for calculation due to high DL.

Chromium – Detection limit used as surrogate for effluent due to numbers being present were close to the DL.

Copper - No surrogates required

CN – Another one the detection limit increased due to the new MDL method. ½ detection limit used for Effluent and Inhibition page.

Pb – ½ the detection limit was used for the effluent. Detection Page used DL where it occurs.

Hg – ½ the DL was used for the effluent and Inhibition page. The detection was used for the influent as the samples detected were close to it. The higher detection limits from 2019 and 2020 were not included with the calculations.

Mo – Left the influent and effluent at the detection limit.

Ni –almost all numbers were above the DL.

Se – Left the influent, effluent and Inhibition removals at the DL

Ag – used the influent at the DL and the Effluent at ½ the DL. Inhibition left at DL

Zn – all numbers above the DL. The outliers were not removed from the influent because they were was little spread in the values.

Phenols – Used detection limit for effluent – the possible loading is very high. Still no limit.

Common Pollutants – Plant loading used to determine the need for limits.

"Limits Calculation" Sheet

Table 1: Unit Operations

Unit Operation Present: Trickling Filter, Nitrification, Anaerobic Digestion.

Table 2a: Stream Flow Partial Mix Factors

From the Permit information sheet: Q7-10 Stream Flow from - 2.9; Chronic Partial Mix Factor = 1; Acute Partial Mix Factor = 1.

Drinking Water Intake is more than 22 miles from outfall. Not considered in NPDES limit calculations.

No parameters being reviewed involve the PMFthh & PMFcrl

Table 2b: POTW and Receiving Stream Data

Qpotw- 2.6 year average – no flows eliminated

IU Flow – average 1.5 years

Sludge Flow to Digester = 2.6 year average, excluded period the dryer was Out of Service, there was more solids recycling during that time.

Sludge Flow to Disposal = 2.6 year average

Receiving Stream Hardness = Stream Analysis, no number listed on the fact sheet

Table 3: Allowable Headworks Loading Based on NPDES Effluent Limits

Cu now has a limit – included on the table

Not used for metals, CN, OH (no effluent limits)

Not used for Common Pollutants (BOD, TSS, Phos, Ammonia – plant design used)

Table 4: Allowable Headworks Loadings Based on Chronic Water Quality Standards

No additional input

Table 5: Allowable Headworks Loadings Based on Acute Water Quality Standards

No Additional input.

Table 6: Allowable Headworks Loadings Based on Human Health Water Quality Standards

No Additional input.

Table 7: Comparison of Allowable Headworks Loadings Based on Water Quality

No additional input

Table 8: Allowable Headworks Loading Based on Activated Sludge Inhibition Level

No additional – Activated Sludge Inhibition Levels added.

Table 9: Allowable Headworks Loadings Based on Trickling Filter Inhibition Level

No additional inhibition levels added.

Table 10: Allowable Headworks Loadings based on Nitrification Level

Table 11: Allowable Headworks Loadings Based on Anaerobic Digester Inhibition Level (Conservative)

There is no waste discharged directly to the digesters.

No additional Inhibition levels added to calculations

Table12: Allowable Headworks Loadings Based on Anaerobic Digester Inhibition Level (non-conservative)

No additional inhibition parameters added.

Table 13: Comparison of Allowable Headworks Loadings based on Inhibition

No additional data.

Table 14: Allowable Headworks Loadings Based on Land Application Sludge Disposal

Molybdenum added at 75 mg/kg

Selenium added at 100 mg/kg.

Table 15: Based on Incineration Sludge Disposal – NOT USED

Table 16: Comparison of Allowable Headworks Loadings Based on Sludge Disposal

No additional data.

Table 17: Comparison of Allowable Headworks Loadings

No additional data.

Table 18: Calculation of Local Limits

Safety Factor of 15 used except for Mercury and Cyanide which is 10.

Growth Allowance – no growth allowance included.

Table 19: Comparison of Existing and Calculated Local Limits

Existing Limits Entered

Proposed Limits.

Discussion in Local Limits Discussion

Table 20: Comparison of Allowable headworks Loadings and Current Influent Loadings

Table 21: Comparison of Removal Rates

Table 22: Calculations of Influent, Effluent and Sludge Goals

Table 23: Comparison of Influent, Effluent and Sludge Goals to Monitoring Data

Local Limits Calculation

Table 1 - Unit Operations (X if present)

Activated Sludge Present?	Trickling Filter Present?	Nitrification Present?	Anaerobic Digestion Present?	Sludge Incineration Present?
x	x	x	x	

Placing an "X" in the cell under a treament unit will activate the inhibition calclations for that unit or the sludge incineration calculations.

TABLE 2a - Stream Flow Partial Mix Factors

Q7-10 Stream Flow (MGD) (Q7-10)	Harmonic Mean Stream Flow (MGD) (Qhm)	Drinking Water Intake Stream Flow (MGD) (Qdw)	Chronic Partial Mix Factor (PMFc)	Acute Partial Mix Factor (PMFa)	Threshold Human Health Partial Mix Factor (PMFthh)	Cancer Risk Level Partial Mix Factor (PMFcrl)
2.9			1	1		

(Q7-10) 7-day, 10-year low flow for receiving stream in MGD (user entered).
(Qhm) Harmonic mean flow for receiving stream in MGD (user entered).
(Qdw) Flow for receiving stream at nearest downstream drinking water intake (user entered).
(PMFa) Partial mix factor for acute water quality standards (user entered).
(PMFc) Partial mix factor for chronic water quality standards (user entered).
(PMFthh) Partial mix factor for threshold human health water quality standards (user entered).
(PMFcrl) Partial mix factor for cancer risk level water quality standards (user entered).

TABLE 2b - POTW and Receiving Stream Data

POTW Flow (MGD) (Qpotw)	IU Flow (MGD) (Qind)	Sludge Flow to Digester (MGD) (Qdig)	Sludge Flow to Disposal (MTD) (Qsldg)	Stream Flow for Chronic WQS (MGD) (Qstr1)	Stream Flow for Acute WQS (MGD) (Qstr2)	Stream Flow for Threshold Human Health WQS (MGD) (Qstr3)	Stream Flow for Carcinogen Human Health WQS (MGD) (Qstr4)	Receiving Stream Hardness (mg/l) (H)	Hauled Waste Flow to Influent (MGD) (Qhwi)	Hauled Waste Flow to Sludge Processing (MGD) (Qhws)	Sludge Flow to Incineration (MTD) (Qinc)
5.46	0.161	0.594	2.801	2.90	2.90	2.90	18.84	249	0	0	0

(Qpotw) POTW's average flow in MGD (user entered).
(Qind) Average discharge flow of Industrial Users to be regulated through the local limits in MGD (user entered).
(Qdig) Average sludge flow to digester in MGD (user entered).
(Qsldg) Average sludge flow to disposal in dry metric tons per day (user entered).
(Qstr1) Receiving stream (upstream) flow used with chronic water quality standards in MGD (calculated).
Qstr1 = Q7-10 * PMFc (data from Table 2(a), cells B17 and E17); if cell E17 is blank, PMFc assumed to be 1.
(Qstr2) Receiving stream (upstream) flow used with acute water quality standards in MGD (calculated).
Qstr2 = Q7-10 * PMFa (data from Table 2(a), cells B17 and F17); if cell F17 is blank, PMFa assumed to be 1.
(Qstr3) Receiving stream (upstream) flow used with threshold human health water quality standards in MGD (from Table 2(a), cell B17).
(Qstr4) Receiving stream (upstream) flow used with carcinogen human health water quality standards in MGD (calculated).
Qstr4 = Qhm * PMFcrl (data from Table 2(a), cells C17 and G17); if cell G17 is blank, PMFcrl assumed to be 1; if cell C17 is blank, formula below is used:
or Qstr4 = PMFcrl * 7.43 * $(Q7\text{-}10)^{0.874}$ (data from Table 2(a), cell G17 and B17)
(H) Receiving stream hardness in mg/l (user entered).
(Qhwi) Hauled waste flow discharged at the influent of the treatment plant in MGD (user entered).
(Qhws) Hauled waste flow discharged directly to the sludge processing units in MGD (user entered).
(Qinc) Average sludge flow to incineration in dry metric tons per day (user entered).

Local Limits Calculation

TABLE 3 - Allowable Headworks Loadings Based on NPDES Effluent Limits

	LOCAL LIMITS CALCULATION DATA				MAXIMUM LOADING	
Pollutant	POTW Flow (MGD) (Qpotw)	NPDES Limit (mg/l) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLnpdes)	User Entered Removal Efficiency (%)
Arsenic	5.46		Influent/Sludge	88.45	-	
Cadmium	5.46		Default (trickling filter)	68.00	-	
Chromium	5.46		Influent/Effluent	58.43	-	
Copper	5.46		Default (activated sludge)	86.00	-	
Cyanide	5.46		Default (tertiary)	66.00	-	
Lead	5.46		Influent/Effluent	83.15	-	
Mercury	5.46		Default (tertiary)	67.00	-	
Molybdenum	5.46		Default (activated sludge)	50.00	-	
Nickel	5.46		Influent/Effluent	34.45	-	
Selenium	5.46		Default (activated sludge)	50.00	-	
Silver	5.46		Influent/Effluent	69.57	-	
Zinc	5.46		Influent/Effluent	73.58	-	
Ammonia	5.46	1.8	Influent/Effluent	99.62	21520.3089	
BOD	5.46			-	-	
TSS	5.46			-	-	
Phosphorus (T)	5.46	2	Influent/Effluent	89.00	827.8239	
Nitrogen (T)	5.46		Influent/Effluent	90.57	-	
Beryllium	5.46		Influent/Effluent	-	-	
Phenols	5.46		Influent/Effluent	95.54	-	
Boron-monitor	5.46		Influent/Effluent	10.00	-	
Dissolved Iron - monitor	5.46		Influent/Effluent	78.55	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	
	5.46		Influent/Effluent	-	-	

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	NPDES permit limit or calculated WQBEL for a particular pollutant in mg/l (user entered)
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Rpotw)	Removal efficiency across POTW as percent (Inf/Eff Removal (row 58), Inf/Sldg Removal (row 59), or Daily Removal (row 53) from 'Monitoring Data' worksheet, EPA default for specified treatment process, or user entered (column G)).
(AHLnpdes)	Allowable headworks pollutant loading to the POTW in pounds per day based on NPDES permit limits (lbs/day - calculated).
AHLnpdes =	(8.34 * Ccrit * Qpotw) / (1-Rpotw/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 4 - Allowable Headworks Loadings Based on Chronic Water Quality Standards

	LOCAL LIMITS CALCULATION DATA					MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Receiving Stream Flow (MGD) (Qstr1)	Receiving Stream Concentration (mg/l) (Cstr)	Chronic WQS (mg/l) (Ccrit)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLcwq)
Arsenic	5.46	2.90		0.15000	88.45	90.5846
Cadmium	5.46	2.90		0.00053	68.00	0.1159
Chromium	5.46	2.90		0.01	58.43	1.6773
Copper	5.46	2.90		0.02034	86.00	10.1304
Cyanide	5.46	2.90		0.00520	66.00	1.0663
Lead	5.46	2.90		0.01016	83.15	4.2041
Mercury	5.46	2.90		0.00091	67.00	0.1923
Molybdenum	5.46	2.90			50.00	-
Nickel	5.46	2.90		0.11286	34.45	12.0050
Selenium	5.46	2.90		0.005	50.00	0.6972
Silver	5.46	2.90			69.57	-
Zinc	5.46	2.90		0.25955	73.58	68.5024
Ammonia	5.46	2.90			99.62	-
BOD	5.46	2.90			-	-
TSS	5.46	2.90			-	-
Phosphorus (T)	5.46	2.90			89.00	-
Nitrogen (T)	5.46	2.90			90.57	-
Beryllium	5.46	2.90			-	-
Phenols	5.46	2.90			95.54	-
Boron-monitor	5.46	2.90			10.00	-
Dissolved Iron - monitor	5.46	2.90			78.55	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-
	5.46	2.90			-	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qstr1)	Receiving stream (upstream) flow used with chronic water quality standards in MGD (from Table 2(b), cell F35).
(Cstr)	Receiving stream background concentration in mg/l (user entered)
(Ccrit)	State chronic water quality standard for a particular pollutant in mg/l (from PADEP Chapter 98.3c Table 5 or user entered)
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(AHLcwq)	Allowable headworks pollutant loading to the POTW in pounds per day based on chronic water quality standards (lbs/day - calculated).
AHLcwq =	8.34 * (Ccrit * (Qstr1 + Qpotw) - (Cstr * Qstr1)) / (1-Rpotw/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 5 - Allowable Headworks Loadings Based on Acute Water Quality Standards

	LOCAL LIMITS CALCULATION DATA					MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Receiving Stream Flow (MGD) (Qstr2)	Receiving Stream Concentration (mg/l) (Cstr)	Acute WQS (mg/l) (Ccrit)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLawq)
Arsenic	5.46	2.90	0	0.34000	88.45	205.3251
Cadmium	5.46	2.90	0	0.00539	68.00	1.1750
Chromium	5.46	2.90	0	0.016	58.43	2.6836
Copper	5.46	2.90	0	0.03307	86.00	16.4681
Cyanide	5.46	2.90	0	0.02200	66.00	4.5114
Lead	5.46	2.90	0	0.26079	83.15	107.8855
Mercury	5.46	2.90	0	0.00165	67.00	0.3486
Molybdenum	5.46	2.90	0		50.00	-
Nickel	5.46	2.90	0	1.01512	34.45	107.9777
Selenium	5.46	2.90	0		50.00	-
Silver	5.46	2.90	0	0.01817	69.57	4.1636
Zinc	5.46	2.90	0	0.25955	73.58	68.5024
Ammonia	5.46	2.90	0		99.62	-
BOD	5.46	2.90	0		-	-
TSS	5.46	2.90	0		-	-
Phosphorus (T)	5.46	2.90	0		89.00	-
Nitrogen (T)	5.46	2.90	0		90.57	-
Beryllium	5.46	2.90	0		-	-
Phenols	5.46	2.90	0		95.54	-
Boron-monitor	5.46	2.90	0		10.00	-
Dissolved Iron - monitor	5.46	2.90	0		78.55	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-
	5.46	2.90	0		-	-

(Qpotw) POTW's average flow in MGD (from Table 2(b), cell B35).
(Qstr2) Receiving stream (upstream) flow used with acute water quality standards in MGD (from Table 2(b), cell G35).
(Cstr) Receiving stream background concentration in mg/l (from Table 4, column D).
(Ccrit) State acute water quality standard for a particular pollutant in mg/l (from PADEP Chapter 98.3c Table 5 or user entered)
(Rpotw) Removal efficiency across POTW as percent (from Table 3, column E).
(AHLawq) Allowable headworks pollutant loading to the POTW in pounds per day based on acute water quality standards (lbs/day - calculated).
AHLawq = 8.34 * (Ccrit * (Qstr2 + Qpotw) - (Cstr * Qstr2)) / (1-Rpotw/100)
8.34 Unit conversion factor

Local Limits Calculation

TABLE 6 - Allowable Headworks Loadings Based on Human Health Water Quality Standards

	LOCAL LIMITS CALCULATION DATA						MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Receiving Stream Flow (MGD) (Qstr3 Qstr4 or Qdw)	Receiving Stream Concentration (mg/l) (Cstr)	Human Health WQS (mg/l) (Ccrit)	Select Basis of Standard (from list)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLhhwq)
Arsenic	5.46	2.90	0	0.01	Threshold Human Health	88.45	6.0390
Cadmium	5.46	-	0			68.00	-
Chromium	5.46	-	0			58.43	-
Copper	5.46	-	0			86.00	-
Cyanide	5.46	2.90	0	0.004	Threshold Human Health	66.00	0.8203
Lead	5.46	-	0			83.15	-
Mercury	5.46	2.90	0	0.00005	Threshold Human Health	67.00	0.0106
Molybdenum	5.46	-	0			50.00	-
Nickel	5.46	2.90	0	0.61	Threshold Human Health	34.45	64.8851
Selenium	5.46	-	0			50.00	-
Silver	5.46	-	0			69.57	-
Zinc	5.46	-	0			73.58	-
Ammonia	5.46	-	0			99.62	-
BOD	5.46	-	0			-	-
TSS	5.46	-	0			-	-
Phosphorus (T)	5.46	-	0			89.00	-
Nitrogen (T)	5.46	-	0			90.57	-
Beryllium	5.46	-	0			-	-
Phenols	5.46	2.90	0	10.4	Threshold Human Health	95.54	16242.5303
Boron-monitor	5.46	-	0			10.00	-
Dissolved Iron - monitor	5.46	-	0			78.55	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-
	5.46	-	0			-	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qstr3)	Receiving stream (upstream) flow used with threshold human health water quality standards in MGD (from Table 2(b), cell H35).
(Qstr4)	Receiving stream (upstream) flow used with cancer risk level human health water quality standards in MGD (from Table 2(b), cell I35).
(Qdw)	Receiving stream (upstream) flow used with water quality standards based on drinking water supply in MGD (from Table 2(a), cell D17).
(Cstr)	Receiving stream background concentration in mg/l (from Table 4, column D).
(Ccrit)	State human health water quality standard for a particular pollutant in mg/l (from PADEP Chapter 98.3c Table 5 or user entered).
Select Basis of Standard	Select the basis of the standard listed in column E from drop down list. Selection of basis of the standard will determine which flow is entered in column C (Qstr3, Qstr4, or Qdw).
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(AHLhhwq)	Allowable headworks pollutant loading to the POTW in pounds per day based on human health water quality standards (lbs/day - calculated).
AHLhhwq =	8.34 * (Ccrit * (Q + Qpotw) - (Cstr * Q)) / (1-Rpotw/100); where Q is Qstr3, Qstr4, or Qdw
8.34	Unit conversion factor

Local Limits Calculation

TABLE 7 - Comparison of Allowable Headworks Loadings Based on Water Quality

Pollutant	AHL (NPDES) (lbs/day)	AHL (CHRONIC) (lbs/day)	AHL (ACUTE) (lbs/day)	AHL (HUMAN HEALTH) (lbs/day)	AHL (WATER QUALITY) (lbs/day)
Arsenic	-	90.5846	205.3251	6.0390	6.0390
Cadmium	-	0.1159	1.1750	-	0.1159
Chromium	-	1.6773	2.6836	-	1.6773
Copper	-	10.1304	16.4681	-	10.1304
Cyanide	-	1.0663	4.5114	0.8203	0.8203
Lead	-	4.2041	107.8855	-	4.2041
Mercury	-	0.1923	0.3486	0.0106	0.0106
Molybdenum	-	-	-	-	-
Nickel	-	12.0050	107.9777	64.8851	12.0050
Selenium	-	0.6972	-	-	0.6972
Silver	-	-	4.1636	-	4.1636
Zinc	-	68.5024	68.5024	-	68.5024
Ammonia	21520.3089	-	-	-	21520.3089
BOD	-	-	-	-	-
TSS	-	-	-	-	-
Phosphorus (T)	827.8239	-	-	-	827.8239
Nitrogen (T)	-	-	-	-	-
Beryllium	-	-	-	-	-
Phenols	-	-	-	16242.5303	16242.5303
Boron-monitor	-	-	-	-	-
Dissolved Iron - monitor	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
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	-	-	-	-	-

AHL (NPDES) = Allowable headworks loading based on NPDES limits, from Table 3, column F.
AHL (CHRONIC) = Allowable headworks loading based on chronic water quality criteria, from Table 4, column G.
AHL (ACUTE) = Allowable headworks loading based on acute water quality criteria, from Table 5, column G.
AHL (HUMAN HEALTH) = Allowable headworks loading based on human health water quality criteria, from Table 6, column H.
AHL (WATER QUALITY) = Allowable headworks loading based on water quality; lowest value from columns B through E for each pollutant.

Local Limits Calculation

TABLE 8 - Allowable Headworks Loadings Based on Activated Sludge Inhibition Level

	LOCAL LIMITS CALCULATIONS DATA				MAXIMUM LOADING	
Pollutant	POTW Flow (MGD) (Qpotw)	Activated Sludge Inhibition Level (mg/l) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Ras)	Allowable Headworks Loading (lbs/day) (AHLasi)	User Entered Removal Efficiency (%)
Arsenic	5.46	0.1	Removal Prior to Activated Sludge	-	-	
Cadmium	5.46	1	Default (Through Primary)	15.00	53.5722	
Chromium	5.46	1	Default (Through Primary)	27.00	62.3786	
Copper	5.46	1	Default (Through Primary)	22.00	58.3800	
Cyanide	5.46	0.1	Default (Through Primary)	27.00	6.2379	
Lead	5.46	1	Default (Through Primary)	57.00	105.8986	
Mercury	5.46	0.1	Default (Through Primary)	10.00	5.0596	
Molybdenum	5.46		Removal Prior to Activated Sludge	-	-	
Nickel	5.46	1	Default (Through Primary)	14.00	52.9493	
Selenium	5.46		Removal Prior to Activated Sludge	-	-	
Silver	5.46	0.25	Default (Through Primary)	20.00	14.2301	
Zinc	5.46	0.3	Default (Through Primary)	27.00	18.7136	
Ammonia	5.46	480	User Entered	0.00	21857.4720	
BOD	5.46		User Entered	-	-	
TSS	5.46		User Entered	-	-	
Phosphorus (T)	5.46		User Entered	-	-	
Nitrogen (T)	5.46		User Entered	-	-	
Beryllium	5.46		User Entered	-	-	
Phenols	5.46		User Entered	-	-	
Boron-monitor	5.46		User Entered	-	-	
Dissolved Iron - monitor	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	Activated sludge threshold inhibition level, mg/l (EPA default or user entered).
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Ras)	Removal efficiency prior to activated sludge treatment unit as percent (Prior to Act Sl ('Inhibition Removals' worksheet row 58), EPA default, or user entered).
(AHLasi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of activated sludge units (lbs/day - calculated).
AHLasi =	8.34 * (Ccrit * Qpotw) / (1-Rprim/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 9 - Allowable Headworks Loadings Based on Trickling Filter Inhibition Level

	LOCAL LIMITS CALCULATIONS DATA				MAXIMUM LOADING	
Pollutant	POTW Flow (MGD) (Qpotw)	Trickling Filter Inhibition Level (mg/l) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Rtf)	Allowable Headworks Loading (lbs/day) (AHLtfi)	User Entered Removal Efficiency (%)
Arsenic	5.46		User Entered	-	-	
Cadmium	5.46		Default (Through Primary)	-	-	
Chromium	5.46	3.5	Default (Through Primary)	27.00	218.3252	
Copper	5.46		Default (Through Primary)	-	-	
Cyanide	5.46	30	Default (Through Primary)	27.00	1871.3589	
Lead	5.46		Default (Through Primary)	-	-	
Mercury	5.46		Default (Through Primary)	-	-	
Molybdenum	5.46		User Entered	-	-	
Nickel	5.46		Default (Through Primary)	-	-	
Selenium	5.46		User Entered	-	-	
Silver	5.46		Default (Through Primary)	-	-	
Zinc	5.46		Default (Through Primary)	-	-	
Ammonia	5.46		User Entered	-	-	
BOD	5.46		User Entered	-	-	
TSS	5.46		User Entered	-	-	
Phosphorus (T)	5.46		User Entered	-	-	
Nitrogen (T)	5.46		User Entered	-	-	
Beryllium	5.46		User Entered	-	-	
Phenols	5.46		User Entered	-	-	
Boron-monitor	5.46		User Entered	-	-	
Dissolved Iron - monitor	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	Trickling filter threshold inhibition level, mg/l (EPA default or user entered).
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Rtf)	Removal efficiency prior to trickling filter treatment unit as percent (Prior to Trick Fil ('Inhibition Removals' worksheet row 59), EPA default, or user entered).
(AHLtfi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of trickling filter units (lbs/day - calculated).
AHLtfi =	8.34 * (Ccrit * Qpotw) / (1-Rprim/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 10 - Allowable Headworks Loadings Based on Nitrification Inhibition Level

	LOCAL LIMITS CALCULATIONS DATA				MAXIMUM LOADING	
Pollutant	POTW Flow (MGD) (Qpotw)	Nitrification Inhibition Level (mg/l) (Ccrit)	Select Removal Efficiency (from list)	Removal Efficiency (%) (Rn)	Allowable Headworks Loading (lbs/day) (AHLni)	User Entered Removal Efficiency (%)
Arsenic	5.46	1.5	Default (Through Act. Sludge)	45.00	124.1902	
Cadmium	5.46	5.2	Default (Through Trick. Fil.)	68.00	739.9665	
Chromium	5.46	0.25	Default (Through Trick. Fil.)	55.00	25.2980	
Copper	5.46	0.05	Default (Through Trick. Fil.)	61.00	5.8380	
Cyanide	5.46	0.34	Default (Through Trick. Fil.)	59.00	37.7619	
Lead	5.46	0.5	Default (Through Trick. Fil.)	55.00	50.5960	
Mercury	5.46		Default (Through Trick. Fil.)	-	-	
Molybdenum	5.46		User Entered	-	-	
Nickel	5.46	0.25	User Entered	0.00	11.3841	
Selenium	5.46		Default (Through Act. Sludge)	-	-	
Silver	5.46		Default (Through Trick. Fil.)		-	
Zinc	5.46	0.08	Default (Through Trick. Fil.)	67.00	11.0391	
Ammonia	5.46		User Entered	-	-	
BOD	5.46		User Entered	-	-	
TSS	5.46		User Entered	-	-	
Phosphorus (T)	5.46		User Entered	-	-	
Nitrogen (T)	5.46		User Entered	-	-	
Beryllium	5.46		User Entered	-	-	
Phenols	5.46		User Entered	-	-	
Boron-monitor	5.46		User Entered	-	-	
Dissolved Iron - monitor	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	
	5.46		User Entered	-	-	

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Ccrit)	Nitrification threshold inhibition level, mg/l (EPA default or user entered).
Select Removal Efficiency	Select removal efficiency for column E from drop down list.
(Rn)	Removal efficiency prior to nitrification treatment unit as percent (Prior to Nitrif ('Inhibition Removals' worksheet row 60), Prior to Act Sl (row 58), Prior to Trick Fil (row 59), EPA default, or user entered).
(AHLni)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of nitrification units (lbs/day - calculated).
AHLni =	(8.34 * Ccrit * Qpotw) / (1-Rsec/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 11 - Allowable Headworks Loadings Based on Anaerobic Digester Inhibition Level (Conservative Pollutants)

	Yes	No
Does hauled waste discharged to sludge processing units flow though digesters?		x

	LOCAL LIMITS CALCULATIONS DATA									MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Sludge Flow to Digester (MGD) (Qdig)	Anaerobic Digester Inhibition Level (mg/l) (Ccrit)	Allowable Digester Loading (lbs/day) (ALdig)	Hauled Waste to Sludge Concentration (mg/l) (Chws)	Hauled Waste to Sludge Flow (mgd) (Qhws)	Hauled Waste to Sludge Loading (lbs/day) (Lhws)	Allowable Treatment Plant Loading (lbs/day) (ALtp)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLadi)
Arsenic	5.46	0.594	1.6	7.9263	-	0	-	7.9263	88.45	8.9609
Cadmium	5.46	0.594	20	99.0792	-	0	-	99.0792	68.00	145.7047
Chromium	5.46	0.594	130	644.0148	-	0	-	644.0148	58.43	1102.1774
Copper	5.46	0.594	40	198.1584	-	0	-	198.1584	86.00	230.4167
Cyanide	5.46	0.594		-	-	0	-	-	-	-
Lead	5.46	0.594	340	1684.3464	-	0	-	1684.3464	83.15	2025.7680
Mercury	5.46	0.594		-	-	0	-	-	-	-
Molybdenum	5.46	0.594		-	-	0	-	-	-	-
Nickel	5.46	0.594	10	49.5396	-	0	-	49.5396	34.45	143.7915
Selenium	5.46	0.594		-	-	0	-	-	-	-
Silver	5.46	0.594	13	64.4015	-	0	-	64.4015	69.57	92.5771
Zinc	5.46	0.594	400	1981.5840	-	0	-	1981.5840	73.58	2692.9889
Ammonia	5.46	0.594		-	-	0	-	-	-	-
BOD	5.46	0.594		-	-	0	-	-	-	-
TSS	5.46	0.594		-	-	0	-	-	-	-
Phosphorus (T)	5.46	0.594		-	-	0	-	-	-	-
Nitrogen (T)	5.46	0.594		-	-	0	-	-	-	-
Beryllium	5.46	0.594		-	-	0	-	-	-	-
Phenols	5.46	0.594		-	-	0	-	-	-	-
Boron-monitor	5.46	0.594		-	-	0	-	-	-	-
Dissolved Iron - monitor	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-
	5.46	0.594		-	-	0	-	-	-	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qdig)	Average sludge flow to digester in MGD (from Table 2(b), cell D35).
(Ccrit)	Anaerobic digester threshold inhibition level in mg/l (EPA default or user entered).
(ALdig)	Allowable pollutant loading in the digester in pounds per day based on inhibition of anaerobic digester units (lbs/day - calculated).
ALdig =	8.34 * Ccrit * Qdig
(Chws)	Average pollutant concentration of waste hauled directly to the anaerobic digesters in mg/l (from 'Monitoring Data' worksheet, row 53).
(Qhws)	Average flow of waste hauled directly to digester in MGD (from Table 2(b), cell L35).
(Lhws)	Average pollutant loading of waste hauled directly to the anaerobic digesters in pounds per day (lbs/d - calculated).
Lhws =	8.34 * Chws * Qhws
(ALtp)	Allowable pollutant loading to the digesters from the treatment plant operations in pounds per day (lbs/d - calculated)
ALtp =	ALdig - Lhws
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(AHLadi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of anaerobic digester units (lbs/day - calculated).
AHLadi =	ALtp / (Rpotw/100)
8.34	Unit conversion factor

Local Limits Calculation

TABLE 12 - Allowable Headworks Loadings Based on Anaerobic Digester Inhibition Level (Non-Conservative Pollutants)

	LOCAL LIMITS CALCULATIONS DATA					MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Average Influent Concentration (mg/l) (Cinf)	Average Influent Load (lbs/day) (Linf)	Digester Pollutant Concentration (mg/l) (Cdig)	Anaerobic Digester Inhibition Level (mg/l) (Ccrit))	Allowable Headworks Loading (lbs/day) (AHLadi)
Cyanide	5.46	0.0054	0.2472	0.2638	1	0.9371
Ammonia	5.46	30.8500	1404.7979	62.9500	1500	33474.1368
BOD	5.46	357.1250	16262.1869	-		-
TSS	5.46	231.5000	10541.6766	-		-
Nitrogen (T)	5.46	48.2345	2196.4247	-		-
Phenols	5.46	0.0560	2.5500	0.3283		-
Boron-monitor	5.46	0.3125	14.2301	-		-
Dissolved Iron - monitor	5.46	0.2020	9.1984	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-
	5.46	-	-	-		-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Cinf)	POTW's average influent concentration in mg/l (from 'Monitoring Data' worksheet, row 53 or user entered).
(Linf)	POTW's average influent loading in pounds per day (lbs/day - calculated).
Linf =	8.34 * Cinf * Qpotw
8.34	Unit conversion factor
(Cdig)	Average pollutant concentration in sludge sent to the digester in mg/l (from 'Inhibition Removals' worksheet row 53 or user entered).
(Ccrit)	Anaerobic digester threshold inhibition level in mg/l (EPA default or user entered).
(AHLadi)	Allowable headworks pollutant loading to the POTW in pounds per day based on inhibition of anaerobic digester units (lbs/day - calculated).
AHLadi =	Linf * (Ccrit/Cdig)

Local Limits Calculation

TABLE 13 - Comparison of Allowable Headworks Loadings Based on Inhibition

Has the POTW Experienced Inhibition or Construction Within the Data Time Frame?	Yes	No
		x

Pollutant	AHL (ACT. SLUDGE) (lbs/day)	AHL (TRICK. FILTER) (lbs/day)	AHL (NITRIF) (lbs/day)	AHL (DIG. - CONSERV.) (lbs/day)	AHL (DIG. - NON-CONS.) (lbs/day)	Most Stringent (INHIBITION) (lbs/day)	Monitoring Data Maximum Influent Concentration (Cmaxin - mg/l)	Other Maximum Influent Concentration (Cmaxino - mg/l)	Maximum Influent Loading (Lmaxin - lbs/d)	AHL (INHIBITION) (lbs/d)
Arsenic	-	-	124.1902	8.9609	-	8.9609	0.0005		0.0228	8.9609
Cadmium	53.5722	-	739.9665	145.7047	-	53.5722	0.0001		0.0046	53.5722
Chromium	62.3786	218.3252	25.2980	1102.1774	-	25.2980	0.0041		0.1867	25.2980
Copper	58.3800	-	5.8380	230.4167	-	5.8380	0.047		2.1402	5.8380
Cyanide	6.2379	1871.3589	37.7619	-	0.9371	0.9371	0.01		0.4554	0.9371
Lead	105.8986	-	50.5960	2025.7680	-	50.5960	0.004		0.1821	50.5960
Mercury	5.0596	-	-	-	-	5.0596	0.0001		0.0046	5.0596
Molybdenum	-	-	-	-	-	-	0.004		0.1821	-
Nickel	52.9493	-	11.3841	143.7915	-	11.3841	0.008		0.3643	11.3841
Selenium	-	-	-	-	-	-	0.001		0.0455	-
Silver	14.2301	-	-	92.5771	-	14.2301	0.0017		0.0774	14.2301
Zinc	18.7136	-	11.0391	2692.9889	-	11.0391	0.179		8.1510	11.0391
Ammonia	21857.4720	-	-	-	33474.1368	21857.4720	43.2		1967.1725	21857.4720
BOD	-	-	-	-	-	-	423		19261.8972	-
TSS	-	-	-	-	-	-	290		13205.5560	-
Phosphorus (T)	-	-	-	-	-	-	7.45		339.2462	-
Nitrogen (T)	-	-	-	-	-	-	58.09		2645.2095	-
Beryllium	-	-	-	-	-	-	-		-	-
Phenols	-	-	-	-	-	-	0.094		4.2804	-
Boron-monitor	-	-	-	-	-	-	0.4		18.2146	-
Dissolved Iron - monitor	-	-	-	-	-	-	0.25		11.3841	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-
	-	-	-	-	-	-	-		-	-

AHL (ACT. SLUDGE) = Allowable Headworks Loading based on inhibition of the activated sludge treatment units from Table 8, column F.
AHL (TRICK. FILTER) = Allowable Headworks Loading based on inhibition of the trickling filter treatment units from Table 9, column F.
AHL (NITRIF.) = Allowable Headworks Loading based on inhibition of the nitrification treatment units from Table 10, column F.
AHL (DIG. - CONSERV.) = Allowable Headworks Loading based on inhibition of the anaerobic digester treatment units for conservative pollutants from Table 11 column F.
AHL (DIG. - NON-CONS.) = Allowable Headworks Loading based on inhibition of the anaerobic digester treatment units for non-conservative pollutants from Table 12, column G.
Most Stringent (INHIBITION) Lowest value for each pollutant from columns B through F.
(Cmaxin) Maximum Influent Concentration (from 'Monitoring Data' worksheet, row 54).
(Cmaxino) Maximum Influent Concentration observed at treatment plant but not listed (or eliminated from) 'Monitoring Data' worksheet (user entered).
(Lmaxin) Maximum Influent Loading (calculated).
Lmaxin = 8.34 * Cmaxin * Qpotw; where Cmaxin is the greater of Cmaxin and Cmaxino.
8.34 Unit conversion factor
(Qpotw) POTW's average flow in MGD (from Table 2(b), cell B35).
AHL (INHIBITION) = Highest value for each pollutant from column G or J.
Red Bold in column K indicates that the allowable headworks loading is based on the maximum influent loading.

Local Limits Calculation

TABLE 14 - Allowable Headworks Loadings Based on Land Application Sludge Disposal

	LOCAL LIMITS CALCULATIONS DATA									MAXIMUM LOADING
Pollutant	POTW Flow (MGD) (Qpotw)	Sludge Flow to Disposal (MTD) (Qsldg)	Land Application Standard (mg/kg) (Cslcrit)	Allowable Sludge Loading (lbs/day) (ALlas)	Hauled Waste to Sludge Concentration (mg/l) (Chws)	Hauled Waste to Sludge Flow (mgd) (Qhws)	Hauled Waste to Sludge Loading (lbs/day) (Lhws)	Allowable Treatment Plant Loading (lbs/day) (ALtp)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLlas)
Arsenic	5.46	2.801	41	0.2527	-	0	-	0.2527	88.45	0.2856
Cadmium	5.46	2.801	39	0.2403	-	0	-	0.2403	68.00	0.3534
Chromium	5.46	2.801		-	-	0	-	-	58.43	-
Copper	5.46	2.801	1500	9.2433	-	0	-	9.2433	86.00	10.7480
Cyanide	5.46	2.801		-	-	0	-	-	66.00	-
Lead	5.46	2.801	300	1.8487	-	0	-	1.8487	83.15	2.2234
Mercury	5.46	2.801	17	0.1048	-	0	-	0.1048	67.00	0.1564
Molybdenum	5.46	2.801	75	0.4622	-	0	-	0.4622	50.00	0.9243
Nickel	5.46	2.801	420	2.5881	-	0	-	2.5881	34.45	7.5122
Selenium	5.46	2.801	100	0.6162	-	0	-	0.6162	50.00	1.2324
Silver	5.46	2.801		-	-	0	-	-	69.57	-
Zinc	5.46	2.801	2800	17.2542	-	0	-	17.2542	73.58	23.4485
Ammonia	5.46	2.801		-	-	0	-	-	99.62	-
BOD	5.46	2.801		-	-	0	-	-	-	-
TSS	5.46	2.801		-	-	0	-	-	-	-
Phosphorus (T)	5.46	2.801		-	-	0	-	-	89.00	-
Nitrogen (T)	5.46	2.801		-	-	0	-	-	90.57	-
Beryllium	5.46	2.801		-	-	0	-	-	-	-
Phenols	5.46	2.801		-	-	0	-	-	95.54	-
Boron-monitor	5.46	2.801		-	-	0	-	-	10.00	-
Dissolved Iron - monitor	5.46	2.801		-	-	0	-	-	78.55	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-
	5.46	2.801		-	-	0	-	-	-	-

(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(Qsldg)	Average sludge flow to disposal in dry metric tons per day (from Table 2(b), cell E35).
(Cslcrit)	Applicable sludge standard in mg/kg dry sludge (exceptional quality standard for land application or user entered).
(ALlas)	Allowable pollutant loading in the sludge to disposal in pounds per day based on land application of sludge (lbs/day - calculated).
ALlas =	0.0022 * Cslcrit * Qsldg
(Chws)	Average pollutant concentration of waste hauled directly to the anaerobic digesters in mg/l (from 'Monitoring Data' worksheet, row 53).
(Qhws)	Average flow of waste hauled to sludge processing units in MGD (from Table 2(b), cell L35).
(Lhws)	Average pollutant loading of waste hauled to sludge processing units in pounds per day (lbs/d - calculated).
Lhws =	8.34 * Chws * Qhws
(ALtp)	Allowable pollutant loading in the sludge from the treatment plant operations in pounds per day (lbs/d - calculated)
ALtp =	ALlas - Lhws
(Rpotw)	Removal efficiency across POTW as a percent (from Table 3, column E).
(AHLlas)	Allowable headworks pollutant loading to the POTW in pounds per day based on land application sludge disposal (lbs/day - calculated).
AHLlas =	ALtp / (Rpotw/100)
0.0022	Unit conversion factor
8.34	Unit conversion factor

Local Limits Calculation

TABLE 15 - Allowable Headworks Loadings Based on Incineration Sludge Disposal

	LOCAL LIMITS CALCULATIONS DATA												MAXIMUM LOADING
Pollutant	Sludge Flow to Incineration (MTD) (Qinc)	Incinerator Dispersion Factor (ug/m³/g/sec) (DF)	Incinerator Control Efficiency (%) (CE)	Risk Specific Concentration (ug/m³) (RSC)	National Ambient Air Quality Standard (ug/m³) (NAAQS)	National Emission Standard (g/d) (NESHAP)	Incineration Standard (mg/kg) (Cslcrit)	Sludge Flow to Disposal (MTD) (Qsldg)	Allowable Sludge Loading (lbs/day) (ALis)	Hauled Waste to Sludge Loading (lbs/day) (Lhws)	Allowable Treatment Plant Loading (lbs/day) (ALtp)	Removal Efficiency (%) (Rpotw)	Allowable Headworks Loading (lbs/day) (AHLis)
Arsenic	0			-	-	-	-	2.801	-	-	-	88.45	-
Cadmium	0	-		-	-	-	-	2.801	-	-	-	68.00	-
Chromium	0	-			-	-	-	2.801	-	-	-	58.43	-
Copper	0	-	-	-	-	-	-	2.801	-	-	-	86.00	-
Cyanide	0	-	-	-	-	-	-	2.801	-	-	-	66.00	-
Lead	0	-		-	-	-	-	2.801	-	-	-	83.15	-
Mercury	0	-		-	-	-	-	2.801	-	-	-	67.00	-
Molybdenum	0	-	-	-	-	-	-	2.801	-	-	-	50.00	-
Nickel	0	-		-	-	-	-	2.801	-	-	-	34.45	-
Selenium	0	-	-	-	-	-	-	2.801	-	-	-	50.00	-
Silver	0	-	-	-	-	-	-	2.801	-	-	-	69.57	-
Zinc	0	-	-	-	-	-	-	2.801	-	-	-	73.58	-
Ammonia	0	-	-	-	-	-	-	2.801	-	-	-	99.62	-
BOD	0	-	-	-	-	-	-	2.801	-	-	-	-	-
TSS	0	-	-	-	-	-	-	2.801	-	-	-	-	-
Phosphorus (T)	0	-	-	-	-	-	-	2.801	-	-	-	89.00	-
Nitrogen (T)	0	-	-	-	-	-	-	2.801	-	-	-	90.57	-
Beryllium	0	-		-	-	-	-	2.801	-	-	-	-	-
Phenols	0	-	-	-	-	-	-	2.801	-	-	-	95.54	-
Boron-monitor	0	-	-	-	-	-	-	2.801	-	-	-	10.00	-
Dissolved Iron - monitor	0	-	-	-	-	-	-	2.801	-	-	-	78.55	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-
	0	-	-	-	-	-	-	2.801	-	-	-	-	-

(Qinc) Average sludge flow to incineration in dry metric tons per day (from Table 2(b), cell M35).
(DF) Incinerator dispersion factor in ug/m³/g/sec (user entered in cell C749, from cell C749 for all other cells in this column).
(CE) Incinerator control efficiency for the pollutant as a percent (user entered).
(RSC) Risk specific concentration limit in ug/m³ (from 40 CFR 503.43(d) - Table 1 for arsenic, cadmium, and nickel; Table 2 for chromium; chromium user entered).
(NAAQS) National ambient air quality standard in ug/m³ (from 40 CFR 50.12 for lead).
(NESHAP) National emission standard in g/d (from 40 CFR 61.52(b) for mercury and 40 CFR 61.32(a) for beryllium).
(Cslcrit) Applicable sludge standard in mg/kg dry sludge (calculated based on RSC, NAAQS, or NESHAP - see individual cells for formulas or Appendix T of EPA local limits guidance manual).
86400 Unit conversion factor
(Qsldg) Average sludge flow to disposal in dry metric tons per day (from Table 2(b), cell E35).
(ALis) Allowable pollutant loading in the sludge to disposal in pounds per day based on incineration of sludge (lbs/day - calculated).
ALis = 0.0022 * Cslcrit * Qsldg
(Lhws) Average pollutant loading of waste hauled to sludge processing units in pounds per day (from Table 14, column H).
(ALtp) Allowable pollutant loading in the sludge from the treatment plant operations in pounds per day (lbs/d - calculated)
ALtp = ALis - Lhws
(Rpotw) Removal efficiency across POTW as a percent (from Table 3, column E).
(AHLis) Allowable headworks pollutant loading to the POTW in pounds per day based on incineration sludge disposal (lbs/day - calculated).
AHLis = ALtp / (Rpotw/100)
0.0022 Unit conversion factor

Local Limits Calculation

TABLE 16 - Comparison of Allowable Headworks LoadingsBased on Sludge Disposal

Pollutant	AHL (LAND APPL.) (lbs/day)	AHL (INCINERATION) (lbs/day)	Allowable Headworks Loading (SLUDGE) (lbs/d)
Arsenic	0.2856	-	0.2856
Cadmium	0.3534	-	0.3534
Chromium	-	-	-
Copper	10.7480	-	10.7480
Cyanide	-	-	-
Lead	2.2234	-	2.2234
Mercury	0.1564	-	0.1564
Molybdenum	0.9243	-	0.9243
Nickel	7.5122	-	7.5122
Selenium	1.2324	-	1.2324
Silver	-	-	-
Zinc	23.4485	-	23.4485
Ammonia	-	-	-
BOD	-	-	-
TSS	-	-	-
Phosphorus (T)	-	-	-
Nitrogen (T)	-	-	-
Beryllium	-	-	-
Phenols	-	-	-
Boron-monitor	-	-	-
Dissolved Iron - monitor	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

AHL (LAND APPL.) = Allowable Headworks Loading based on land application sludge disposal from Table 14, column K.
AHL (INCINERATION) = Allowable Headworks Loading based on incineration sludge disposal from Table 15, column N.
Allowable Headworks (SLUDGE) Lowest value for each pollutant from column B and C.

Local Limits Calculation

TABLE 17 - Comparison of Allowable Headworks Loadings

Pollutant	AHL (WATER QUALITY) (lbs/day)	AHL (INHIBITION) (lbs/d)	AHL (SLUDGE) (lbs/d)	Design Loading (lbs/d)	Maximum Allowable Headworks Loading (MAHL - lbs/d)
Arsenic	6.0390	8.9609	0.2856	-	0.2856
Cadmium	0.1159	53.5722	0.3534	-	0.1159
Chromium	1.6773	25.2980	-	-	1.6773
Copper	10.1304	5.8380	10.7480	-	5.8380
Cyanide	0.8203	0.9371	-	-	0.8203
Lead	4.2041	50.5960	2.2234	-	2.2234
Mercury	0.0106	5.0596	0.1564	-	0.0106
Molybdenum	-	-	0.9243	-	0.9243
Nickel	12.0050	11.3841	7.5122	-	7.5122
Selenium	0.6972	-	1.2324	-	0.6972
Silver	4.1636	14.2301	-	-	4.1636
Zinc	68.5024	11.0391	23.4485	-	11.0391
Ammonia	21520.3089	21857.4720	-	-	21520.3089
BOD	-	-	-	-	-
TSS	-	-	-	-	-
Phosphorus (T)	827.8239	-	-	-	827.8239
Nitrogen (T)	-	-	-	-	-
Beryllium	-	-	-	-	-
Phenols	16242.5303	-	-	-	16242.5303
Boron-monitor	-	-	-	-	-
Dissolved Iron - monitor	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-

AHL (WATER QUALITY) = Allowable Headworks Loading based on protection of water quality from Table 7, column F.
AHL (INHIBITION) = Allowable Headworks Loading based on prevention of inhibition from Table 13, column K.
AHL (SLUDGE) = Allowable Headworks Loading based on protection of sludge quality from Table 16, column D.
Design Loading of POTW treatment plant (user entered).
MAHL Maximum allowable headworks loading is the lowest value for each pollutant from columns B through E.

Local Limits Calculation

TABLE 18 - Calculation of Local Limit

	LOCAL LIMITS CALCULATIONS DATA									LOCAL LIMITS		
Pollutant	Maximum Allowable Headworks (MAHL - lbs/d)	Safety Factor (%) (SF)	Growth Allowance (%) (GA)	Nonindustrial Concentration (mg/l) (Cback)	Nonindustrial Flow (MGD) (Qback)	Nonindustrial Loading (lbs/day) (Lback)	Hauled Waste to Influent Concentration (mg/l) (Chwi)	Hauled Waste to Influent Flow (MGD) (Qhwi)	Hauled Waste to Influent Loading (lbs/day) (Lhwi)	Allowable Industrial Loading (MAIL - lbs/day)	Calculated Local Limit (mg/l) (Cind)	Basis of Limitation
Arsenic	0.2856	15		0.0005	5.299	0.0221	-	0	0.0000	0.2207	0.1644	Sludge
Cadmium	0.1159	15		0.0001	5.299	0.0038	-	0	0.0000	0.0947	0.0706	Water Quality
Chromium	1.6773	15		0.0055	5.299	0.2438	-	0	0.0000	1.1819	0.8802	Water Quality
Copper	5.8380	15		0.0378	5.299	1.6702	-	0	0.0000	3.2921	2.4518	Inhibition
Cyanide	0.8203	10		0.0024	5.299	0.1050	-	0	0.0000	0.6333	0.4716	Water Quality
Lead	2.2234	15		0.0028	5.299	0.1249	-	0	0.0000	1.7650	1.3145	Sludge
Mercury	0.0106	10		0.00004	5.299	0.0019	-	0	0.0000	0.0077	0.0057	Water Quality
Molybdenum	0.9243	15		0.0026	5.299	0.1156	-	0	0.0000	0.6701	0.4991	Sludge
Nickel	7.5122	15		0.0120	5.299	0.5320	-	0	0.0000	5.8534	4.3593	Sludge
Selenium	0.6972	15		0.0010	5.299	0.0442	-	0	0.0000	0.5484	0.4085	Water Quality
Silver	4.1636	15		0.0002	5.299	0.0066	-	0	0.0000	3.5324	2.6307	Water Quality
Zinc	11.0391	15		0.1271	5.299	5.6170	-	0	0.0000	3.7662	2.8049	Inhibition
Ammonia	21520.3089	15		39.8857	5.299	1762.6957	-	0	0.0000	16529.5668	12310.3258	Water Quality
BOD	-			316.7143	5.299	13996.7635	-	0	0.0000	-	-	-
TSS	-			270.1429	5.299	11938.6016	-	0	0.0000	-	-	-
Phosphorus (T)	827.8239			6.9743	5.299	308.2192	-	0	0.0000	519.6047	386.9735	Water Quality
Nitrogen (T)	-			53.8309	5.299	2378.9849	-	0	0.0000	-	-	-
Beryllium	-			-	5.299	0.0000	-	0	0.0000	-	-	-
Phenols	16242.5303			0.0638	5.299	2.8182	-	0	0.0000	16239.7121	12094.4577	Water Quality
Boron-monitor	-			0.2154	5.299	9.5186	-	0	0.0000	-	-	-
Dissolved Iron - monitor	-			0.4236	5.299	18.7220	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-
	-			-	5.299	0.0000	-	0	0.0000	-	-	-

(MAHL)	Maximum allowable headworks loading (from Table 17, column F).
(SF)	Safety factor as a percent (user entered).
(GA)	Growth allowance as a percent (user entered).
(Cback)	Average nonindustrial background concentration for a particular pollutant in mg/l (from 'Monitoring Data' worksheet row 53 or user entered).
(Qback)	Average nonindustrial background flow in MGD (calculated).
Qback =	Qpotw - Qind - Qhwi (values from Table 2(b), cells B35, C35, and K35)
(Lback)	Average nonindustrial background loading to the POTW for a particular pollutant in pounds per day (calculated).
Lback =	8.34 * Cback * Qback
8.34	Unit conversion factor
(Chwi)	Average concentration for a particular pollutant in mg/l for hauled waste discharged at the POTW influent (from 'Monitoring Data' worksheet, row 53).
(Qhwi)	Average flow in MGD for hauled waste discharged at the POTW influent (from Table 2(b), cell K35).
(Lhwi)	Average loading to the POTW for a particular pollutant in pounds per day for hauled waste discharged at the POTW influent (calculated).
Lhwi =	8.34 * Chwi * Qhwi
(MAIL)	Maximum Allowable Industrial Load (calculated).
MAIL =	MAHL - (MAHL * SF/100) - (MAHL * GA/100) - Lback - Lhwi
(Cind)	Industrial allowable local limit for a given pollutant in mg/l (calculated).
Cind =	MAIL/(8.34 * Qind)
(Qind)	Average discharge flow of Industrial Users to be regulated through the local limits in MGD (from Table 2(b), cell C35).
Basis of Limitation	An identification of the lowest allowable headworks loading from Table 17 columns B through E. **Red Bold** in column C or D indicates a safety factor or growth allowance of less than 10%.

Local Limits Calculation

Table 19 - Comparison of Existing and Calculated Local Limits

POTW Adopting MAIL	POTW Adopting Uniform Concentration
	x

Pollutant	Existing Allowable Industrial Loading (lbs/d) (MAILex)	Calculated Allowable Industrial Loading (lbs/d) (MAIL)	Calculated Uniform Concentration Limit (mg/l) (Cind)	Existing Local Limit (mg/l) (Cind-ex)	Proposed Local Limit (mg/l)	Other Issues?	Basis of "Need Limit?"		
							Existing Limit	Avg Inf Loading	Max Inf Loading
Arsenic		0.2207	0.1644	0.2118	0.1644				
Cadmium		0.0947	0.0706	0.0326	0.0706	**EPA Public Notice**			
Chromium		1.1819	0.8802	1.6385	0.8802				
Copper		3.2921	2.4518	1.2792	2.4518	**EPA Public Notice**			
Cyanide		0.6333	0.4716	0.9297	0.4716				
Lead		1.7650	1.3145	1.2838	1.3145	**EPA Public Notice**			
Mercury		0.0077	0.0057	0.0074	0.0057				
Molybdenum		0.6701	0.4991		0.4991				
Nickel		5.8534	4.3593	4.8158	4.3593				
Selenium		0.5484	0.4085						
Silver		3.5324	2.6307	1.0783	2.6307	**EPA Public Notice**			
Zinc		3.7662	2.8049	4.0904	2.8049				
Ammonia		16529.5668	12310.3258						
BOD		-	-						
TSS		-	-						
Phosphorus (T)		519.6047	386.9735						
Nitrogen (T)		-	-						
Beryllium		-	-						
Phenols		16239.7121	12094.4577						
Boron-monitor		-	-						
Dissolved Iron - monitor		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						
		-	-						

(MAILex) = Existing Maximum Allowable Industrial Load from previously approved local limits evaluation (user entered).
(MAIL) = Calculated Maximum Allowable Industrial Load (from Table 18, column K).
(Cind) = Newly calculated local limit for a given pollutant in mg/l (from Table 18, column L).
(Cind-ex) = Existing local limit for a given pollutant in mg/l from previously approved local limits evaluation (user entered).
Brown bold in column C or D indicates that the calculated allowable industrial loading or local limit is less stringent than the existing loading or limit.
Green bold in column C or D indicates that the calculated allowable industrial loading or local limit is new or more stringent than the existing loading or limit.
Red bold in column F indicates that the proposed local limit is less stringent than the calculated limit.
"Need Limit?" in column G and "X" in "Existing Limit" column (column H) indicates that a local limit exists but no limit was proposed based on the new evaluation.
"Need Limit?" in column G and "X" in "Avg Inf Loading" column (column I) indicates that the average influent loading is greater than 60% of the MAHL (80% for Ammonia, BOD, TSS, Phosphorus, and Nitrogen if the MAHL is based on the design loading) (from Table 20 column D).
"Need Limit?" in column G and "X" in "Max Inf Loading" column (column J) indicates that the maximum influent loading is greater than 80% of the MAHL (100% for Ammonia, BOD, TSS, Phosphorus, and Nitrogen if the MAHL is based on the design loading) (from Table 20 column F).
"EPA Public Notice" in column G Indicates that the newly proposed local limit is less stringent that the existing local limit and therefore EPA would need to publish a public notice in the local paper prior to approval.

Local Limits Calculation

TABLE 20 - Comparison of Allowable Headworks Loadings And Current Influent Loadings

Pollutant	Maximum Allowable Headworks Loading (MAHL - lbs/d)	Average Influent Loading (Linav - lbs/day)	Average Percent Loaded (%)	Maximum Influent Loading (Linmax - lbs/d)	Maximum Percent Loaded (%)
Arsenic	0.2856	0.0228	7.9713	0.0228	7.9713
Cadmium	0.1159	0.0038	3.2453	0.0046	3.9285
Chromium	1.6773	0.1170	6.9752	0.1867	11.1311
Copper	5.8380	1.6220	27.7841	2.1402	36.6600
Cyanide	0.8203	0.2472	30.1364	0.4554	55.5144
Lead	2.2234	0.1351	6.0759	0.1821	8.1923
Mercury	0.0106	0.0039	37.0705	0.0046	43.1053
Molybdenum	0.9243	0.1336	14.4508	0.1821	19.7057
Nickel	7.5122	0.2067	2.7520	0.3643	4.8493
Selenium	0.6972	0.0455	6.5311	0.0455	6.5311
Silver	4.1636	0.0224	0.5390	0.0774	1.8593
Zinc	11.0391	6.2515	56.6304	8.1510	73.8375
Ammonia	21520.3089	1404.7979	6.5278	1967.1725	9.1410
BOD	-	16262.1869	-	19261.8972	-
TSS	-	10541.6766	-	13205.5560	-
Phosphorus (T)	827.8239	271.1123	32.7500	339.2462	40.9805
Nitrogen (T)	-	2196.4247	-	2645.2095	-
Beryllium	-	-	-	-	-
Phenols	16242.5303	2.5500	0.0157	4.2804	0.0264
Boron-monitor	-	14.2301	-	18.2146	-
Dissolved Iron - monitor	-	9.1984	-	11.3841	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-

(MAHL) Maximum Allowable Headworks Loading (from Table 17 column B).
(Linav) Average influent loading from 'Monitoring Data' worksheet row 57.
Average Percent Loaded = (Linav)/(MAHL)*100
(Linmax) Maximum Influent Concentration converted to a loading using the POTW flow (from Table 2(b), cell B35).
Linmax = 8.34 * (Cinmax) * (Qpotw)
(Cinmax) Maximum Influent Concentration (from 'Monitoring Data' worksheet row 54)
(Qpotw) POTW's average flow in MGD (from Table 2(b), cell B35).
8.34 Unit conversion factor
Maximum Percent Loaded = (Linmax)/(MAHL)*100

Green bold indicates that the average percent loaded is greater than 60% or the maximum percent loaded is greater than 80% for all pollutants except for Ammonia, BOD, TSS, Phosphorus, and Nitrogen where the MAHL for these pollutants is based on the design loading.
Where the MAHL for Ammonia, BOD, TSS, Phosphorus, and Nitrogen is based on the design loading, **green bold** indicates that the average percent loaded is greater than 80%.
Red bold indicates that the percent loaded (average or maximum) is greater than 100%.

Local Limits Calculation

TABLE 21 - Comparison of Removal Rates

Pollutant	Removal Prior to Activated Sludge (%) (Ras)	Removal Prior to Trickling Filter (%) (Rtf)	Removal Prior to Nitrification (%) (Rn)	Overall Removal (%) (Rpotw)	Average Influent Loading (lbs/d) (Linav)	Average Nonindustrial Loading (lbs/day) (Lback)
Arsenic	-	-	45.00	88.45	0.0228	0.0221
Cadmium	15.00	-	68.00	68.00	0.0038	**0.0038**
Chromium	27.00	27.00	55.00	58.43	0.1170	**0.2438**
Copper	22.00	-	61.00	86.00	1.6220	**1.6702**
Cyanide	27.00	27.00	59.00	66.00	0.2472	0.1050
Lead	57.00	-	55.00	83.15	0.1351	0.1249
Mercury	10.00	-	-	67.00	0.0039	0.0019
Molybdenum	-	-	-	50.00	0.1336	0.1156
Nickel	14.00	-	0.00	34.45	0.2067	**0.5320**
Selenium	-	-	-	50.00	0.0455	0.0442
Silver	20.00	-		69.57	0.0224	0.0066
Zinc	27.00	-	67.00	73.58	6.2515	5.6170
Ammonia	0.00	-	-	99.62	1404.7979	**1762.6957**
BOD	-	-	-	-	16262.1869	13996.7635
TSS	-	-	-	-	10541.6766	**11938.6016**
Phosphorus (T)	-	-	-	89.00	271.1123	**308.2192**
Nitrogen (T)	-	-	-	90.57	2196.4247	**2378.9849**
Beryllium	-	-	-	-	-	-
Phenols	-	-	-	95.54	2.5500	**2.8182**
Boron-monitor	-	-	-	10.00	14.2301	9.5186
Dissolved Iron - monitor	-	-	-	78.55	9.1984	**18.7220**
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-

(Ras) Removal efficiency prior to activated sludge treatment unit as percent (from Table 8, column E).
(Rtf) Removal efficiency prior to trickling filter treatment unit as percent (from Table 9, column E).
(Rn) Removal efficiency prior to nitrification treatment unit as percent (from Table 10, column E).
(Rpotw) Removal efficiency across POTW as percent (from Table 3, column E).
(Linav) Average influent loading (from Table 20, column C).
(Lback) Average nonindustrial background loading to the POTW for a particular pollutant in pounds per day (from Table 18, column G).
Red bold indicates that the overall removal is less than one or more of the other removals, or the average nonindustrial loading is greater than the average influent loading.

Local Limits Calculation

TABLE 22 - Calculation of Influent, Effluent, and Sludge Goals

Pollutant	Maximum Allowable Headworks Loading (MAHL - lbs/d) (MAHL)	POTW Flow (MGD) (Qpotw)	Influent Goal (mg/l) (MAHC)	Allowable Headworks Loading (WATER QUALITY) (AHLwq - lbs/day)	Removal Efficiency (%) (Rpotw)	Effluent Goal (mg/l)	Allowable Headworks Loading (SLUDGE) (AHLs - lbs/day)	Sludge Flow to Disposal (MTD) (Qsldg)	Sludge Goal (mg/kg)
Arsenic	0.2856	5.46	0.0063	6.0390	88.45	0.0153	0.2856	2.801	41
Cadmium	0.1159	5.46	0.0025	0.1159	68.00	0.0008	0.3534	2.801	39
Chromium	1.6773	5.46	0.0368	1.6773	58.43	0.0153	-	2.801	-
Copper	5.8380	5.46	0.1282	10.1304	86.00	0.0311	10.7480	2.801	1500
Cyanide	0.8203	5.46	0.0180	0.8203	66.00	0.0061	-	2.801	-
Lead	2.2234	5.46	0.0488	4.2041	83.15	0.0156	2.2234	2.801	300
Mercury	0.0106	5.46	0.0002	0.0106	67.00	0.0001	0.1564	2.801	17
Molybdenum	0.9243	5.46	0.0203	-	50.00	-	0.9243	2.801	75
Nickel	7.5122	5.46	0.1650	12.0050	34.45	0.1728	7.5122	2.801	420
Selenium	0.6972	5.46	0.0153	0.6972	50.00	0.0077	1.2324	2.801	100
Silver	4.1636	5.46	0.0914	4.1636	69.57	0.0278	-	2.801	-
Zinc	11.0391	5.46	0.2424	68.5024	73.58	0.3974	23.4485	2.801	2800
Ammonia	21520.3089	5.46	472.5957	21520.3089	99.62	1.8000	-	2.801	-
BOD	-	5.46	-	-	-	-	-	2.801	-
TSS	-	5.46	-	-	-	-	-	2.801	-
Phosphorus (T)	827.8239	5.46	18.1794	827.8239	89.00	2.0000	-	2.801	-
Nitrogen (T)	-	5.46	-	-	90.57	-	-	2.801	-
Beryllium	-	5.46	-	-	-	-	-	2.801	-
Phenols	16242.5303	5.46	356.6933	16242.5303	95.54	15.9238	-	2.801	-
Boron-monitor	-	5.46	-	-	10.00	-	-	2.801	-
Dissolved Iron - monitor	-	5.46	-	-	78.55	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-
	-	5.46	-	-	-	-	-	2.801	-

(MAHL)	Maximum allowable headworks loading (from Table 18 column B).
(Qpotw)	POTW's average flow in MGD (from Table 2(b), cell B35).
(MAHC)	Maximum Allowable Headworks Concentration - influent concentration necessary to meet effluent, sludge, and inhibition goals (calculated).
MAHC =	MAHL/(Qpotw * 8.34)
8.34	Unit conversion factor
(AHLwq)	Allowable Headworks Loading based on protection of water quality from Table 7, column F.
(Rpotw)	Removal efficiency across POTW as percent (from Table 3, column E).
(Effluent Goal)	Discharge concentration necessary to meet NPDES limit or water quality standards (calculated)
Effluent Goal =	(AHLwq) * (1-Rpotw/100)/(8.34 * Qpotw)
(AHLs)	Allowable Headworks Loading based on protection of sludge quality from Table 16, column D.
(Qsldg)	Average sludge flow to disposal in dry metric tons per day (from Table 2(b), cell E35).
(Sludge Goal)	Sludge standard used in headworks calculations for sludge protection (calculated)
Sludge Goal =	AHLs * (Rpotw/100) / (0.0022 * Qsldg)
0.0022	Unit conversion factor

Local Limits Calculation

Table 23 - Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data

Pollutant	Influent Goal (mg/l) (MAHC)	Number of Influent Measurements	Number of Influent Exceedances	Influent Evaluation	Effluent Goal (mg/l)	Number of Effluent Measurements	Number of Effluent Exceedances	Effluent Evaluation	Sludge Goal (mg/kg)	Number of Sludge Measurements	Number of Sludge Exceedances	Sludge Evaluation
Arsenic	0.0063	30	0	OK	0.0153	30	0	OK	41	17	0	OK
Cadmium	0.0025	23	0	OK	0.0008	24	0	OK	39	16	0	OK
Chromium	0.0368	26	0	OK	0.0153	25	0	OK	-	15	0	-
Copper	0.1282	29	0	OK	0.0311	28	0	OK	1500	17	0	OK
Cyanide	0.0180	28	0	OK	0.0061	**29**	**5**	**?**	-	16	0	-
Lead	0.0488	30	0	OK	0.0156	31	0	OK	300	16	0	OK
Mercury	0.0002	25	0	OK	0.0001	29	0	OK	17	15	0	OK
Molybdenum	0.0203	30	0	OK	-	29	0	-	75	15	0	OK
Nickel	0.1650	30	0	OK	0.1728	29	0	OK	420	17	0	OK
Selenium	0.0153	31	0	OK	0.0077	30	0	OK	100	16	0	OK
Silver	0.0914	28	0	OK	0.0278	24	0	OK	-	15	0	-
Zinc	0.2424	28	0	OK	0.3974	30	0	OK	2800	17	0	OK
Ammonia	472.5957	8	0	OK	1.8000	8	0	OK	-	6	0	-
BOD	-	8	0	-	-	8	0	-	-	0	0	-
TSS	-	8	0	-	-	8	0	-	-	0	0	-
Phosphorus (T)	18.1794	8	0	OK	2.0000	8	0	OK	-	0	0	-
Nitrogen (T)	-	29	0	-	-	29	0	-	-	0	0	-
Beryllium	-	0	0	-	-	0	0	-	-	0	0	-
Phenols	356.6933	16	0	OK	15.9238	16	0	OK	-	6	0	-
Boron-monitor	-	16	0	-	-	16	0	-	-	0	0	-
Dissolved Iron - monitor	-	15	0	-	-	15	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-
	-	0	0	-	-	0	0	-	-	0	0	-

(Influent Goal)	Influent concentration necessary to meet effluent, sludge, and inhibition goals (from Table 21, column D).
(Effluent Goal)	Discharge concentration necessary to meet NPDES limit or water quality standards (from Table 21, column G).
(Sludge Goal)	Sludge concentration necessary to meet sludge disposal goals (from Table 21, column J).
Number of Measurements	As listed in columns C, G, and K; the total number of measurements used in the local limits evaluation, from the 'Monitoring Data' sheet row 52.
Number of Exceedances	As listed in columns D, H, and L; the number of sample results for that pollutant and monitoring point in the 'Monitoring Data' sheet that exceed the listed goal.
Evaluation = OK	All of the monitoring data is below the goal.
Evaluation = ?	25% or less of all of the monitoring data is above the goal.
Evaluation = !!	More than 25% and less than or equal to 50% of all of the monitoring data is above the goal.
Evaluation = !!!!	More than 50% and less than or equal to 75% of all of the monitoring data is above the goal.
Evaluation = !!!!!!	More than 75% of all of the monitoring data is above the goal.
Evaluation = "-"	There is no goal or no monitoring data was used in the evaluation.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM DISCHARGE REQUIREMENTS FOR PUBLICLY OWNED TREATMENT WORKS (POTWs)

NPDES PERMIT NO: PA0027316

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 *et seq.* ("the Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 *et seq.*,

Lebanon City Authority
2321 Ridgeview Road
Lebanon, PA 17042-9431

is authorized to discharge from a facility known as **Lebanon City STP**, located in **Lebanon City, Lebanon County**, to **Quittapahilla Creek (TSF, MF)** in Watershed(s) **7-D** in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B and C hereof.

THIS PERMIT SHALL BECOME EFFECTIVE ON **OCTOBER 1, 2022**

THIS PERMIT SHALL EXPIRE AT MIDNIGHT ON **SEPTEMBER 30, 2027**

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.

2. Failure to comply with the terms, conditions or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. (40 CFR 122.41(a))

3. A complete application for renewal of this permit, or notice of intent to cease discharging by the expiration date, must be submitted to DEP at least 180 days prior to the above expiration date (unless permission has been granted by DEP for submission at a later date), using the appropriate NPDES permit application form. (40 CFR 122.41(b), 122.21(d))

   In the event that a timely and complete application for renewal has been submitted and DEP is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports (DMRs), will be automatically continued and will remain fully effective and enforceable against the discharger until DEP takes final action on the pending permit application. (25 Pa. Code §§ 92a.7(b), (c))

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED September 26, 2022

ISSUED BY Maria D. Bebenek

Maria D. Bebenek, P.E.
Environmental Program Manager
Southcentral Regional Office

Permit No. PA0027316

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40º 20' 14.72" , **Longitude** 76º 27' 43.77" , **River Mile Index** 12.04 , **Stream Code** 09691

Receiving Waters: Quittapahilla Creek (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **October 1, 2022** through **September 30, 2027**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	1334	2001	XXX	20	30	40	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	667	1000	XXX	10	15	20	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	2001	3002	XXX	30	45	60	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab

Outfall 001 , Continued (from October 1, 2022 through September 30, 2027)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	360	XXX	XXX	5.4	XXX	10.8	1/day	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	120	XXX	XXX	1.8	XXX	3.6	1/day	24-Hr Composite
Total Phosphorus	133	XXX	XXX	2.0	XXX	4	1/day	24-Hr Composite
Boron, Total	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Copper, Total	1.6	XXX	XXX	0.024	XXX	0.06	1/week	24-Hr Composite
Iron, Dissolved	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Zinc, Total	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS (Continued)

Additional Requirements

1. The permittee may not discharge:

   a. Floating solids, scum, sheen or substances that result in observed deposits in the receiving water. (25 Pa Code § 92a.41(c))

   b. Oil and grease in amounts that cause a film or sheen upon or discoloration of the waters of this Commonwealth or adjoining shoreline, or that exceed 15 mg/l as a daily average or 30 mg/l at any time (or lesser amounts if specified in this permit). (25 Pa. Code § 92a.47(a)(7), § 95.2(2))

   c. Substances in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. (25 Pa Code § 93.6(a))

   d. Foam or substances that produce an observed change in the color, taste, odor or turbidity of the receiving water, unless those conditions are otherwise controlled through effluent limitations or other requirements in this permit. For the purpose of determining compliance with this condition, DEP will compare conditions in the receiving water upstream of the discharge to conditions in the receiving water approximately 100 feet downstream of the discharge to determine if there is an observable change in the receiving water. (25 Pa Code § 92a.41(c))

2. The monthly average percent removal of BOD_5 or $CBOD_5$ and TSS must be at least 85% for POTW facilities on a concentration basis except where 25 Pa. Code 92a.47(g) and (h) are applicable to facilities with combined sewer overflows (CSOs) or as otherwise specified in this permit. (25 Pa. Code § 92a.47(a)(3))

3. If the permit requires the reporting of average weekly statistical results, the maximum weekly average concentration and maximum weekly average mass loading shall be reported, regardless of whether the results are obtained for the same or different weeks.

4. The permittee shall monitor the sewage effluent discharge(s) for the effluent parameters identified in the Part A limitations table(s) during all bypass events at the facility, using the sample types that are specified in the limitations table(s). Where the required sample type is “composite”, the permittee must commence sample collection within one hour of the start of the bypass, wherever possible. The results shall be reported on the Daily Effluent Monitoring supplemental form (3800-FM-BCW0435) and be incorporated into the calculations used to report self-monitoring data on Discharge Monitoring Reports (DMRs).

Footnotes

(1) When sampling to determine compliance with mass effluent limitations, the discharge flow at the time of sampling must be measured and recorded.

(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events.

Supplemental Information

(1) The hydraulic design capacity of 11 million gallons per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94.

(2) The effluent limitations for Outfall 001 were determined using an effluent discharge rate of 8 MGD.

(3) The organic design capacity of 22350 lbs BOD_5 per day for the treatment facility is used to prepare the annual Municipal Wasteload Management Report to determine whether an “organic overload” condition exists, as defined in 25 Pa. Code Chapter 94.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 001 , **Latitude** 40º 20' 14.72" , **Longitude** 76º 27' 43.77" , **River Mile Index** 12.04 , **Stream Code** 09691

Receiving Waters: Quittapahilla Creek (TSF)

Type of Effluent: Sewage Effluent

1. The permittee is authorized to discharge during the period from **October 1, 2022** through **September 30, 2027**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Net Total Nitrogen) (3)	XXX	146117	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	19482	XXX	XXX	XXX	XXX	1/year	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Footnotes:
(1) See Part C for Chesapeake Bay Requirements.
(2) This is the minimum number of sampling events required. Permittees are encouraged, and it may be advantageous in demonstrating compliance, to perform more than the minimum number of sampling events required.

(3) The permittee is authorized to use 10,375lbs/year as Total Nitrogen (TN) offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of 415 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection.

II. DEFINITIONS

At Outfall (XXX) means a sampling location in outfall line XXX below the last point at which wastes are added to outfall line (XXX), or where otherwise specified.

Average refers to the use of an arithmetic mean, unless otherwise specified in this permit. (40 CFR 122.41(l)(4)(iii))

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollutant loading to surface waters of the Commonwealth. The term also includes treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The term includes activities, facilities, measures, planning or procedures used to minimize accelerated erosion and sedimentation and manage stormwater to protect, maintain, reclaim, and restore the quality of waters and the existing and designated uses of waters within this Commonwealth before, during and after earth disturbance activities. (25 Pa. Code § 92a.2)

Bypass means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))

Calendar Week is defined as the seven consecutive days from Sunday through Saturday, unless the permittee has been given permission by DEP to provide weekly data as Monday through Friday based on showing excellent performance of the facility and a history of compliance. In cases when the week falls in two separate months, the month with the most days in that week shall be the month for reporting.

Clean Water Act means the Federal Water Pollution Control Act, as amended. (33 U.S.C.A. §§ 1251 to 1387).

Composite Sample (for all except GC/MS volatile organic analysis) means a combination of individual samples (at least eight for a 24-hour period or four for an 8-hour period) of at least 100 milliliters (mL) each obtained at spaced time intervals during the compositing period. The composite must be flow-proportional; either the volume of each individual sample is proportional to discharge flow rates, or the sampling interval is proportional to the flow rates over the time period used to produce the composite. (EPA Form 2C)

Composite Sample (for GC/MS volatile organic analysis) consists of at least four aliquots or grab samples collected during the sampling event (not necessarily flow proportioned). The samples must be combined in the laboratory immediately before analysis and then one analysis is performed. (EPA Form 2C)

Daily Average Temperature means the average of all temperature measurements made, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar day or during the operating day if flows are of a shorter duration.

Daily Discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Daily Maximum Discharge Limitation means the highest allowable "daily discharge."

Discharge Monitoring Report (DMR) means the DEP or EPA supplied form(s) for the reporting of self-monitoring results by the permittee. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Estimated Flow means any method of liquid volume measurement based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.

Geometric Mean means the average of a set of n sample results given by the nth root of their product.

Grab Sample means an individual sample of at least 100 mL collected at a randomly selected time over a period not to exceed 15 minutes. (EPA Form 2C)

Hauled-In Wastes means any waste that is introduced into a treatment facility through any method other than a direct connection to the sewage collection system. The term includes wastes transported to and disposed of within the treatment facility or other entry points within the collection system.

Hazardous Substance means any substance designated under 40 CFR Part 116 pursuant to Section 311 of the Clean Water Act. (40 CFR 122.2)

Immersion Stabilization (i-s) means a calibrated device is immersed in the wastewater until the reading is stabilized.

Indirect Discharger means a non-domestic discharger introducing pollutants to a Publicly Owned Treatment Works (POTW) or other treatment works. (25 Pa. Code § 92a.2, 40 CFR 122.2)

Industrial User means a source of Indirect Discharge. (40 CFR 403.3)

Instantaneous Maximum Effluent Limitation means the highest allowable discharge of a concentration or mass of a substance at any one time as measured by a grab sample. (25 Pa. Code § 92a.2)

Measured Flow means any method of liquid volume measurement, the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.

Monthly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month. (25 Pa. Code § 92a.2)

Municipality means a city, town, borough, county, township, school district, institution, authority or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes. (25 Pa. Code § 92a.2)

Municipal Waste means garbage, refuse, industrial lunchroom or office waste and other material, including solid, liquid, semisolid or contained gaseous material resulting from operation of residential, municipal, commercial or institutional establishments and from community activities; and sludge not meeting the definition of residual or hazardous waste under this section from a municipal, commercial or institutional water supply treatment plant, waste water treatment plant or air pollution control facility. (25 Pa. Code § 271.1)

Publicly Owned Treatment Works (POTW) means a treatment works as defined by §212 of the Clean Water Act, owned by a state or municipality. The term includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. The term also includes sewers, pipes or other conveyances if they convey wastewater to a POTW providing treatment. The term also means the municipality as defined in section 502(4) of the Clean Water Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works. (25 Pa Code § 92a.2, 40 CFR 122.2)

Residual Waste means garbage, refuse, other discarded material or other waste, including solid, liquid, semisolid or contained gaseous materials resulting from industrial, mining and agricultural operations and sludge from an industrial, mining or agricultural water supply treatment facility, wastewater treatment facility or air pollution control facility, if it is not hazardous. The term does not include coal refuse as defined in the Coal Refuse Disposal Control Act. The term does not include treatment sludges from coal mine drainage treatment plants, disposal of which is being carried on under and in compliance with a valid permit issued under the Clean Streams Law. (25 Pa Code § 287.1)

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))

Stormwater means the runoff from precipitation, snow melt runoff, and surface runoff and drainage. (25 Pa. Code § 92a.2)

Stormwater Associated With Industrial Activity means the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, and as defined at 40 CFR 122.26(b)(14) (i) – (ix) and (xi) and 25 Pa. Code § 92a.2.

Toxic Pollutant means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains may, on the basis of information available to DEP cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in these organisms or their offspring. (25 Pa. Code § 92a.2)

Weekly Average Discharge Limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

III. SELF-MONITORING, REPORTING AND RECORDKEEPING

A. Representative Sampling

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity (40 CFR 122.41(j)(1)). Representative sampling includes the collection of samples, where possible, during periods of adverse weather, changes in treatment plant performance and changes in treatment plant loading. If possible, effluent samples must be collected where the effluent is well mixed near the center of the discharge conveyance and at the approximate mid-depth point, where the turbulence is at a maximum and the settlement of solids is minimized. (40 CFR 122.48, 25 Pa. Code § 92a.61)

2. Records Retention (40 CFR 122.41(j)(2))

   Except for records of monitoring information required by this permit related to the permittee's sludge use and disposal activities which shall be retained for a period of at least 5 years, all records of monitoring activities and results (including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records), copies of all reports required by this permit, and records of all data used to complete the application for this permit shall be retained by the permittee for 3 years from the date of the sample measurement, report or application. The 3-year period shall be extended as requested by DEP or the EPA Regional Administrator.

3. Recording of Results (40 CFR 122.41(j)(3))

   For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

   a. The exact place, date and time of sampling or measurements.
   b. The person(s) who performed the sampling or measurements.
   c. The date(s) the analyses were performed.
   d. The person(s) who performed the analyses.
   e. The analytical techniques or methods used; and the associated detection level.
   f. The results of such analyses.

4. Test Procedures

   a. Facilities that test or analyze environmental samples used to demonstrate compliance with this permit shall be in compliance with laboratory accreditation requirements of Act 90 of 2002 (27 Pa. C.S. §§ 4101-4113) and 25 Pa. Code Chapter 252, relating to environmental laboratory accreditation.

   b. Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be those approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, unless the method is specified in this permit or has been otherwise approved in writing by DEP. (40 CFR 122.41(j)(4)), 122.44(i)(1)(iv))

   c. Test procedures (methods) for the analysis of pollutants or pollutant parameters shall be sufficiently sensitive. A method is sufficiently sensitive when 1) the method minimum level is at or below the level of the effluent limit established in the permit for the measured pollutant or pollutant parameter; or 2) the method has the lowest minimum level of the analytical methods approved under 40 CFR Part 136 or required under 40 CFR Chapter I, Subchapters N or O, for the measured pollutant or pollutant parameter; or 3) the method is specified in this permit or has been otherwise approved in writing by DEP for the measured pollutant or pollutant parameter. Permittees have the option of providing matrix or sample-specific minimum levels rather than the published levels. (40 CFR 122.44(i)(1)(iv))

5. Quality/Assurance/Control

   In an effort to assure accurate self-monitoring analyses results:

   a. The permittee, or its designated laboratory, shall participate in the periodic scheduled quality assurance inspections conducted by DEP and EPA. (40 CFR 122.41(e), 122.41(i)(3))

   b. The permittee, or its designated laboratory, shall develop and implement a program to assure the quality and accurateness of the analyses performed to satisfy the requirements of this permit, in accordance with 40 CFR Part 136. (40 CFR 122.41(j)(4))

B. Reporting of Monitoring Results

1. The permittee shall effectively monitor the operation and efficiency of all wastewater treatment and control facilities, and the quantity and quality of the discharge(s) as specified in this permit. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.44, 92a.61(i) and 40 CFR §§ 122.41(e), 122.44(i)(1))

2. The permittee shall use DEP's electronic Discharge Monitoring Report (eDMR) system to report the results of compliance monitoring under this permit (see www.dep.pa.gov/edmr). Permittees that are not using the eDMR system as of the effective date of this permit shall submit the necessary registration and trading partner agreement forms to DEP's Bureau of Clean Water (BCW) within 30 days of the effective date of this permit and begin using the eDMR system when notified by DEP BCW to do so. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(g) and 40 CFR § 122.41(l)(4))

3. Submission of a physical (paper) copy of a Discharge Monitoring Report (DMR) is acceptable under the following circumstances:

   a. For a permittee that is not yet using the eDMR system, the permittee shall submit a physical copy of a DMR to the DEP regional office that issued the permit during the interim period between the submission of registration and trading partner agreement forms to DEP and DEP's notification to begin using the eDMR system.

   b. For any permittee, as a contingency a physical DMR may be mailed to the DEP regional office that issued the permit if there are technological malfunction(s) that prevent the successful submission of a DMR through the eDMR system. In such situations, the permittee shall submit the DMR through the eDMR system within 5 days following remedy of the malfunction(s).

4. DMRs must be completed in accordance with DEP's published DMR instructions (3800-FM-BCW0463). DMRs must be received by DEP no later than 28 days following the end of the monitoring period. DMRs are based on calendar reporting periods and must be received by DEP in accordance with the following schedule:

   - Monthly DMRs must be received within 28 days following the end of each calendar month.
   - Quarterly DMRs must be received within 28 days following the end of each calendar quarter, i.e., January 28, April 28, July 28, and October 28.
   - Semiannual DMRs must be received within 28 days following the end of each calendar semiannual period, i.e., January 28 and July 28.
   - Annual DMRs must be received by January 28, unless Part C of this permit requires otherwise.

5. The permittee shall complete all Supplemental Reporting forms (Supplemental DMRs) attached to this permit, or an approved equivalent, and submit the signed, completed forms as attachments to the DMR, through DEP's eDMR system. DEP's Supplemental Laboratory Accreditation Form (3800-FM-BCW0189) must be completed and submitted to DEP with the first DMR following issuance of this permit, and anytime thereafter when changes to laboratories or methods occur. (25 Pa. Code §§ 92a.3(c), 92a.41(a), 92a.61(g) and 40 CFR § 122.41(l)(4))

6. The completed DMR Form shall be signed and certified by either of the following applicable persons, as defined in 25 Pa. Code § 92a.22:

- For a corporation - by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility from which the discharge described in the NPDES form originates.
- For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.
- For a municipality, state, federal or other public agency - by a principal executive officer or ranking elected official.

If signed by a person other than the above and for co-permittees, written notification of delegation of DMR signatory authority must be submitted to DEP in advance of or along with the relevant DMR form. (40 CFR § 122.22(b))

7. If the permittee monitors any pollutant at monitoring points as designated by this permit, using analytical methods described in Part A III.A.4. herein, more frequently than the permit requires, the results of this monitoring shall be incorporated, as appropriate, into the calculations used to report self-monitoring data on the DMR. (40 CFR 122.41(l)(4)(ii))

C. Reporting and Notification Requirements

1. Planned Changes to Physical Facilities – The permittee shall give notice to DEP as soon as possible but no later than 30 days prior to planned physical alterations or additions to the permitted facility. A permit under 25 Pa. Code Chapter 91 may be required for these situations prior to implementing the planned changes. A permit application, or other written submission to DEP, can be used to satisfy the notification requirements of this section.

   Notice is required when:

   a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b). (40 CFR 122.41(l)(1)(i))

   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are not subject to effluent limitations in this permit. (40 CFR 122.41(l)(1)(ii))

   c. 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 or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

   d. The planned change may result in noncompliance with permit requirements. (40 CFR 122.41(l)(2))

2. Planned Changes to Waste Stream – Under the authority of 25 Pa. Code § 92a.24(a) and 40 CFR 122.42(b), the permittee shall provide notice to DEP and EPA as soon as possible but no later than 45 days prior to any planned changes in the volume or pollutant concentration of its influent waste stream as a result of indirect discharges or hauled-in wastes, as specified in paragraphs 2.a. and 2.b., below. Notice shall be provided on the “Planned Changes to Waste Stream” Supplemental Report (3800-FM-BCW0482), available on DEP’s website. The permittee shall provide information on the quality and quantity of waste introduced into the POTW, and any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW (40 CFR 122.42(b)(3)). The Report shall be sent via Certified Mail or other means to confirm DEP’s receipt of the notification. DEP will determine if the submission of a new application and receipt of a new or amended permit is required.

   a. Introduction of New Pollutants (25 Pa. Code § 92a.24(a), 40 CFR 122.42(b)(1))

      New pollutants are defined as parameters that meet one or more of the following criteria:

(i) Any pollutants that were not detected in the facilities' influent waste stream as reported in the permit application; and have not been approved to be included in the permittee's influent waste stream by DEP in writing.

(ii) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to Sections 301 or 306 of the Clean Water Act if it were directly discharging those pollutants. (40 CFR 122.42(b)(1))

The permittee shall provide notification of the introduction of new pollutants in accordance with paragraph 2 above. The permittee may not authorize the introduction of new pollutants until the permittee receives DEP's written approval.

b. Increased Loading of Approved Pollutants (25 Pa. Code § 92a.24(a), 40 CFR 122.42(b)(2))

Approved pollutants are defined as parameters that meet one or more of the following criteria:

(i) Were detected in the facilities' influent waste stream as reported in the permittee's permit application; or have been previously approved to be included in the permittee's influent waste stream by DEP in writing.

(ii) Have an effluent limitation or monitoring requirement in this permit.

The permittee shall provide notification of the introduction of increased influent loading (lbs/day) of approved pollutants in accordance with paragraph 2 above when (1) the cumulative increase in influent loading (lbs/day) exceeds 20% of the maximum loading reported in the permit application, or a loading previously approved by DEP and/or EPA, or (2) may cause an exceedance in the effluent of Effluent Limitation Guidelines (ELGs) or limitations in Part A of this permit, or (3) may cause interference or pass through at the POTW (as defined at 40 CFR 403.3), or (4) may cause exceedances of the applicable water quality standards in the receiving stream. Unless specified otherwise in this permit, if DEP does not respond to the notification within 30 days of its receipt, the permittee may proceed with the increase in loading. The acceptance of increased loading of approved pollutants may not result in an exceedance of ELGs or effluent limitations, may not result in a hydraulic or organic overload condition as defined in 25 Pa. Code § 94.1, and may not cause exceedances of the applicable water quality standards in the receiving stream.

3. Reporting Requirements for Hauled-In Wastes

a. Receipt of Residual Waste

(i) The permittee shall document the receipt of all hauled-in residual wastes (including but not limited to wastewater from conventional oil and gas wells, food processing waste, and landfill leachate), as defined at 25 Pa. Code § 287.1, that are received for processing at the treatment facility. The permittee shall report hauled-in residual wastes on a monthly basis to DEP on the "Hauled In Residual Wastes" Supplemental Report (3800-FM-BCW0450) as an attachment to the DMR. If no residual wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report. The information used to develop the Report shall be retained by the permittee for five years from the date of receipt and must be made available to DEP or EPA upon request.

(1) The dates that residual wastes were received.

(2) The volume (gallons) of wastes received.

(3) The license plate number of the vehicle transporting the waste to the treatment facility.

(4) The permit number(s) of the well(s) where residual wastes were generated, if applicable.

(5) The name and address of the generator of the residual wastes.

(6) The type of wastewater.

The transporter of residual waste must maintain these and other records as part of the daily operational record (25 Pa. Code § 299.219). If the transporter is unable to provide this information or the permittee has not otherwise received the information from the generator, the residual wastes shall not be accepted by the permittee until such time as the permittee receives such information from the transporter or generator.

(ii) In accordance with 40 CFR Part 435, Subpart C, the permittee shall not accept wastewater pollutants associated with production, field exploration, drilling, well completion, or well treatment for unconventional oil and gas extraction (including, but not limited to, drilling muds, drill cuttings, produced sand, produced water). Unconventional oil and gas means crude oil and natural gas produced by a well drilled into a shale and/or tight formation (including, but not limited to, shale gas, shale oil, tight gas, and tight oil). This prohibition does not apply to wastewater generated from stripper wells as defined at 40 CFR Part 435, Subpart F.

(iii) If the generator is required to complete a chemical analysis of residual wastes in accordance with 25 Pa. Code § 287.51, the permittee must receive and maintain on file a chemical analysis of the residual wastes it receives. The chemical analysis must conform to the Bureau of Waste Management's Form 26R. Each load of residual waste received must be covered by a chemical analysis if the generator is required to complete it.

b. Receipt of Municipal Waste

(i) The permittee shall document the receipt of all hauled-in municipal wastes (including but not limited to septage and liquid sewage sludge), as defined at 25 Pa. Code § 271.1, that are received for processing at the treatment facility. The permittee shall report hauled-in municipal wastes on a monthly basis to DEP on the "Hauled In Municipal Wastes" Supplemental Report (3800-FM-BCW0437) as an attachment to the DMR. If no municipal wastes were received during a month, submission of the Supplemental Report is not required.

The following information is required by the Supplemental Report:

(1) The dates that municipal wastes were received.

(2) The volume (gallons) of wastes received.

(3) The BOD_5 concentration (mg/l) and load (lbs) for the wastes received.

(4) The location(s) where wastes were disposed of within the treatment facility.

(ii) Sampling and analysis of hauled-in municipal wastes must be completed to characterize the organic strength of the wastes, unless composite sampling of influent wastewater is performed at a location downstream of the point of entry for the wastes. The influent BOD_5 characterization for the treatment facility, as reported in the annual Municipal Wasteload Management Report per 25 Pa. Code Chapter 94, must be representative of the hauled-in municipal wastes received.

4. Unanticipated Noncompliance or Potential Pollution Reporting

   a. Immediate Reporting - The permittee shall immediately report any incident causing or threatening pollution in accordance with the requirements of 25 Pa. Code §§ 91.33 and 92a.41(b).

      (i) If, because of an accident, other activity or incident a toxic substance or another substance which would endanger users downstream from the discharge, or would otherwise result in pollution or create a danger of pollution or would damage property, the permittee shall immediately notify DEP by telephone of the location and nature of the danger. Oral notification to the Department is required as soon as possible, but no later than 4 hours after the permittee becomes aware of the incident causing or threatening pollution.

      (ii) If reasonably possible to do so, the permittee shall immediately notify downstream users of the waters of the Commonwealth to which the substance was discharged. Such notice shall include the location and nature of the danger.

      (iii) The permittee shall immediately take or cause to be taken steps necessary to prevent injury to property and downstream users of the waters from pollution or a danger of pollution and, in addition, within 15 days from the incident, shall remove the residual substances contained thereon or therein from the ground and from the affected waters of this Commonwealth to the extent required by applicable law.

   b. The permittee shall report any noncompliance which may endanger health or the environment in accordance with the requirements of 40 CFR 122.41(l)(6). These requirements include the following obligations:

      (i) 24 Hour Reporting - The permittee shall orally report any noncompliance with this permit which may endanger health or the environment within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):

         (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;

         (2) Any upset which exceeds any effluent limitation in the permit; and

         (3) Violation of the maximum daily discharge limitation for any of the pollutants listed in the permit as being subject to the 24-hour reporting requirement.

      (ii) Written Report - A written submission shall also be provided within 5 days of the time the permittee becomes aware of any noncompliance which may endanger health or the environment. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

      (iii) Waiver of Written Report - DEP may waive the written report on a case-by-case basis if the associated oral report has been received within 24 hours from the time the permittee becomes aware of the circumstances which may endanger health or the environment. Unless such a waiver is expressly granted by DEP, the permittee shall submit a written report in accordance with this paragraph. (40 CFR 122.41(l)(6)(iii))

5. Other Noncompliance

   The permittee shall report all instances of noncompliance not reported under paragraph C.4 of this section or specific requirements of compliance schedules, at the time DMRs are submitted, on the Non-Compliance Reporting Form (3800-FM-BCW0440). The reports shall contain the information listed in paragraph C.4.b.(ii) of this section. (40 CFR 122.41(l)(7))

D. Annual Fee (25 Pa. Code § 92a.62)

Permittees shall pay an annual fee in accordance with 25 Pa. Code § 92a.62. As of the effective date of this permit, the facility covered by the permit is classified in the **Major Sewage Facility >=5 MGD** fee category, which has an annual fee of **$5,000.**

Invoices for annual fees will be mailed to permittees approximately three months prior to the due date. In the event that an invoice is not received, the permittee is nonetheless responsible for payment. Permittees may contact the DEP at 717-787-6744 with questions related to annual fees. The fee identified above is subject to change if DEP publishes changes to 25 Pa. Code § 92a.62.

Payment for annual fees shall be remitted to DEP at the address below or through DEP's electronic payment system (www.depgreenport.state.pa.us/NPDESpay) by the due date specified on the invoice. Checks, if used for payment, should be made payable to the Commonwealth of Pennsylvania.

PA Department of Environmental Protection
Bureau of Clean Water
Re: Chapter 92a Annual Fee
P.O. Box 8466
Harrisburg, PA 17105-8466

PART B

I. MANAGEMENT REQUIREMENTS

A. Compliance

1. The permittee shall comply with all conditions of this permit. If a compliance schedule has been established in this permit, the permittee shall achieve compliance with the terms and conditions of this permit within the time frames specified in this permit. (40 CFR 122.41(a)(1))

2. The permittee shall submit reports of compliance or noncompliance, or progress reports as applicable, for any interim and final requirements contained in this permit. Such reports shall be submitted no later than 14 days following the applicable schedule date or compliance deadline. (25 Pa. Code § 92a.51(c), 40 CFR 122.47(a)(4))

B. Permit Modification, Termination, or Revocation and Reissuance

1. This permit may be modified, terminated, or revoked and reissued during its term in accordance with Title 25 Pa. Code § 92a.72 and 40 CFR 122.41(f).

2. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. (40 CFR 122.41(f))

3. In the absence of DEP action to modify or revoke and reissue this permit, the permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time specified in the regulations that establish those standards or prohibitions. (40 CFR 122.41(a)(1))

C. Duty to Provide Information

1. The permittee shall furnish to DEP, within a reasonable time, any information which DEP may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. (40 CFR 122.41(h))

2. The permittee shall furnish to DEP, upon request, copies of records required to be kept by this permit. (40 CFR 122.41(h))

3. 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 DEP, it shall promptly submit the correct and complete facts or information. (40 CFR 122.41(l)(8))

4. The permittee shall provide the following information in the annual Municipal Wasteload Management Report, required under the provisions of Title 25 Pa. Code Chapter 94:

   a. The requirements identified in 25 Pa. Code § 94.12.

   b. The identity of any indirect discharger(s) served by the POTW which are subject to pretreatment standards adopted under Section 307(b) of the Clean Water Act; the POTW shall also specify the total volume of discharge and estimated concentration of each pollutant discharged into the POTW by the indirect discharger.

   c. A “Solids Management Inventory” if specified in Part C of this permit.

   d. The total volume of hauled-in residual and municipal wastes received during the year, by source.

   e. The Annual Report requirements for permittees required to implement an industrial pretreatment program listed in Part C, as applicable.

D. General Pretreatment Requirements

1. Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (MGD) and receiving from industrial users pollutants which pass through or interfere with the operation of the POTW or are otherwise subject to Pretreatment Standards will be required to establish a POTW Pretreatment Program unless specifically exempted by the Approval Authority. A POTW with a design flow of 5 MGD or less may be required to develop a POTW Pretreatment Program if the Approval Authority finds that the nature or volume of the industrial influent, treatment process upsets, violations of effluent limitations, contamination of sludge, or other circumstances warrant in order to prevent interference or pass through. (40 CFR 403.8)

2. Each POTW with an approved Pretreatment Program pursuant to 40 CFR 403.8 shall develop and enforce specific limits to implement the prohibitions listed in 40 CFR 403.5(a)(1) and (b), and shall continue to develop these limits as necessary and effectively enforce such limits. This condition applies, for example, when there are planned changes to the waste stream as identified in Part A III.C.2. If the permittee is required to develop or continue implementation of a Pretreatment Program, detailed requirements will be contained in Part C of this permit.

3. For all POTWs, where pollutants contributed by indirect dischargers result in interference or pass through, and a violation is likely to recur, the permittee shall develop and enforce specific limits for indirect dischargers and other users, as appropriate, that together with appropriate facility or operational changes, are necessary to ensure renewed or continued compliance with this permit or sludge use or disposal practices. Where POTWs do not have an approved Pretreatment Program, the permittee shall submit a copy of such limits to DEP when developed. (25 Pa. Code § 92a.47(d))

E. Proper Operation and Maintenance

1. The permittee shall employ operators certified in compliance with the Water and Wastewater Systems Operators Certification Act (63 P.S. §§ 1001-1015.1).

2. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls including appropriate quality assurance procedures. This provision also includes the operation of backup or auxiliary facilities or similar systems that are installed by the permittee, only when necessary to achieve compliance with the terms and conditions of this permit. (40 CFR 122.41(e))

F. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge, sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

G. Bypassing

1. Bypassing Not Exceeding Permit Limitations - The permittee may allow a bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions in paragraphs two, three and four of this section. (40 CFR 122.41(m)(2))

2. Other Bypassing - In all other situations, bypassing is prohibited and DEP may take enforcement action against the permittee for bypass unless:

a. A bypass is unavoidable to prevent loss of life, personal injury or "severe property damage." (40 CFR 122.41(m)(4)(i)(A))

b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup 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 preventive maintenance. (40 CFR 122.41(m)(4)(i)(B))

c. The permittee submitted the necessary notice required in paragraph G.4 below. (40 CFR 122.41(m)(4)(i)(C))

3. DEP may approve an anticipated bypass, after considering its adverse effects, if DEP determines that it will meet the conditions listed in paragraph G.2 above. (40 CFR 122.41(m)(4)(ii))

4. Notice

a. Anticipated Bypass – If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least 10 days before the bypass. (40 CFR 122.41(m)(3)(i))

b. Unanticipated Bypass – The permittee shall submit oral notice of any unanticipated bypass within 24 hours, regardless of whether the bypass may endanger health or the environment or whether the bypass exceeds effluent limitations. The notice shall be in accordance with Part A III.C.4.b.

H. Sanitary Sewer Overflows (SSOs)

An SSO is an overflow of wastewater, or other untreated discharge from a separate sanitary sewer system (which is not a combined sewer system), which results from a flow in excess of the carrying capacity of the system or from some other cause prior to reaching the headworks of the sewage treatment facility. SSOs are not authorized under this permit. The permittee shall immediately report any SSO to DEP in accordance with Part A III.C.4 of this permit.

I. Termination of Permit Coverage (25 Pa. Code § 92a.74 and 40 CFR 122.64)

1. Notice of Termination (NOT) – If the permittee plans to cease operations or will otherwise no longer require coverage under this permit, the permittee shall submit DEP's NPDES Notice of Termination (NOT) for Permits Issued Under Chapter 92a (3800-BCW-0410), signed in accordance with Part A III.B.6 of this permit, at least 30 days prior to cessation of operations or the date by which coverage is no longer required.

2. Where the permittee plans to cease operations, NOTs must be accompanied with an operation closure plan that identifies how tankage and equipment will be decommissioned and how pollutants will be managed.

3. The permittee shall submit the NOT to the DEP regional office with jurisdiction over the county in which the operation is located.

II. PENALTIES AND LIABILITY

A. Violations of Permit Conditions

Any person violating Sections 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act or any permit condition or limitation implementing such sections in a permit issued under Section 402 of the Act is subject to civil, administrative and/or criminal penalties as set forth in 40 CFR 122.41(a)(2).

Any person or municipality, who violates any provision of this permit; any rule, regulation or order of DEP; or any condition or limitation of any permit issued pursuant to the Clean Streams Law, is subject to criminal and/or civil penalties as set forth in Sections 602, 603 and 605 of the Clean Streams Law.

B. Falsifying Information

Any person who does any of the following:

- Falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, or

- Knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit (including monitoring reports or reports of compliance or noncompliance)

Shall, upon conviction, be punished by a fine and/or imprisonment as set forth in 18 Pa.C.S.A § 4904 and 40 CFR 122.41(j)(5) and (k)(2).

C. Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance pursuant to Section 309 of the Clean Water Act or Sections 602, 603 or 605 of the Clean Streams Law.

Nothing in this permit shall be construed to preclude the institution of any legal action or to relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject to under the Clean Water Act and the Clean Streams Law.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

III. OTHER RESPONSIBILITIES

A. Right of Entry

Pursuant to Sections 5(b) and 305 of Pennsylvania's Clean Streams Law, and Title 25 Pa. Code Chapter 92a and 40 CFR §122.41(i), the permittee shall allow authorized representatives of DEP and EPA, upon the presentation of credentials and other documents as may be required by law:

1. To enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit; (40 CFR 122.41(i)(1))

2. To have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit; (40 CFR 122.41(i)(2))

3. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and (40 CFR 122.41(i)(3))

4. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act or the Clean Streams Law, any substances or parameters at any location. (40 CFR 122.41(i)(4))

B. Transfer of Permits

1. Transfers by modification. Except as provided in paragraph 2 of this section, a permit may be transferred by the permittee to a new owner or operator only if this permit has been modified or revoked and reissued, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (40 CFR 122.61(a))

2. Automatic transfers. As an alternative to transfers under paragraph 1 of this section, any NPDES permit may be automatically transferred to a new permittee if:

   a. The current permittee notifies DEP at least 30 days in advance of the proposed transfer date in paragraph 2.b. of this section; (40 CFR 122.61(b)(1))

   b. The notice includes the appropriate DEP transfer form signed by the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; (40 CFR 122.61(b)(2))

   c. DEP does not notify the existing permittee and the proposed new permittee of its intent to modify or revoke and reissue this permit, the transfer is effective on the date specified in the agreement mentioned in paragraph 2.b. of this section; and (40 CFR 122.61(b)(3))

   d. The new permittee is in compliance with existing DEP issued permits, regulations, orders and schedules of compliance, or that has demonstrated any noncompliance with the existing permits has been resolved by an appropriate compliance action or by the terms and conditions of the permit (including compliance schedules set forth in the permit), consistent with 25 Pa. Code § 92a.51 (relating to schedules of compliance) and other appropriate DEP regulations. (25 Pa. Code § 92a.71)

3. In the event DEP does not approve transfer of this permit, the new owner or operator must submit a new permit application.

C. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege. (40 CFR 122.41(g))

D. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit. (40 CFR 122.41(b))

E. Other Laws

The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations.

PART C

I. CHESAPEAKE BAY NUTRIENT REQUIREMENTS

A. The Annual Net Total Nitrogen (TN) and Annual Net Total Phosphorus (TP) Mass Load effluent limitations ("Cap Loads") in Part A of this permit are required in order to meet the downstream water quality standards of the State of Maryland, as required by 25 Pa. Code Chapter 92a, the federal Clean Water Act, and implementing regulations.

B. Definitions

Annual Net Mass Load (lbs): The Annual Total Mass Load for one year beginning October 1st and ending September 30th, adjusted for Credits sold and applied and Offsets applied. Annual Net Mass Loads are compared to Cap Loads to determine compliance.

Cap Load (lbs): The mass load of a pollutant authorized by an NPDES permit. Cap Loads for TN and TP are implemented in NPDES permits by the establishment of Annual Net Mass Load limits. The term "Net" is used to recognize that Credits and Offsets may be used to comply with the limits. The Annual Net Mass Load must be less than or equal to the Cap Load to achieve compliance.

Certification: Written approval by DEP of a proposed pollutant reduction activity to generate credits before the credits are verified and registered to be used to comply with NPDES permit effluent limitations.

Compliance Year: The year-long period starting October 1st and ending September 30th. The Compliance Year will be named for the year in which it ends. For example, the period of October 1, 2015 through September 30, 2016 is compliance year 2016.

Credit: The tradable unit of compliance that corresponds with a unit of reduction of a pollutant as recognized by DEP which, when certified, verified and registered, may be used to comply with NPDES permit effluent limitations.

Delivery Ratio: A ratio that compensates for the natural attenuation of a pollutant as it travels in water before it reaches a defined compliance point.

Offset: The pollutant load reduction measured in pounds (lbs) that is created by an action, activity or technology which when approved by DEP may be used to comply with NPDES permit effluent limitations, conditions and stipulations under 25 Pa. Code Chapter 92a (relating to NPDES permitting, monitoring and compliance.) The offset may only be used by the NPDES permittee that DEP determines is associated with the load reduction achieved by the action, activity or technology.

Registration: An accounting mechanism used by DEP to track certified and verified credits before they may be used to comply with NPDES permit effluent limitations.

Total Mass Load (lbs):

Monthly Total Mass Load = The sum of the actual daily discharge loads for TN and TP (lbs/day) divided by the number of samples per month, multiplied by the number of days in the month in which there was a discharge. The daily discharge load for TN and TP (lbs/day) equals the average daily flow (MGD) on the day of sampling, multiplied by that day's sample concentration for TN and TP (mg/l), multiplied by 8.34.

Annual Total Mass Load = The sum of the actual daily discharge loads for TN and TP (lbs/day) divided by the number of samples per Compliance Year, multiplied by the number of days in the Compliance Year in which there was a discharge.

Total Nitrogen: For concentration and load, Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample.

Truing Period: The time provided following each Compliance Year for a permittee to comply with Cap Loads through the application of Credits and Offsets. The Truing Period will start on October 1st and end on November 28th of the same calendar year, unless DEP extends this period. During this period, compliance for the specified year may be achieved by using registered Credits that were generated during that Compliance Year. For example, Credits that are used to achieve compliance in Compliance Year 2016 must have been generated during Compliance Year 2016. Approved Offsets that have been generated may also be applied during the Truing Period.

Verification: Assurance that the verification plan contained in a certification, permit or other approval issued by DEP has been implemented. Verification is required prior to registration of the credits for use in an NPDES permit to comply with NPDES permit effluent limitations.

C. Nutrient Credits

1. Credits may be used for compliance with the Cap Loads when authorized under 25 Pa. Code § 96.8 (Use of offsets and tradable credits from pollution reduction activities in the Chesapeake Bay Watershed), including amendments, updates and revisions thereto; in accordance with DEP's Phase 2 WIP Wastewater Supplement (see www.dep.pa.gov/npdes-bay); and in accordance with DEP's Phase 2 WIP Nutrient Trading Supplement (see www.dep.pa.gov/nutrient_trading).

2. Where effluent limitations for TN and/or TP are established in Part A of the permit for reasons other than the Cap Load assigned for protection of the Chesapeake Bay ("local nutrient limits"), the permittee may purchase and apply credits for compliance with the Cap Load(s) only when the permittee has demonstrated that local nutrient limits have been achieved.

3. Where local nutrient limits are established in Part A of the permit, the permittee may sell any credits generated only after the permittee has demonstrated that local nutrient limits have been achieved and those credits have been verified in accordance with the procedures established in the Phase 2 WIP Nutrient Trading Supplement.

D. Use of Offsets for Compliance

1. Offsets can only be used by the permittee to comply with its Cap Loads. Offsets are not eligible for use as Credits.

2. Offsets must be approved by DEP in writing before they may be applied for compliance with Cap Loads.

3. Offsets that are approved under this permit are listed in Part A, Footnotes. These Offsets may be applied each Compliance Year toward compliance with the Cap Loads. The application of these Offsets must be reported on an annual basis. Additional Offsets may be approved throughout the permit term.

4. Offsets may be approved for the connection of on-lot sewage disposal systems that existed prior to January 1, 2003 to public sewers. Twenty five pounds (25 lbs) of TN Offsets per year may be approved for each on-lot system retirement. These approved Offsets are cumulative. For example, if 10 on-lot systems are retired in year 1 (250 lbs TN approved Offsets) and 10 on-lot systems are retired in year 2, 500 lbs TN Offsets may be used toward compliance with the TN Cap Load in year 2 and thereafter.

5. For DEP to approve on-lot system retirement Offsets, the permittee must submit documentation indicating the on-lot systems existed prior to January 1, 2003 and were eliminated by connection to public sewers after January 1, 2003. This documentation must be retained by the permittee for as long as the Offsets are used to achieve compliance with Cap Loads.

6. Offsets may be approved for the transfer of load between facilities owned by the same entity if (1) the facility receiving Offsets does not discharge to waters classified as impaired for nutrients and (2) the Delivery Ratios approved by DEP for TN or TP, as applicable, are the same. Delivery ratios for the facility authorized to discharge under this permit are listed in DEP's Phase 2 Watershed Implementation Plan (WIP) Wastewater Supplement, available at the following website:

Such Offsets may only be applied in the Compliance Year in which the transfer occurred, and are not cumulative.

7. Offsets may be approved for the acceptance of hauled-in septage at the permittee's facility from residential sources within the municipal Act 537 planning area. Three pounds (3 lbs) of TN Offsets per year may be approved per 1,000 gallons of septage accepted and processed at the facility. Offsets may be approved for the acceptance of residential septage only. For the purpose of these Offsets, septage is defined as material removed from a septic tank by pumping. No other hauled-in wastes, including but not limited to holding tank wastes, solids and sludges generated at other facilities, may be approved. Such approved Offsets may only be applied in the Compliance Year in which the septage was accepted and are not cumulative.

E. Reporting Requirements

1. eDMR System – The permittee shall utilize DEP's electronic Discharge Monitoring Report (eDMR) system to submit DMR data and Supplemental DMR forms.

2. Chesapeake Bay Annual DMR – The permittee shall submit the Chesapeake Bay Annual DMR through the eDMR system to report Annual Total Mass Loads and Annual Net Mass Loads by November 28th following each Compliance Year.

3. Supplemental Reports – The permittee shall utilize DEP's Annual Chesapeake Bay Spreadsheet ("Spreadsheet"), available at www.dep.pa.gov/npdes-bay, to record all nutrient concentrations and loads throughout the Compliance Year. The permittee shall also use the Spreadsheet to document all Credits sold and purchased and Offsets applied in order to calculate the facility's Annual Net Mass Loads for TN and TP. The permittee shall submit the Spreadsheet through the eDMR system as an attachment to the Chesapeake Bay Annual DMR, unless instructed otherwise by DEP.

II. POTW PRETREATMENT PROGRAM IMPLEMENTATION

A. General Requirement – The permittee shall operate and implement a POTW pretreatment program in accordance with the federal Clean Water Act, the Pennsylvania Clean Streams Law, and the federal General Pretreatment Regulations at 40 CFR Part 403. The program shall also be implemented in accordance with the permittee's approved pretreatment program and any modifications thereto submitted by the permittee and approved by the Approval Authority.

B. Annual Report and Other Requirements – The permittee shall submit a Pretreatment Annual Report by March 31 of each year to EPA that describes the permittee's pretreatment activities for the previous calendar year. The Pretreatment Annual Report shall include a description of pretreatment activities in all municipalities from which wastewater is received at the permittee's POTW. The Pretreatment Annual Report shall include the following information, at minimum:

1. Industrial Listing – The Annual Report shall contain an updated industrial listing providing the names and addresses of all current Significant Industrial Users (SIUs) and Non-Significant Categorical Industrial Users (NSCIUs), as defined in 40 CFR 403.3, and the categorical standard, if any, applicable to each. The listing must: (1) identify any users that are subject to reduced reporting requirements under 40 CFR 403.12(e)(3); (2) identify which users are NSCIUs; (3) identify any users that have been granted a monitoring waiver in accordance with 40 CFR 403.12(e)(2) as well as the pollutants for which the waiver was granted and the date of the last POTW sampling event for each pollutant; and (4) identify any categorical industrial users that have been given mass-based limits in place of concentration-based categorical limits in accordance with 40 CFR 403.6(c)(5) or concentration-based limits in place of mass-based categorical limits in accordance with 40 CFR 403.6(c)(6).

In addition, the Annual Report shall contain a summary of any hauled-in wastes accepted at the POTW including the source of the wastes (domestic, commercial or industrial) and the receiving location for acceptance of the wastes. For each industrial source (whether or not classified as an SIU), the report

shall indicate (1) the name and address of the industrial source; (2) the average daily amount of wastewater received; (3) a brief description of the type of process operations conducted at the industrial facility; (4) whether the source facility is a categorical industrial user (including NSCIU), significant industrial users, or non-significant industrial user; and (5) any controls imposed on the user.

2. Control Mechanism Issuance – The Annual Report shall contain a summary of SIU control mechanism issuance, including a list of issuance, effective, and expiration dates for each SIU control mechanism. For each general control mechanism issued, provide the names of all SIUs covered by the general control mechanism and an explanation of how the users meet the criteria of 40 CFR 403.8(f)(1)(iii)(A) for issuance of a general control mechanism.

3. Sampling and Inspection – The Annual Report shall contain a summary of the number and types of inspections and sampling events of SIUs by the permittee, including a list of all SIUs either not sampled or not inspected, and the reason that the sampling and/or inspection was not conducted. For any user subject to reduced reporting under 40 CFR 403.12(e)(3), the list shall include the date of the last POTW sampling event and the date of the last POTW inspection of the user. In addition, the report shall include a summary of the number of self-monitoring events conducted by each SIU and the number required to be conducted, including a list of all SIUs that did not submit the required number of reports and the reason why the reports were not submitted. For NSCIUs, the report shall provide the date of the compliance certification required under 40 CFR 403.12(q).

4. Industrial User Compliance and POTW Enforcement – The Annual Report shall contain a summary of the number and type of violations of pretreatment standards and requirements, including local limits, and the actions taken by the permittee to obtain compliance, including compliance schedules, penalty assessments and actions for injunctive relief. The report shall state whether each SIU was in significant noncompliance, as that term is defined in 40 CFR Section 403.8(f)(2)(viii), and include the parameter(s) in violation, the period of violation, the actions taken by the POTW in response to the violations, and the compliance status at the end of the reporting period. A copy of the publication of users meeting the significant noncompliance criteria shall be included. In addition, the report shall provide a list of users previously designated as NSCIUs that have violated (to any extent) any pretreatment standard or requirement during the year and the date and description of the violation(s).

5. Summary of POTW Operations – The Annual Report shall contain a summary of any interference, pass-through, or permit violations by the POTW and indicate the following: (1) which, if any, permit violations may be attributed to industrial users; (2) which IU(s) are responsible for such violations; and (3) the actions taken to address these events. The report shall also include all sampling and analysis of POTW treatment plant influent, effluent, and sludge conducted during the year for local limit and priority pollutants identified pursuant to Section 303(d) of the Clean Water Act, 33 U.S.C. 1313(d).

6. Pretreatment Program Changes – The Annual Report shall contain a summary of any changes made or proposed to the approved program during the period covered by the report and the date of submission to the Approval Authority.

A summary of pretreatment activities shall be incorporated into the permittee's Annual Municipal Wasteload Management Report required by 25 Pa. Code Chapter 94 and referenced in Part B I.C.4 of this permit.

C. Routine Monitoring – The permittee shall conduct monitoring at its treatment plant that, at a minimum, includes quarterly influent, effluent, and sludge analysis for all pollutants for which local limits have been established, and an annual priority pollutant scan for influent and sludge.

D. Notification of Pass Through or Interference – The permittee shall notify EPA and DEP, in writing, of any instance of pass through or interference, as defined at 40 CFR 403.3(p) and (k), respectively, known or suspected to be related to a discharge from an IU into the POTW. The notification shall be attached to the DMR submitted to EPA and DEP and shall describe the incident, including the date, time, length, cause (including responsible user if known), and the steps taken by the permittee and IU (if identified) to address the incident. A copy of the notification shall also be sent to the EPA at the address provided below.

E. Headworks Analysis – The permittee shall submit to EPA a reevaluation of its local limits based on a headworks analysis of its treatment plant within one (1) year of permit issuance, and provide a revised submission within three (3) months of receipt of comments from EPA or DEP unless a longer period of time is granted in writing by EPA or DEP. In order to ensure that the permittee's discharge complies with water quality standards, the reevaluation of local limits shall consider, at a minimum, all water quality standards under 25 Pa. Code Chapter 93 applicable to the pollutants included in the reevaluation, unless the POTW is subject to an effluent limitation for the pollutant in Part A of this permit. The list of pollutants to be evaluated, as well as a sampling plan for collection of necessary data, shall be submitted to EPA within three (3) months of permit issuance. Unless otherwise approved in writing, the list of pollutants shall include arsenic, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, zinc, BOD_5, TSS, ammonia, any pollutants for which a local limit currently exists, any pollutant limited in this permit, as well as any other pollutants that have been identified in the POTW through monitoring or the receipt of indirect discharges and hauled-in wastes in quantities that have the potential to cause pass through and/or interference. For example, facilities receiving residual waste from oil and gas operations should include pollutants such as Total Dissolved Solids (TDS), specific ions such as chlorides and sulfates, specific radionuclides, metals such as barium and strontium, and other pollutants that could reasonably be expected to be present. Within four (4) months of acceptance of the headworks analysis by the Approval Authority, the permittee shall adopt the revised local limits and, if necessary to ensure that the limits are enforceable throughout the service area, notify all contributing municipalities of the need to adopt the revised local limits.

F. Changes to Pretreatment Program – EPA and DEP may require the permittee to submit for approval changes to its pretreatment program if any one or more of the following conditions is present:

1. The program is not implemented in accordance with 40 CFR Part 403;

2. Problems such as interference, pass through or sludge contamination develop or continue;

3. The POTW proposes to introduce new pollutants or an increased loading of approved pollutants as described in Part A III.C.2 of this permit;

4. Federal, State, or local requirements change;

5. Changes are needed to assure protection of waters of the Commonwealth.

Program modification is necessary whenever there is a significant change in the operation of the pretreatment program that differs from the information contained in the permittee's submission, as approved under 40 CFR 403.11.

G. Procedure for Pretreatment Program Changes – Upon submittal by the permittee, and written notice of approval by the Approval Authority to the permittee of any changes to the permittee's approved pretreatment program, such changes are effective and binding upon the permittee unless the permittee objects within 30 days of receipt of the written notice of approval. Any objection must be submitted in writing to EPA and DEP.

H. Correspondence – The Approval Authority shall be EPA at the following address:

Pretreatment Coordinator (3WD41)
U.S. Environmental Protection Agency
Four Penn Center
1600 John F Kennedy Blvd
Philadelphia, PA 19103-2029

III. SOLIDS MANAGEMENT

A. The permittee shall manage and properly dispose of sewage sludge and/or biosolids by performing sludge wasting that maintains an appropriate mass balance of solids within the treatment system. The wasting rate must be developed and implemented considering the specific treatment process type, system loadings, and seasonal variation while maintaining compliance with effluent limitations. Holding excess sludge within clarifiers or in the disinfection process is not permissible.

B. The permittee shall submit the Supplemental Reports entitled, "Supplemental Report – Sewage Sludge/Biosolids Production and Disposal" (Form No. 3800-FM-BCW0438) and "Supplemental Report – Influent & Process Control" (Form No. 3800-FM-BCW0436), as attachments to the DMR on a monthly basis. When applicable, the permittee shall submit the Supplemental Reports entitled, "Supplemental Report – Hauled In Municipal Wastes" (Form No. 3800-FM-BCW0437) and "Supplemental Report – Hauled In Residual Wastes" (Form No. 3800-FM-BCW0450), as attachments to the DMR.

C. By March 31 of each year, the permittee shall submit a "Sewage Sludge Management Inventory" that summarizes the amount of sewage sludge and/or biosolids produced and wasted during the calendar year from the system. The "Sewage Sludge Management Inventory" may be submitted with the Municipal Wasteload Management Report required by Chapter 94. This summary shall include the expected sewage sludge production (estimated using the methodology described in the U.S. EPA handbook, "Improving POTW Performance Using the Composite Correction Approach" (EPA-625/6-84-008)), compared with the actual amount disposed during the year. Sludge quantities shall be expressed as dry weight in addition to gallons or other appropriate units.

IV. WHOLE EFFLUENT TOXICITY (WET)

A. General Requirements

1. The permittee shall conduct Chronic WET tests as specified in this section. The permittee shall collect discharge samples and perform WET tests to generate chronic survival and reproduction data for the cladoceran, *Ceriodaphnia dubia* and chronic survival and growth data for the fathead minnow, *Pimephales promelas*.

2. Samples shall be collected at Outfall 001 in accordance with paragraph E.

3. The permittee shall perform testing using the following dilution series: 18%, 37%, 73% 87%, and 100% effluent, with a control, where 73 is the facility-specific Target In-Stream Waste Concentration (TIWC).

4. The determination of whether a test endpoint passes or fails shall be made using DEP's WET Analysis Spreadsheet (available at www.dep.pa.gov/wett) by comparing replicate data for the control with replicate data for the TIWC dilution or any dilution greater than the TIWC.

5. The permittee shall submit only valid WET test results to DEP.

B. Test Frequency and Reporting

1. WET testing shall be conducted annually, at a minimum, during the period January 1 – December 31. Annual WET tests must be completed at least 6 months apart, and shall start in the year the permit becomes effective if the permit effective date is prior to October 1.

2. A complete WET test report shall be submitted to the DEP regional office that issued the permit within 45 days of test completion. A complete WET test report submission shall include the information contained in paragraph H, below. The permittee shall continue annual WET monitoring, at a minimum, during the permit renewal review period and during any period of administrative extension of this permit.

3. If a test failure is determined for any endpoint during annual monitoring, the permittee shall initiate a re-test for the species with the failure within 45 days of test completion. All endpoints for the species shall be evaluated in the re-test. The results of the re-test shall be submitted to the DEP regional office that issued the permit.

4. If a passing result is determined for all endpoints in a re-test, the permittee may resume annual monitoring.

5. If there is a failure for one or more endpoints in a re-test, the permittee shall initiate or continue quarterly WET testing for both species until there are four consecutive passing results for all endpoints. The results of all tests shall be submitted to the DEP regional office that issued the permit. In addition, the permittee shall initiate a Phase I Toxicity Reduction Evaluation (TRE) as specified in paragraph C, below.

6. The permittee shall attach the WET Analysis Spreadsheet for the latest four consecutive WET tests to the NPDES permit renewal application that is submitted to DEP at least 180 days prior to the permit expiration date.

C. Phase I Toxicity Reduction Evaluation (TRE)

1. The Phase I TRE trigger is one WET endpoint failure followed by a re-test that confirms the failure for the same species. When the TRE process is triggered, quarterly WET testing shall be initiated for both species until there are four consecutive passing results for all endpoints. The Phase I TRE may include a Toxicity Identification Evaluation (TIE) if the permittee cannot immediately identify the possible causes of the effluent toxicity and the possible sources of the causative agents.

2. The permittee shall, within one year following the Phase I TRE trigger, submit a Phase I TRE report to the DEP regional office that issued the permit. The Phase I TRE shall be conducted in accordance with EPA's guidance, "Toxicity Reduction Evaluation for Municipal Wastewater Treatment Plants" (EPA/833B-99/002), "Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations" (EPA/600/2-88/070), and other relevant EPA guidance, as applicable. If a TIE is conducted as part of the Phase I TRE, it shall conform to EPA's guidance, "Methods for Aquatic Toxicity Identification Evaluations Phase I" (EPA/600/6-91/003), "Phase II" (EPA/600/R-92/080), "Phase III" (EPA/600/R-92/081) and other relevant EPA guidance. The Phase I TRE report shall be submitted with the fourth quarterly WET test report that is completed following the Phase I TRE trigger. The TRE shall include all activities undertaken to identify the cause(s) and source(s) of toxicity and any control efforts.

3. If all four quarterly WET tests produce passing results for all endpoints during the Phase I TRE process, performance of a Phase II TRE is not required, and annual WET testing in accordance with paragraph B.1 may resume.

4. If the four WET tests produce at least one failing result during the Phase I TRE process, the permittee shall continue quarterly WETT monitoring for both species and initiate a Phase II TRE in accordance with paragraph D. In this case, the Phase I TRE must include a schedule for completion of the Phase II TRE. The schedule must include interim milestones and a final completion date not to exceed two years from the initiation of the Phase II TRE. The permittee shall implement the Phase II TRE in accordance with the schedule unless DEP issues written approval to modify the schedule or cease performance of the Phase II TRE.

5. Re-tests during the TRE process are required for invalid tests but are optional and at the discretion of the permittee for valid tests. The results of all re-tests must be submitted to the DEP regional office that issued the permit along with the required elements in paragraph H.

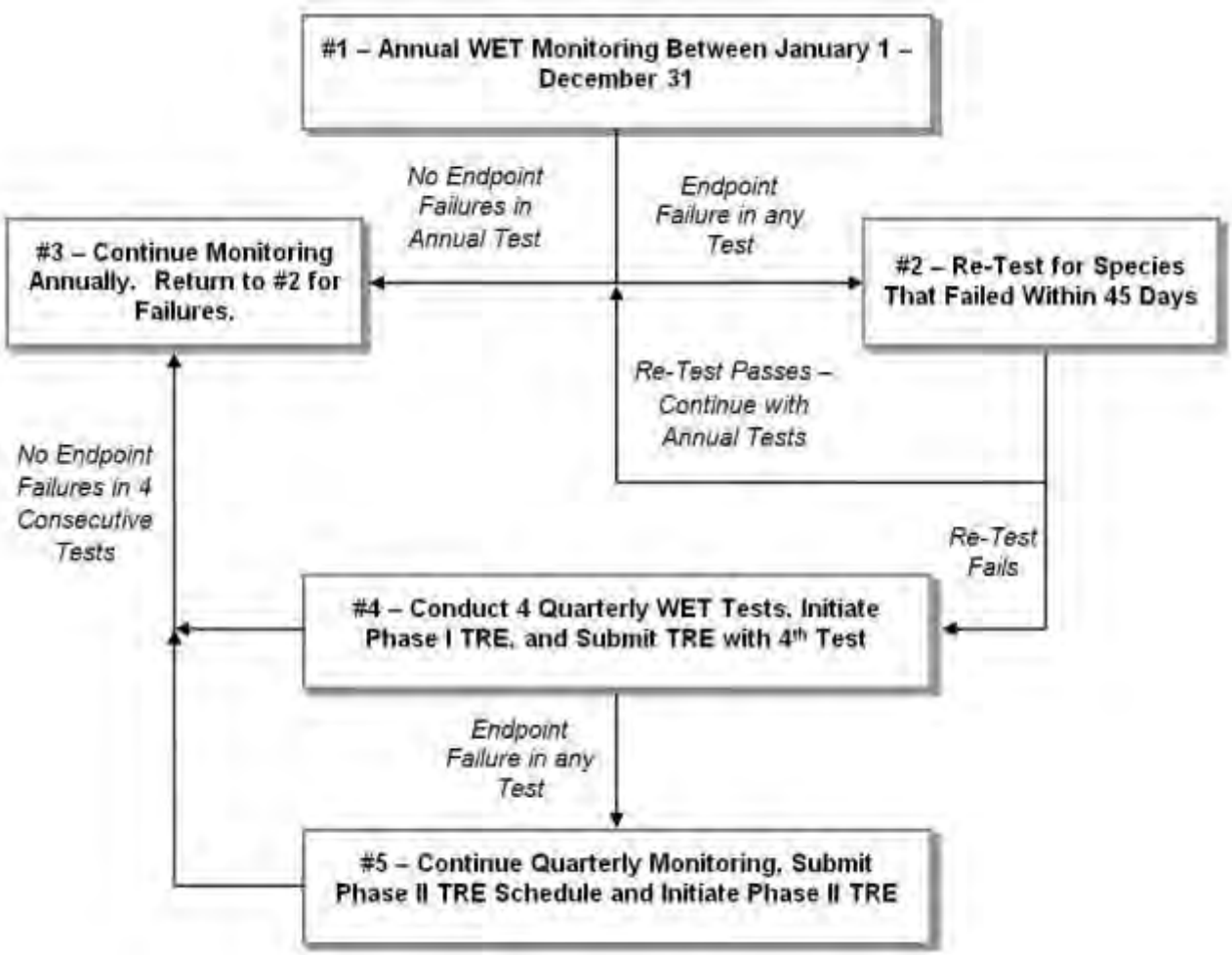
D. Phase II Toxicity Reduction Evaluation (TRE)

1. The Phase II TRE trigger is one WET endpoint failure during performance of the Phase I TRE. A Phase II TRE, if required, shall conform to EPA's guidance, "Toxicity Reduction Evaluation for Municipal Wastewater Treatment Plants" (EPA/833B-99/002), "Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations" (EPA/600/2-88/070), and other relevant EPA guidance, as applicable. A Phase II TRE evaluates the possible control options to reduce or eliminate the effluent toxicity and the implementation of controls.

2. Once initiated, the Phase II TRE must continue until the source(s) of toxicity are controlled as evidenced by four consecutive WET test passing results for all endpoints, and a final TRE report must be submitted on or before the date specified in the schedule, unless otherwise approved by DEP in writing.

3. If four consecutive quarterly WET tests produce passing results for all endpoints during the Phase II TRE process, annual WET testing in accordance with paragraph B.1 may be initiated or resume.

An overview of the process described in paragraphs B, C and D is presented below:



E. Sample Collection

For each acute testing event, a 24-hour flow-proportioned composite sample shall be collected. For each chronic testing event, three 24-hour flow-proportioned, composite samples shall be collected over a seven day exposure period. The samples must be collected at a frequency of not greater than every two hours and must be flow-proportioned. The samples must be collected at the permit compliance sampling location. Samples must be analyzed within 36 hours from the end of the compositing period and must be placed on ice and held at ≤ 6°C. Refer to the sample handling and preservation regulations set forth in 40 CFR 136, 25 Pa. Code Chapter 252, The NELAC Institute (TNI) Standard, and the appropriate EPA methods.

F. Test Conditions and Methods

Laboratories must be accredited by the DEP Laboratory Accreditation Program in order to perform and report WET tests for NPDES permit compliance. Laboratories must be either State or NELAP accredited.

1. Acute tests shall be completed in accordance with EPA's "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA-821-R-02-012, latest edition). Forty eight (48) hour static non-renewal tests shall be used.

2. Chronic tests shall be completed in accordance with EPA's "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA-821-R-02-013, latest edition). Seven (7) day tests shall be used with renewal every 24 hours.

3. The quality assurance and control (QA/QC) requirements and test acceptability standards specified in EPA's test methods and the requirements set forth in 25 Pa Code Chapter 252 or the TNI Standard must be followed.

4. If the permittee or its accredited laboratory determines that QA/QC requirements and/or test acceptability standards have not been met, a re-test shall be initiated within 45 days. Original test data must be maintained by the laboratory and be submitted to DEP upon request. The justification for a re-test must be clearly documented and kept on file with the sample results.

G. Chemical Analyses

Chemical analyses must follow the requirements of the EPA methods and applicable State and/or Federal regulations.

1. Chemical analysis on effluent samples shall include pH, Conductivity, Total Alkalinity, Total Hardness, Total Residual Chlorine, Total Ammonia (Unionized Ammonia), Dissolved Oxygen and temperature. Chemical analyses as described in the EPA Methods (above) shall be performed for each sampling event, including each new batch of dilution water and each testing event.

2. In addition to the chemical analyses required above, those parameters listed in Part A of the NPDES permit for the outfall(s) tested shall be analyzed concurrently with the WET test by using the method(s) specified in the permit.

H. WET Report Elements

WET test reports that are submitted to DEP must include the requirements identified in 25 Pa. Code § 252.401(j)(1) – (15) or in the TNI Standard, or equivalent, as well as the following information:

1. A general test description, including the origin and age of test organisms, dates and results of reference toxicant tests, light and temperature regimes, and other documentation that QA and test acceptability criteria as specified in EPA's methods and DEP's QA Summaries have been met.

2. A description of sample collection procedures and sampling location.

3. Name(s) of individual(s) collecting and transporting samples, including sample renewals, and the date(s) and time(s) of sample collection.

4. All chemical and physical data including laboratory quantitation limits and observations made on the species. The hardness shall be reported for each test condition.

5. Copies of raw data sheets and/or bench sheets with data entries and signatures.

6. When effluents are dechlorinated, dechlorination procedures must be described and if applicable a thiosulfate control used in addition to the normal dilution water control. If the thiosulfate control results are significantly different from the normal control, as determined using DEP's WET Analysis Spreadsheet, the thiosulfate control shall be used in the spreadsheet for comparison with the TIWC condition. The WET report must specify which control was used to determine whether the test result is pass or fail.

7. A description of all observations or test conditions that may have affected the test outcome.

8. Control charts for the species tested regarding age, temperature test range, mortality data and all reference toxicant tests.

9. A completed WET test summary report (3800-FM-BCW0485).

10. A DEP WET Analysis Spreadsheet printout that provides control and TIWC replicate data and displays the outcome of the test (pass or fail) for each endpoint tested.

    WETT reports shall be submitted to the DEP regional office that issued the permit and, for discharges to the Delaware River basin, the Delaware River Basin Commission (DRBC).

V. REQUIREMENTS APPLICABLE TO STORMWATER OUTFALLS

A. The permittee is authorized to discharge non-polluting stormwater from its site, alone or in combination with other wastewaters, through the following outfalls:

Outfall No.	Area Drained (ft^2)	Latitude	Longitude	Receiving Stream	Description
002	-	40°20'09"	76°27'45"	Snitz Creek	North of the WWTP's Dairy Rd entrance
003	-	40°20'13"	76°27'47"	Snitz Creek	South of convergence of Snitz Creek and Quittapahilla Creek.
004	-	40°20'15"	76°27'46"	Quittapahilla Creek	Immediately upstream of WWTP Outfall No. 001
005	-	40°20'14"	76°27'31"	Quittapahill Creek	Upstream of WWTP Outfall No. 001

Monitoring requirements and effluent limitations for these outfalls are specified in Part A of this permit, if applicable.

B. Preparedness, Prevention and Contingency (PPC) Plan

1. The permittee shall develop and implement a PPC Plan in accordance with 25 Pa. Code § 91.34 following the guidance contained in DEP's "Guidelines for the Development and Implementation of Environmental Emergency Response Plans" (DEP ID 400-2200-001), its NPDES-specific addendum and the minimum requirements below.

   a. The PPC Plan must identify all potential sources of pollutants that may reasonably be expected to affect the quality of stormwater discharges from the facility.

   b. The PPC Plan must describe preventative measures and BMPs that will be implemented to reduce or eliminate pollutants from coming into contact with stormwater resulting from routine site activities and spills.

   c. The PPC Plan must address actions that will be taken in response to on-site spills or other pollution incidents.

   d. The PPC Plan must identify areas which, due to topography or other factors, have a high potential for soil erosion, and identify measures to limit erosion. Where necessary, erosion and sediment control measures must be developed and implemented in accordance with 25 Pa. Code Chapter 102 and DEP's "Erosion and Sediment Pollution Control Manual" (DEP ID 363-2134-008).

   e. The PPC Plan must address security measures to prevent accidental or intentional entry which could result in an unintentional discharge of pollutants.

   f. The PPC Plan must include a plan for training employees and contractors on pollution prevention, BMPs, and emergency response measures.

g. If the facility is subject to SARA Title III, Section 313, the PPC Plan must identify releases of "Water Priority Chemicals" within the previous three years. Water Priority Chemicals are those identified in EPA's "Guidance for the Determination of Appropriate Methods for the Detection of Section 313 Water Priority Chemicals" (EPA 833-B-94-001, April 1994). The Plan must include an evaluation of all activities that may result in the stormwater discharge of Water Priority Chemicals.

h. Spill Prevention Control and Countermeasure (SPCC) plans may be used to meet the requirements of this section if the minimum requirements are addressed.

2. The permittee shall review and if necessary update the PPC Plan on an annual basis, at a minimum, and when one or more of the following occur:

a. Applicable DEP or federal regulations are revised, or this permit is revised.

b. The PPC Plan fails in an emergency.

c. The facility's design, industrial process, operation, maintenance, or other circumstances change in a manner that materially increases the potential for fires, explosions or releases of toxic or hazardous constituents; or which changes the response necessary in an emergency.

d. The list of emergency coordinators or equipment changes.

e. When notified in writing by DEP.

The permittee shall maintain all PPC Plan updates on-site, make the updates available to DEP upon request.

C. Minimum Required BMPs

In addition to BMPs identified in the PPC Plan, the permittee shall implement the following minimum BMPs relating to stormwater pollution prevention:

1. If applicable, post-construction stormwater BMPs that are required under 25 Pa. Code Chapter 102 must be maintained.

2. Manage sludge in accordance with all applicable permit requirements.

3. Store chemicals in secure and covered areas on impervious surfaces away from storm drains.

4. For new facilities and upgrades, design wastewater treatment facilities to avoid, to the maximum extent practicable, stormwater commingling with sanitary wastewater, sewage sludge, and biosolids.

5. Efficiently use herbicides for weed control. Where practicable, use the least toxic herbicide that will achieve pest management objectives. Do not apply during windy conditions.

6. Do not wash parts or equipment over impervious surfaces that wash into storm drains.

7. Implement infiltration techniques, including infiltration basins, trenches, dry wells, porous pavement, etc., wherever practicable.

D. Routine Inspections.

Areas contributing to a stormwater discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. BMPs in the PPC Plan and required by this permit shall be inspected on a semiannual basis, at a minimum, to determine whether they are adequate and properly implemented in accordance with the terms of this permit or whether additional control measures are needed. Documentation of inspections shall be maintained on-site and be made available to DEP upon request.

E. Stormwater Sampling Requirements

If stormwater sampling is required in Part A of this permit, the following requirements apply:

1. All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inch in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

2. Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is not possible, a grab sample can be taken during the first hour of the discharge, in which case the discharger shall provide an explanation of why a grab sample during the first 30 minutes was not possible.

VI. OTHER REQUIREMENTS

A. No storm water from pavements, area ways, roofs, foundation drains or other sources shall be directly admitted to the sanitary sewers associated with the herein approved discharge.

B. The approval herein given is specifically made contingent upon the permittee acquiring all necessary property rights by easement or otherwise, providing for the satisfactory construction, operation, maintenance or replacement of all sewers or sewerage structures associated with the herein approved discharge in, along, or across private property, with full rights of ingress, egress and regress.

C. Collected screenings, slurries, sludges, and other solids shall be handled and disposed of in compliance with 25 Pa. Code, Chapters 271, 273, 275, 283, and 285 (related to permits and requirements for landfilling, land application, incineration, and storage of sewage sludge), Federal Regulation 40 CFR 257, Pennsylvania Clean Streams Law, Pennsylvania Solid Waste Management Act of 1980, and the Federal Clean Water Act and its amendments. The permittee is responsible to obtain or assure that contracted agents have all necessary permits and approvals for the handling, storage, transport, and disposal of solid waste materials generated as a result of wastewater treatment.

D. The permittee shall optimize chlorine dosages used for disinfection or other purposes to minimize the concentration of Total Residual Chlorine (TRC) in the effluent, meet applicable effluent limitations, and reduce the possibility of adversely affecting the receiving waters. Optimization efforts may include an evaluation of wastewater characteristics, mixing characteristics, and contact times, adjustments to process controls, and maintenance of the disinfection facilities. If DEP determines that effluent TRC is causing adverse water quality impacts, DEP may reopen this permit to apply new or more stringent effluent limitations and/or require implementation of control measures or operational practices to eliminate such impacts.

Where the permittee does not use chlorine for primary or backup disinfection, but proposes the use of chlorine for cleaning or other purposes, the permittee shall notify DEP prior to initiating use of chlorine and monitor TRC concentrations in the effluent on each day in which chlorine is used. The results shall be submitted as an attachment to the DMR.

E. The permittee shall not accept hauled-in wastes at the treatment facility under the following conditions, unless otherwise approved by DEP in writing:

- When acceptance of hauled-in wastes would cause a hydraulic or organic overload as defined in Chapter 94.1 of the DEP's regulations.

- When the treatment facility is considered to be in an existing hydraulic or organic overload condition, as determined by the permittee or DEP, as defined in Chapter 94.1 of the DEP's regulations.

- When the instantaneous flow at the treatment facility exceeds 33 MGD (the Chapter 94 hydraulic design capacity of the facility multiplied by a peaking factor of three), and for 24 hours following exceedance of this threshold.

F. Use of tertiary nutrient filtration to meet nutrient effluent limitations shall be subject to the following requirements. The tertiary nutrient filters shall be operated at all times and treat up to the design flow capacity of the tertiary nutrient filters. Tertiary nutrient filtration shall be designed to treat at a minimum, the annual average daily design flow used to determine effluent limitations for this facility. NPDES compliance sampling for TP and TN shall be conducted in accordance with the nutrient requirements in PART A I.B on any day the wastewater flow is diverted around the tertiary nutrient filters. To clarify, this may require sampling more often than is specified in PART A of this permit. The information shall be reported on DMR Supplemental Reporting forms.

VII. EMERGENCY CHLORINATION

A. When chlorine is used for emergency disinfection, the permittee shall inform the Department within 24-hours. Total Residual Chlorine discharge has a limitation of 0.1mg/l monthly average and 0.2mg/l instantaneous maximum. Daily monitoring is required anytime chlorine is used for disinfection. Results shall be reported on the supplemental DMR. The emergency chlorination system shall be operated in accordance with the standard operating procedures submitted to the Department.

B. The permittee shall optimize chlorine dosages used for disinfection or other purposes to minimize the concentration of Total Residual Chlorine (TRC) in the effluent, meet applicable effluent limitations, and reduce the possibility of adversely affecting the receiving waters. Optimization efforts may include an evaluation of wastewater characteristics, mixing characteristics, and contact times, adjustments to process controls, and maintenance of the disinfection facilities. If DEP determines that effluent TRC is causing adverse water quality impacts, DEP may reopen this permit to apply new or more stringent effluent limitations and/or require implementation of control measures or operational practices to eliminate such impacts.

Where the permittee does not use chlorine for primary or backup disinfection, but proposes the use of chlorine for cleaning or other purposes, the permittee shall notify DEP prior to initiating use of chlorine and monitor TRC concentrations in the effluent on each day in which chlorine is used. The results shall be submitted as an attachment to the DMR.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027316**
Facility Type	**Municipal**	APS ID	**789786**
Major / Minor	**Major**	Authorization ID	**1359674**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Lebanon City Authority**	Facility Name	**Lebanon City STP**
Applicant Address	2321 Ridgeview Road	Facility Address	2321 Ridgeview Road
	Lebanon, PA 17042-9431		Lebanon, PA 17042-9431
Applicant Contact	Frank Discuillo	Facility Contact	Frank Discuillo
Applicant Phone	(717) 272-2841	Facility Phone	
Client ID	43458	Site ID	454832
Ch 94 Load Status	Not Overloaded	Municipality	Lebanon City
Connection Status	No Limitations	County	Lebanon
Date Application Received	June 25, 2021	EPA Waived?	No
Date Application Accepted	July 12, 2021	If No, Reason	Major Facility, Pretreatment, Significant CB Discharge

Purpose of Application: NPDES permit renewal for discharge of treated sewage

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated wastewater from City of Lebanon Authority (COLA) wastewater treatment plant (WWTP). COLA owns, operates, and maintains the wastewater treatment plant. The facility is located in North Cornwall Township, Lebanon County. The facility receives 44.35% of the flow from City of Lebanon, 4.02% of the flow Cleona Borough, 17.06% of the flow from North Cornwall Borough, 14.87% of the flow from North Lebanon Township, 10.14 % of the flow from South Lebanon Township, 0.75% of the flow from West Lebanon Township, 5.30 % of the flow from Cornwall Borough, 1.17% of the flow from South Annville Township, 1.37% of the flow from Heidelburg Township and 0.98% of the flow from West Cornwall Borough. The sewer collection system is not combined in these areas and there are no bypasses of overflows within the collection system. The treatment plant has a hydraulic design capacity of 11 MGD and an annual average flow of 8 MGD. The organic capacity of the facility is 22,350 lbs/day- BOD5. The discharge goes to Quittapahilla Creek via Outfall 001. Quittapahilla Creek is classified as trout stock fishery (TSF) and migratory fish (MF) in 25 PA Code, Chapter 93. Portion of the treated effluent is used by PPL Ironwood Electric Power Generating Plant as cooling water. The portion of effluent that goes to the stream is reported on DMRs and in the permit application. The existing NPDES permit was issued on December 23, 2016 with an effective date of January 1, 2017 and expiration date of December 31, 2021. The applicant submitted a timely NPDES renewal application to the Department and is currently operating under the terms and conditions of the existing permit. A topographic map showing the discharge location is presented in attachment A

Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	May 15, 2022
x		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	May 16, 2022
x		*Maria D. Bebenek* Maria D. Bebenek, P, E./ Program Manager	May 16, 2022

Summary of Review

1.1 Sludge use and disposal description and location(s):

Dried solids (class A biosolids) are stored in a silo on site until disposal by given away, agronomic application, and for sale. Dewatered solids (Class B) are sometimes applied to approved agricultural land application sites. Digested biosolids can also be applied in liquid form (Class B) to the approved agricultural sites.

1.2 Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

1.3.0 Changes to the existing permit

- Monthly E. Coli monitoring has been added
- Limitation on Total Copper, Total Cadmium and Free Cyanide has been added.
- Monitoring of Total Boron, Dissolved Iron and Total Zinc has been added.
- Motoring requirement for Total Dissolved Solids, Chloride and Bromide has been discontinued.

1.3.1 Existing Limitations and Monitoring Requirements

Discharge Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	Instantaneous Maximum		
Flow (mgd)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/Day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/Day	Grab
TSS	2001	3002	XXX	30	45	60	1/Day	24-hr comp
$CBOD_5$ (5/1 to 10/31)	667	1000	XXX	10	15	20	1/Day	24-hr comp
$CBOD_5$ (11/1 to 4/30)	1334	2001	XXX	20	30	40	1/Day	24-hr comp
NH3-N 5/1 to 10/31	166	XXX	XXX	2.5	XXX	5.0	1/Day	24-hr comp
NH3-N 11/1 to 4/30	500	XXX	XXX	7.5	XXX	15.0	1/Day	24-hr comp
Fecal Coliform (5/1 to 9/30)[(5)]	XXX	XXX	XXX	200	XXX	XXX	1/Day	Grab
Fecal Coliform (10/1 to 4/30)	XXX	XXX	XXX	2,000	XXX	XXX	1/Day	Grab
Total Phosphorus	133	XXX	XXX	2.0	XXX	4.0	1/Day	24-hr comp
Total Dissolved Solids	Report	XXX	XXX	Report	XXX	XXX	1/week	24-hr comp

Summary of Review

Chloride	Report	XXX	XXX	Report	XXX	XXX	1/week	24-hr comp
Bromide	Report	XXX	XXX	Report	XXX	XXX	1/week	24-hr comp
Sulfate	Report	XXX	XXX	Report	XXX	XXX	1/week	24-hr comp

1.3.2 Chesapeake Bay Limitations

Discharge Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Load(lbs)		Concentrations (mg/l)				
	Monthly	Annual	Minimum	Monthly Average	Maximum	Minimum Measurement Frequency	Required Sample Type
Ammonia---N	Report	Report	XXX	Report	XXX	1/Day	24-hr Comp
Kjeldahl---N	Report	XXX	XXX	Report	XXX	1/Week	24-hr Comp
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	1/Week	24-hr Comp
Total Nitrogen	Report	Report	XXX	Report	XXX	1/Month	Calculate
Total Phosphorus	Report	Report	XXX	Report	XXX	1/Day	24-hr Comp
Net Total Nitrogen	Report	146,117	XXX	XXX	XXX	1/Month	Calculate
Net Total Phos.	Report	19,482	XXX	XXX	XXX	1/Month	Calculate

1.4 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	8
Latitude	40º 20' 15.13"	Longitude	-76º 27' 44.82"
Quad Name	Lebanon	Quad Code	1634
Wastewater Description:	Sewage Effluent		

Receiving Waters	Quittapahilla Creek	Stream Code	09691
NHD Com ID	56398445	RMI	12.04
Drainage Area	32	Yield (cfs/mi^2)	0.14
Q_{7-10} Flow (cfs)	4.16	Q_{7-10} Basis	
Elevation (ft)	424.50	Slope (ft/ft)	
Watershed No.	7-D	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations, Flow Alterations, Pathogens, Siltation		
Source(s) of Impairment	Agriculture, Agriculture, Source Unknown, Urban Runoff/Storm Sewers		
TMDL Status	Final	Name	Quittapahilla Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	PA American Water Company		
PWS Waters	Swatara Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	<22

Changes Since Last Permit Issuance: None

1.4.1 Public Water Supply

The closest water supply intake located downstream from the discharge is by PA American Water Co. on Swatara Creek in South Hanover Township, Dauphin County. The distance downstream from the discharge to the intake is approximately 22 miles. No impact is expected from this discharge

1.4.2 Stormwater Outfalls

Outfall No.	002	**Design Flow (MGD)**	0
Latitude	40º 20' 9.00"	**Longitude**	-76º 27' 45.00"
Wastewater Description:	Stormwater		

Outfall No.	003	**Design Flow (MGD)**	0
Latitude	40º 20' 13.00"	**Longitude**	-76º 27' 47.00"
Wastewater Description:	Stormwater		

Outfall No.	004	**Design Flow (MGD)**	0
Latitude	40º 20' 15.00"	**Longitude**	-76º 27' 46.00"
Wastewater Description:	Stormwater		

Outfall No.	005	**Design Flow (MGD)**	0
Latitude	40º 20' 14.00"	**Longitude**	-76º 27' 31.00"
Wastewater Description:	Stormwater		

1.4.3 Other Comments:

The existing permit listed outfalls 002 (40°20’09”/76°27’45”), 003(40°20’13”/76°27’47”), 004 (40°20’15”/76°27’46”) and 005 (40°20’14”/76°27’31”) as receiving stormwater runoff from the treatment plant site. To comply with stormwater requirements of 40CFR 122.26(b)(14)(ix), part C of the permit will continue to require compliance with the standard requirements applicable to stormwater outfalls for 002, 003,004 and 005 with best management practices. Location of the outfalls and the receiving streams are as follows: 002 (40°20’09”/76°27’45) discharges to Snitz Creek north of the WWTP’s dairy road entrance. 003 (40°20’13”/76°27’47”) discharges to Snitz Creek, south of convergence of Snitz Creek and Quittapahilla Creek. 004 (40°20’15”/76°27’46”) located on Quittapahilla Creek immediately upstream of outfall 001. 005 (40°20’14”/76°27’31”) is located on Quittapahilla Creek upstream of outfall 001.

2,0 Treatment Facility Summary				
Treatment Facility Name: City Of Lebanon Authority WWTP				
WQM Permit No.	**Issuance Date**			
3896403 09-1	5/25/2010			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Tertiary	Activated Sludge With Solids Removal	UV	8
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
11	22350	Not Overloaded	Anaerobic Digestion	Land Application

Changes Since Last Permit Issuance: There is permit amendment application pending for the following project: New headworks building, installation of grit removal equipment, installation of centrate and digester decant holding tank, anaerobic digester renovations, control building renovations, replacement of disinfection back-up system and installation of new pump station for primary sludge / primary clarifier scum.

2.1 Treatment Plant Description

The facility consists of 2 mechanical screening units, grit removal, 2 primary clarifiers, 2 trickling filters, 2 intermediate clarifiers, 4 bioreactors to provide Modified MLE with IFAS nitrification/denitrification process, 4 final clarifiers, 8 denitrification filters, 4 UV systems for ultraviolet light disinfection and post-aeration. Primary and secondary anaerobic digesters, 2 centrifuges and a drier. Chlorine feed system and chlorine contact tanks are retained for emergency use.

2.2 Treatment Chemicals

- Methanol as carbon source for denitrification
- Chlorine as backup disinfection
- Poly-Aluminum chloride for phosphorus removal
- Magnesium Hydroxide for pH adjustment
- Polymer for biosolids dewatering
- Potassium Hydroxide for primary sludge line cleaning

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from March 1, 2021 to February 28, 2022)

Parameter	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21
Flow (MGD) Average Monthly	5.915	5.139	4.851	5.471	5.403	8.278	4.778	5.022	4.717	5.272	5.958	7.267
Flow (MGD) Daily Maximum	9.450	5.988	5.004	6.848	7.224	16.806	5.844	6.634	5.116	5.732	7.180	12.428
pH (S.U.) Minimum	7.2	7.43	7.22	7.18	7.24	7.2	7.28	7.34	7.16	7.10	6.9	7.04
pH (S.U.) Maximum	7.91	8.06	8.16	7.95	8.04	7.96	8.18	8.10	8.04	8.03	7.86	8.00
DO (mg/L) Minimum	8.76	7.75	8.80	7.17	7.94	6.01	7.61	7.52	7.92	8.04	8.20	7.17
CBOD5 (lbs/day) Average Monthly	< 119.6	< 104.6	< 80.7	< 82.8	< 76.3	< 207.3	< 55.4	< 60	< 60.8	< 71.5	< 108	< 121.9
CBOD5 (lbs/day) Weekly Average	< 173.7	< 140.1	< 109.2	< 100.7	< 81.0	< 479.9	< 61.04	< 71.16	94.0	< 90.5	116	< 185.4
CBOD5 (mg/L) Average Monthly	< 2.8	< 3.4	< 2.5	< 2.5	< 2.1	< 2.9	< 2.1	< 2.1	< 2.25	< 2.26	< 2.6	< 2.5
CBOD5 (mg/L) Weekly Average	< 3.45	< 4.58	< 3.17	< 3.23	< 2.11	< 5.13	< 2.15	< 2.37	2.91	< 2.56	3.0	< 2.81
BOD5 (lbs/day) Raw Sewage Influent Ave Monthly	17483	18206.7	16985.8	16546	15224	17290	14697	15065	14484	15797	17438	18509.2
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	37672	25821.9	19857.1	22457	19369	23977	< 18196	20888	18513	19989	23622	24565
BOD5 (mg/L) Raw Sewage Influent Ave. Monthly	356	425	420	365	342	271.8	370	363.2	368	359	353	315
TSS (lbs/day) Average Monthly	< 92.6	< 77.2	< 79.7	< 83	< 102.4	< 651.2	< 77.3	< 76.9	< 70.2	< 84.2	< 112	< 123.8
TSS (lbs/day) Raw Sewage Influent Ave. Monthly	9826	10340	11057	10486	9670	12233	9599	10047	9073	9849	10453	10523
TSS (lbs/day) Raw Sewage Influent Daily Maximum	12897	13782	14079	13156	15356	20903	12525	20070	11563	18124	13730	14701
TSS (lbs/day) Weekly Average	< 101.8	< 81.76	< 90.47	< 98.14	< 115.5	< 2367.4	< 85.1	< 113.4	< 82.78	< 105.7	< 121	< 178.43
TSS (mg/L) Average Monthly	< 2.5	< 2.5	< 2.5	< 2.51	< 2.74	< 6.89	< 2.9	< 2.7	< 2.62	< 2.68	< 2.6	< 2.5

TSS (mg/L) Raw Sewage Influent Ave. Monthly	203	241	273	231	216	187.3	241	241.5	230.9	224	211	179
TSS (mg/L) Weekly Average	< 2.5	< 2.5	< 2.5	< 2.53	< 3.09	< 21.3	< 3.4	< 3.2	< 3.03	< 2.90	< 2.9	< 2.5
Total Dissolved Solids (lbs/day) Ave. Monthly	14217	15190	14093	13430.7	15774	25558	11844	14529	12025	11656	16646	21328
Total Dissolved Solids (mg/L) Ave. Monthly	427.5	490	434.5	416.2	441	449.4	455.5	469	443.8	399	389	414
Fecal Coliform (CFU/100 ml) Geometric Mean	< 11	< 10	< 11	< 10	< 11	< 16	< 10	< 10	< 11	< 10	< 10	< 10
Fecal Coliform (CFU/100 ml) Instant. Maximum	41	10	86	< 10	31	1990	63	20	41	20	10	10
UV Transmittance (%) Minimum	65.8	51.5	53.5	61.7	65.6	65.7	66.3	59.3	63.4	69.2	66.5	68.4
Nitrate-Nitrite (mg/L) Average Monthly	3.95	6.4	< 7.83	4.91	6.93	6.475	5.10	8.74	5.48	3.73	7.90	3.79
Nitrate-Nitrite (lbs) Total Monthly	4003.7	6078.4	7598.3	4591	7278.5	12883	4238.4	7787.7	4221.5	3405.5	10833	5684.7
Total Nitrogen (mg/L) Average Monthly	5.57	8.82	9.74	6.73	8.47	9.309	6.24	9.863	7.75	5.383	9.761	6.078
Total Nitrogen (lbs) Effluent Net Total Monthly	5589.1	8386.6	9454	6343.4	8915.2	19923.7	5168.4	9029.6	5976.6	4914.6	13227	9841.2
Total Nitrogen (lbs) Total Monthly	5589.1	8386.6	9454	6343.4	8915.2	19923.7	5168.4	9029.6	5976.6	4914.6	13227	9841.2
Total Nitrogen (lbs) Effluent Net Total Annual						124113						
Total Nitrogen (lbs) Total Annual						124113						
Ammonia (lbs/day) Average Monthly	< 16.45	< 7.1	< 22	< 9.76	< 5.5	< 83.8	< 3.55	< 3.66	< 4.38	< 16	< 11.0	< 107.6
Ammonia (mg/L) Average Monthly	< 0.37	< 0.23	< 0.67	< 0.29	< 0.15	< 1.14	< 0.13	< 0.13	< 0.16	< 0.47	< 0.26	< 1.87
Ammonia (lbs) Total Monthly	< 460.6	< 218.8	< 680.5	< 292.9	< 169.8	< 2514.1	< 110	< 107.6	< 131.4	< 495.9	330.8	3335
Ammonia (lbs) Total Annual						< 26292						
TKN (mg/L) Average Monthly	1.62	2.42	1.92	1.82	1.54	2.65	1.14	1.65	2.27	1.65	1.86	2.54
TKN (lbs) Total Monthly	1585.4	2308.2	1855.6	1721.2	1636.7	6734.6	930	1547.5	1755.1	1509.1	2393.8	4180.8

Total Phosphorus (lbs/day) Average Monthly	29.2	23.31	28.32	29.2	25.1	54.5	14.2	17.31	18.8	23.14	34.8	25.3
Total Phosphorus (mg/L) Ave. Monthly	0.79	0.75	0.9	0.88	0.68	0.81	0.53	0.63	0.69	0.75	0.82	0.53
Total Phosphorus (lbs) Effluent Net Total Monthly	817.6	722.5	877.8	875.3	779	1634.5	439.1	536.7	563.5	717.4	1044.2	784.7
Total Phosphorus (lbs) Total Monthly	817.6	722.5	877.8	875.3	779	1634.5	439.1	536.7	563.5	717.4	1044.2	784.7
Total Phosphorus (lbs) Effluent Net Total Annual						9697						
Total Phosphorus (lbs) Total Annual						9686						
Sulfate (lbs/day) Average Monthly	1634	1545	1682.6	1804.4	1931	3069.7	1277	1392	1260.6	1379	1977.84	2333
Sulfate (mg/L) Average Monthly	49.2	50	52.23	55.5	53.9	54.66	49.2	44.9	46.82	46	46.4	45.6
Chloride (lbs/day) Average Monthly	3380	4068	3231.1	3111.6	3377	4774	2905	3178	2806	2722	3825	5190
Chloride (mg/L) Average Monthly	102.6	131	100.15	96.3	94.6	84.4	112.8	103	105.12	92	86.8	97.3
Bromide (lbs/day) Average Monthly	< 33	< 31	< 32.14	< 32.5	< 1.00	< 57.6	< 26	< 31	< 27.04	< 29.8	< 35.28	< 51.99
Bromide (mg/L) Average Monthly	< 1.00	< 1.00	< 1.00	< 1.00	< 35.7	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 0.82	< 1.00

3.2 Effluent Violations for Outfall 001, from: April 1, 2021 to: February 28, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	09/30/21	IMAX	1990	CFU/100 ml	1000	CFU/100 ml

3.3 Summary of Discharge Monitoring Reports (DMRs):

DMRs review for the facility for the last 12 months of operation, presented on the table above in section 3.1 indicate permit limits have been met consistently. One Fecal Coliform effluent violations was noted on DMRs during the period reviewed and presented in section 3.2. The violation appear to be a onetime occurrence.

3.4 Summary of Inspections:

The facility has been inspected a couple times during last permit cycle. No effluent violations were found during plant inspections. The facility is operated and well maintained.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 8
Latitude 40º 20' 14.72" **Longitude** -76º 27' 43.77"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.2 Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: UV disinfection is utilized. Daily UV light transmittance monitoring in the existing permit will be continued to ensure UV performance efficiency.

4.3 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

4,4 Water Quality-Based Limitations

4.4.1 Receiving Stream

The receiving stream is the Quittapahilla Creek. According to 25 PA § 93.9o, this stream is protected for TSF and MF. It is located in Drainage List o and State Watershed 7-D. It has been assigned stream code 09691. According to the Department's Integrated Water Quality Monitoring and Assessment Report, Quittapahilla Creek watershed is impaired for flow alterations, pathogens, siltation and urban runoff. Source is agriculture, unknown and storm sewers respectively. TMDL is completed and approved by EPA in 2001. See section 5.4 of the report for further discussion.

4.4.2 Stream flows

The Technical Support Document for Water Quality-Based Toxics Control (TSD) (EPA, 1991) and the Pennsylvania Water Quality Standards PA WQS) recommend calculating water quality-based effluent limits (WQBELs) using steady-state modeling and the flow conditions. The TSD and the PA WQS state that WQBELs intended to protect aquatic life uses

should be based on the lowest seven-day average flow rate expected to occur once every ten years (Q_{7-10}) for chronic criteria and the lowest one-day average flow rate expected to occur once every ten years (Q_{1-10}) for acute criteria and Q_{30-10} for the chronic ammonia criterion instead of the Q_{7-10}. The Q_{30-10} is a biologically based design flow intended to ensure an excursion frequency of once every three years for a 30-day average flow rate. These flows were determined by correlating with the yield of USGS gage No. 01573560 on Swatara Creek near Hershey. The Q_{7-10} and drainage area at the gage is 67.7ft3/s and 483mi^2 respectively. The resulting yields are as follows:

- Q_{7-10} = (67.7ft^3/s)/483 mi^2 = 0.14ft^3/s/ mi^2
- Q_{30-10} / Q_{7-10} = 0.89
- Q_{1-10} / Q_{7-10} = 1.23

The drainage area at the point of discharge taken from the previous protection report is 32 mi^2.

The Q_{7-10} at discharge = 32 mi^2 x 0.14 ft^3/s/mi^2 = 4.48 ft^3/s.

4.4.3 NH_3N Calculations

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached computer model of the stream:

- Discharge pH = 7.2 (DMR median)
- Discharge Temperature = 25 ^{o} C (Default)
- Stream pH = 7.8 (WQN Station on Quittapahilla Creek)
- Stream Temperature = 19 ^{o}C (WQN Station on Quittapahilla Creek)
- Background NH_3-N = 0.0 (default)

4.4.4 $CBOD_5$

WQM 7.0 is a wasteload allocation program that DEP uses to develop WQBELs for Carbonaceous BOD, Dissolved Oxygen, and Ammonia-Nitrogen. The attached results of the WQM 7.0 stream model (attachment B) indicates that, a summer average monthly limit of 19.29 mg/l CBOD5 is required to protect the water quality of the stream. This is less stringent than the existing permit limitation for summer months and will not be written in the permit due to anti-backsliding restrictions. The existing summer average monthly limit(AML) of 10mg/l, average weekly limit (AWL) of 15mg/l and IMAX of 20 mg/l with the existing AML of 20 mg/l, AWL of 30 mg/l and IMAX of 40 mg/l for winter months will remain in the permit. Past DMRs and inspection reports show the STP has been consistently achieving below 10 mg/l CBOD5 for both summer and winter months. Mass limits are calculated using the equation presented in section 4.3.

4.4.5 NH_3-N

The attached results of WQM 7.0 stream model (attachment B) indicates a summer monthly average of 1.8 mg/l of NH3 and a winter limit of 3.6mg/l are necessary to protect the aquatic life from toxicity effects. This limit is consistent with the existing limit and the facility is meeting the limits. Winter limit is three times the summer limits. Mass limits are calculated using the equation presented in section 4.3.

4.4.6 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O. criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement.

4.4.7 Total Suspended Solids (TSS):

There is no water quality criteria for TSS. A limit of 30 mg/l AML in the existing permit which was based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) and an AWL of 45mg/l per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2) with associated mass limits will remain in the permit. Mass limits are calculated using the equation presented in section 4.3.

4.4.8 Phosphorus

The average monthly limit of 2mg/l phosphorus in the existing permit was based on the requirement to control phosphorus loading to Lower Susquehanna River Basin. That requirement has been superseded by the development of Chesapeake Bay TMDL in 2010, however due to anti-backsliding restrictions the limit will remain in the permit. Mass limits are calculated using the equation presented in section 4.3.

4.4.9 Chesapeake Bay Strategy:

The Department formulated a strategy in April 2007, to comply with the EPA and Chesapeake Bay requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by DEP based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5(below 0.2mdg) are required to monitor and report TN and TP during permit renewal and any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. EPA published Chesapeake Bay TMDL in December of 2010. In order to address the TMDL, Pennsylvania developed Chesapeake Watershed Implementation Plan (WIP) Phase 1, Phase 2 and currently Phase 3 WIP and a supplement to the WIPs to be implemented with the original Chesapeake Bay Strategy.

As outlined in the current Phase 3 WIP and the current supplement to the WIP, re-issuing permits for significant dischargers would follow the same phased approach formulated in the original Bay strategy whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewals

This facility falls in phase 1 of the strategy and is required to meet a total maximum annual Total Nitrogen Cap load of 146,117 lbs/year based on a design annual wasteflow of 8 MGD and 6 mg/l total nitrogen and a TP cap load of 18,482 lbs/year based on annual wasteflow of 8 MGD and 0.8 mg/l total phosphorus. The facility is in compliance with the bay cap load requirements.

The Department approved a total nitrogen offset of 10,375lbs of nitrogen based on 415EDUs at 25lbs/EDU for COLA. The offsets is for 415 EDUs on-lot disposal systems that have been connected to the sewer conveyance system. These on-lot systems were put into use prior to January 1, 2003 and retired after January 1, 2003. The approved offsets are only for compliance purposes and are not available for trading or selling and will not be added to the base TN cap load. The permit will show the base cap load on the effluent page and show the offsets as a foot note with a language indicating the offsets may be applied throughout the compliance year or during the truing period. A complete list of addresses of the dwellings that were served by the retired on-lot systems that are now connected to the sewage conveyance system is on file.

4.4.10 Total Residual Chlorine

The flooding of 2011 damaged the UV system of the facility and chlorine was used for disinfection until a new UV system was installed during plant upgrade. The permittee requested to retain the chlorine system to use when Quittapahilla Creek rises due to heavy rain and threatens UV equipment destruction. The permittee proposed to pull out UV modules when the creek elevation reaches the top of the wing wall (elevation of 423.55") and the plant flow elevation reaches the top of the aluminum pad in the UV tank (elevation of 424.30") and use chlorine for disinfection. Chlorine samples will be collected per shift anytime chlorine is used for emergency disinfection. Results shall be submitted to the Department on supplemental DMR forms. The Department should be notified within 24 hours of using chlorine for disinfection. The emergency chlorination system shall be used in accordance with the standard operating procedures submitted to the Department.

The attached TRC result presented in attachment E utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92a, Section 92a.48 (b) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached result indicates that a water quality limit of 0.1 mg/l and 0.20mg/l IMAX would be needed to prevent toxicity concerns. Since chlorine is only used in an emergency, TRC limitation and monitoring requirements will be placed in part c of the permit.

4.4.11 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E. coli. As a result, DEP is including monitoring requirements for E. Coli in new and

renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD and 1/year for design flows of 0.002 – 0.05 MGD. Your discharge of 8 MGD requires 1/month monitoring as included in the permit.

4.4.12 Toxics

A reasonable potential (RP) analysis was done for pollutants sampled in support of the permit renewal application. All pollutants that were presented in the application sampling data were entered into DEP's Toxics Management Spreadsheet (TMS) to calculate WQBELs. The results of the TMS are presented in attachment C. Permit limits are recommended for Total Cadmium, Total Copper and Free Cyanide and monitoring is recommended for Total Zinc, Total Boron and Dissolved Iron. However, the permittee reported Total Cadmium and Free Cyanide as non-detect using a less sensitive analytical method. The permittee had an opportunity to re-sample Total Cadmium and Free Cyanide using a more sensitive method. The permit will be drafted with monitoring for Total Zinc, Total Boron and Dissolved Iron and the recommended limits of 0.024mg/l AML for Total Copper, 0.008 mg/l AML for Free Cyanide and 0.0006mg/l AML for Total Cadmium. If the results of the re-sampled pollutants are non-detect using DEP's target QL for analysis, the permit will be re-drafted to address it. Monitoring of Hexavalent Chromium has been added to the permit because it was not sampled for the permit application.

The recommended limitations follow the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL.

4.4.13 TDS, Chloride, Sulfate, Bromide

The existing monitoring requirement for TDS, Chloride, Sulfate, and Bromide will be discontinued in the permit. Adequate data has been collected for this facility.

4.4.14 Influent BOD and TSS Monitoring

The permit will include influent BOD5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements.

4.4.15 Industrial Users

COLA WWTP receives wastewater from the following industries: Greater Lebanon Refuse Authority (Landfill), Swiss Premium Dairy (milk processing facility), Murry's Inc. (food processor – bulk meat products; cooking packing and processing), and Godshall's Quality Meats. Some of the industries are considered significant industrial source.

4.4.16 Pretreatment Requirements

COLA currently maintains and operates an EPA-approved pretreatment program. Consequently, the Department will continue to include permit conditions that dictate the operation and implementation of a pretreatment program in the permit.

4.4.17 Biosolids Management

Biosolids treatment is a two-stage high- rate anaerobic digestion process. Sludge from primary clarifiers, intermediate clarifiers and the final clarifiers is pumped to a complete- mix heated, primary anaerobic digester. Primary digested sludge is hydraulically displaced to the secondary anaerobic digester. Digested biosolids are normally dewatered by centrifuge and dried using Komline-Sanderson indirect heat continuous feed drier.

5.0 Other Requirements

5.1 Anti-backsliding

Not applicable to this permit

5.2 Anti-Degradation (93.4)

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.3 Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

5.4 303d Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired, and the impairment is due to suspended solids and siltation from urban runoff and agricultural activities in the watershed. Sediment TMDL for Quittapahilla Creek was approved in 2001. Point sources were not included in the evaluation. Reduction in point source loadings below current permit levels is not appropriate at this time since the impairment is related to nonpoint sources.

5.5 Special Permit Conditions

The permit contains the following special conditions:

- Stormwater Prohibition, Approval Contingencies, Solids Management, Restriction on receipt of hauled in waste under certain conditions, Pretreatment implementation, Chlorine minimization and Storm water requirement

5.6 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.7 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

6.0 Whole Effluent Toxicity (WET)

Whole Effluent Toxicity (WET) is a term used to describe the aggregate toxic effect of an aqueous sample (i.e whole effluent wastewater discharge) as measured by an organism's response upon exposure to the sample (lethality, impaired growth or reproduction). WET tests replicate, to the greatest extent possible, the total effect and actual environmental exposure of aquatic life to toxic pollutants in an effluent without requiring the identification of the specific pollutants. WET testing is a vital component of the water quality standards implementation through the NPDES permitting process. EPA's promulgated WET test methods include acute and chronic tests.

6.1 For Outfall 001, ☐ Acute ☒ Chronic WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 86%, 74%, 63%, and 54%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 74.

6.2 Summary of Four Most Recent Test Results

TST Data Analysis

WET Summary and Evaluation

Facility Name	City of Lebanon Authority WWTP
Permit No.	PA0027316
Design Flow (MGD)	8
Q_{7-10} Flow (cfs)	4.48
PMF_a	1
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/9/18	7/27/19	10/27/20	5/10/21
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/9/18	9/24/19	10/27/20	5/11/21
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/9/18	9/24/19	10/27/20	5/10/21
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/9/18	9/24/19	10/27/20	5/10/21
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**73** % Effluent
Dilution Series	**18, 37, 73, 87, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

See attachment D for additional TST data analysis

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (*NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).*

☐ **YES** ☒ **NO**

6.3 Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **1** Chronic Partial Mix Factor (PMFc): **1**

6.3. 1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(8.0 MGD x 1.547) / ((4.48 cfs x 1) + (8.0 MGD x 1.547))] x 100 = **73.42%**

Is IWCa < 1%? ☐ **YES** ☒ **NO (YES - Acute Tests Required OR NO - Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

N/A

Type of Test for Permit Renewal: Chronic Test

6.3.2a. Determine Target IWCa (If Acute Tests Required)

N/A

6.3.2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(8.0MGD x 1.547) / ((4.48 cfs x 1) + (8.0MGD x 1.547))] x 100 = 0.7342 = 73%

6.3. 3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 87%, 73%, 37%, and 18%.

6.4 WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

N/A

No WETT limit or monitoring is deemed necessary. The standard Part C condition for WET testing will be included in the permit.

7.0 Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5) Nov 1 - Apr 30	1334	2001	XXX	20	30	40	1/day	24-Hr Composite
Carbonaceous Biochemical Oxygen Demand (CBOD5) May 1 - Oct 31	667	1000	XXX	10	15	20	1/day	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Total Suspended Solids	2001	3002	XXX	30	45	60	1/day	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/day	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/day	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/month	Grab
Ultraviolet light transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen Nov 1 - Apr 30	360	XXX	XXX	5.4	XXX	10.8	1/day	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Ammonia-Nitrogen May 1 - Oct 31	120	XXX	XXX	1.8	XXX	3.6	1/day	24-Hr Composite
Total Phosphorus	133	XXX	XXX	2.0	XXX	4	1/day	24-Hr Composite
Boron, Total	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Cadmium, Total	0.040	XXX	XXX	0.0006	XXX	0.002	1/week	24-Hr Composite
Copper, Total	1.6	XXX	XXX	0.024	XXX	0.06	1/week	24-Hr Composite
Cyanide, Free	0.534	XXX	XXX	0.008	XXX	0.02	1/week	24-Hr Composite
Iron, Dissolved	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Zinc, Total	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite

Compliance Sampling Location: At Outfall 001

7.1 Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

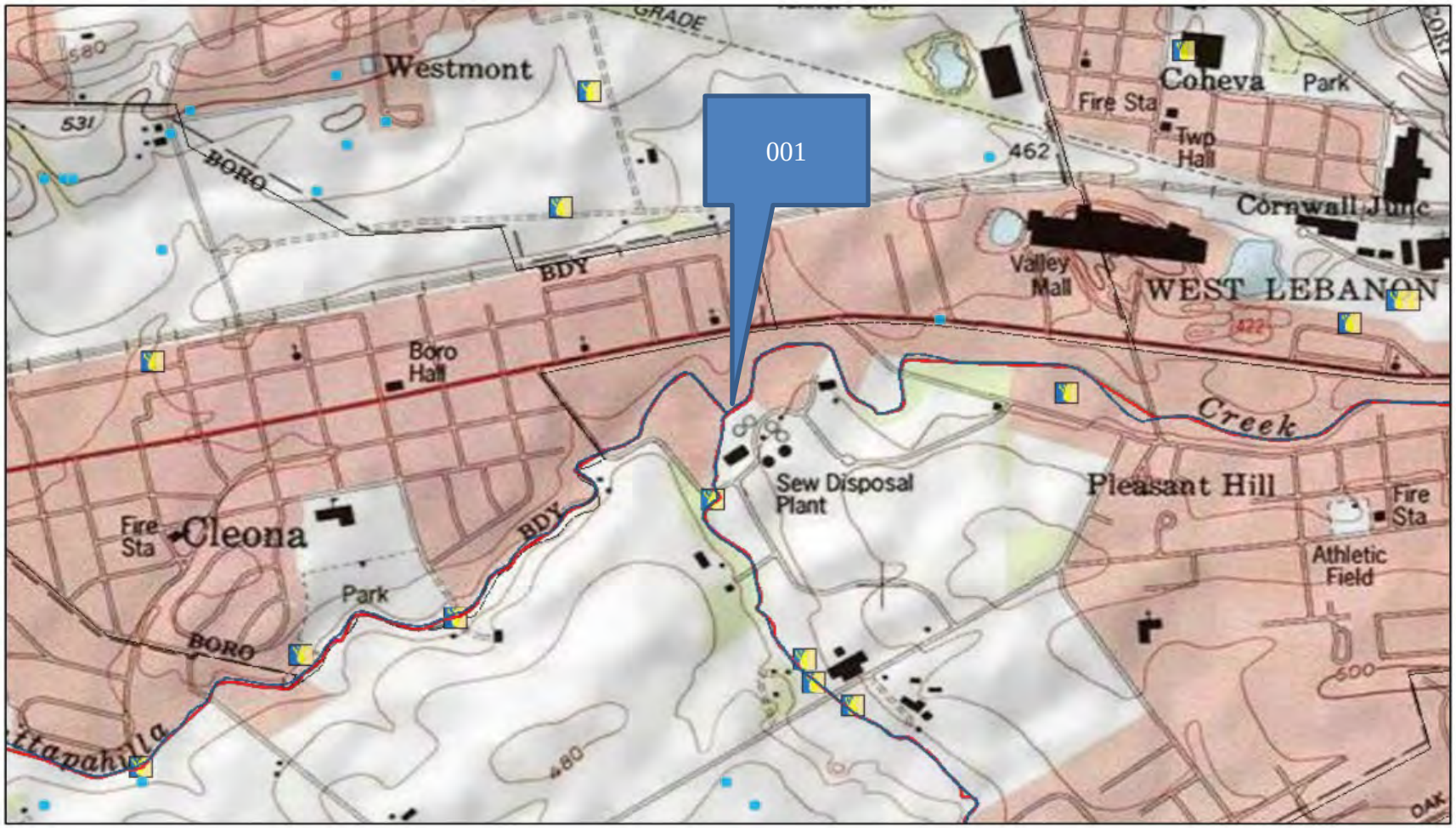
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	146117 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	19482 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: At Outfall 001

8.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment **C**)
☒	TRC Model Spreadsheet (see Attachment **D**)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishment of effluent limit for individual sewage permit, WET Test analysis
☐	Other:

9. Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07D	9691	QUITTAPAHILLA CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
12.040	City of Leb Aut	PA0027316	8.000	CBOD5	19.29		
				NH3-N	1.89	3.78	
				Dissolved Oxygen			5

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07D	9691	QUITTAPAHILLA CREEK	**12.040**	424.50	32.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.140	0.00	0.00	0.000	0.000	0.0	0.00	0.00	19.00	7.80	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
City of Leb Aut	PA0027316	8.0000	8.0000	8.0000	0.000	25.00	7.20

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07D	9691	QUITTAPAHILLA CREEK	**10.100**	400.00	35.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.140	0.00	0.00	0.000	0.000	0.0	0.00	0.00	19.00	7.80	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07D	9691	QUITTAPAHILLA CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
12.040	City of Leb Aut	9.22	12.19	9.22	12.19	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
12.040	City of Leb Aut	1.31	1.89	1.31	1.89	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
12.04	City of Leb Aut	19.29	19.29	1.89	1.89	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07D	9691	QUITTAPAHILLA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
12.040	8.000	23.405	7.296
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
48.829	0.770	63.429	0.448
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
14.70	1.108	1.39	0.910
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.862	7.935	Tsivoglou	5
Reach Travel Time (days)			
0.264			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.026	14.20	1.36	5.58
0.053	13.72	1.33	5.37
0.079	13.26	1.29	5.23
0.106	12.81	1.26	5.14
0.132	12.38	1.23	5.09
0.159	11.97	1.20	5.07
0.185	11.56	1.18	5.08
0.212	11.17	1.15	5.11
0.238	10.80	1.12	5.15
0.264	10.44	1.09	5.20

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.89	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.23	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07D	9691	QUITTAPAHILLA CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
12.040	4.48	0.00	4.48	12.376	0.00239	.77	48.83	63.43	0.45	0.264	23.41	7.30
Q1-10 Flow												
12.040	3.99	0.00	3.99	12.376	0.00239	NA	NA	NA	0.44	0.269	23.54	7.29
Q30-10 Flow												
12.040	5.51	0.00	5.51	12.376	0.00239	NA	NA	NA	0.46	0.256	23.15	7.31

C. Toxic Management Spreadsheet

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **City of Lebanon Authority** NPDES Permit No.: **PA0027316** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
8	178	7.2						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		577									
	Chloride (PWS)	mg/L		197									
	Bromide	mg/L	<	2									
	Sulfate (PWS)	mg/L		88									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L		70									
	Total Antimony	µg/L		0.4									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		7									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		300									
	Total Cadmium	µg/L	<	1									
	Total Chromium (III)	µg/L		1.5									
	Hexavalent Chromium	µg/L		1.5									
	Total Cobalt	µg/L		0.6									
	Total Copper	µg/L		13									
	Free Cyanide	µg/L	<	4									
	Total Cyanide	µg/L	<	4									
	Dissolved Iron	µg/L		60									
	Total Iron	µg/L		80									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		34									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		5.2									
	Total Phenols (Phenolics) (PWS)	µg/L		16									
	Total Selenium	µg/L	<	1									
	Total Silver	µg/L	<	0.5									
	Total Thallium	µg/L	<	1									
	Total Zinc	µg/L		41									
	Total Molybdenum	µg/L		4									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	2									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L	<	0.5									

Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L		0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5									
	Chloroform	µg/L	<	0.5									
	Dichlorobromomethane	µg/L	<	0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	0.5									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	10									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	10									
	p-Chloro-m-Cresol	µg/L	<	10									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	10									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	2.5									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	2.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	2,4-Dinitrotoluene	µg/L	<	5									

	2,6-Dinitrotoluene	µg/L	<	5									
	Di-n-Octyl Phthalate	µg/L	<	5									
	1,2-Diphenylhydrazine	µg/L	<	5									
	Fluoranthene	µg/L	<	2.5									
	Fluorene	µg/L	<	2.5									
	Hexachlorobenzene	µg/L	<	5									
	Hexachlorobutadiene	µg/L	<	0.5									
	Hexachlorocyclopentadiene	µg/L	<	5									
	Hexachloroethane	µg/L	<	5									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5									
	Isophorone	µg/L	<	5									
	Naphthalene	µg/L	<	0.5									
	Nitrobenzene	µg/L	<	5									
	n-Nitrosodimethylamine	µg/L	<	5									
	n-Nitrosodi-n-Propylamine	µg/L	<	5									
	n-Nitrosodiphenylamine	µg/L	<	5									
	Phenanthrene	µg/L	<	2.5									
	Pyrene	µg/L	<	2.5									
	1,2,4-Trichlorobenzene	µg/L	<	0.5									
Group 6	Aldrin	µg/L	<	0.05									
	alpha-BHC	µg/L	<	0.05									
	beta-BHC	µg/L	<	0.05									
	gamma-BHC	µg/L	<	0.05									
	delta BHC	µg/L	<	0.05									
	Chlordane	µg/L	<	0.05									
	4,4-DDT	µg/L	<	0.05									
	4,4-DDE	µg/L	<	0.05									
	4,4-DDD	µg/L	<	0.05									
	Dieldrin	µg/L	<	0.05									
	alpha-Endosulfan	µg/L	<	0.05									
	beta-Endosulfan	µg/L	<	0.05									
	Endosulfan Sulfate	µg/L	<	0.05									
	Endrin	µg/L	<	0.05									
	Endrin Aldehyde	µg/L	<	0.05									
	Heptachlor	µg/L	<	0.05									
	Heptachlor Epoxide	µg/L	<	0.05									
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

City of Lebanon Authority, NPDES Permit No. PA0027316, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Quittapahilla Creek

No. Reaches to Model: 1

- (•) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	009691	12.04	424.5	32			Yes
End of Reach 1	009691	10.1	400	36			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	12.04	0.13										308	7.8		
End of Reach 1	10.1	0.13													

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	12.04														
End of Reach 1	10.1														

Model Results

City of Lebanon Authority, NPDES Permit No. PA0027316, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ( ) All | (•) Inputs | ( ) Results | ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 6.201 PMF: 1 Analysis Hardness (mg/l): 210.7 Analysis pH: 7.29

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,002	
Total Antimony	0	0		0	1,100	1,100	1,470	
Total Arsenic	0	0		0	340	340	454	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	28,059	
Total Boron	0	0		0	8,100	8,100	10,823	
Total Cadmium	0	0		0	4.154	4.55	6.08	Chem Translator of 0.913 applied
Total Chromium (III)	0	0		0	1049.019	3,320	4,436	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	21.8	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	127	
Total Copper	0	0		0	27.123	28.3	37.7	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	22	22.0	29.4	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	143.883	211	282	Chem Translator of 0.682 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	879.615	881	1,178	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	11.591	13.6	18.2	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	86.8	
Total Zinc	0	0		0	220.345	225	301	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	4.01	

Acrylonitrile	0	0		0	650	650	868	
Benzene	0	0		0	640	640	855	
Bromoform	0	0		0	1,800	1,800	2,405	
Carbon Tetrachloride	0	0		0	2,800	2,800	3,741	
Chlorobenzene	0	0		0	1,200	1,200	1,603	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	24,050	
Chloroform	0	0		0	1,900	1,900	2,539	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	20,042	
1,1-Dichloroethylene	0	0		0	7,500	7,500	10,021	
1,2-Dichloropropane	0	0		0	11,000	11,000	14,697	
1,3-Dichloropropylene	0	0		0	310	310	414	
Ethylbenzene	0	0		0	2,900	2,900	3,875	
Methyl Bromide	0	0		0	550	550	735	
Methyl Chloride	0	0		0	28,000	28,000	37,412	
Methylene Chloride	0	0		0	12,000	12,000	16,034	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	1,336	
Tetrachloroethylene	0	0		0	700	700	935	
Toluene	0	0		0	1,700	1,700	2,271	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	9,086	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	4,008	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	4,543	
Trichloroethylene	0	0		0	2,300	2,300	3,073	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	748	
2,4-Dichlorophenol	0	0		0	1,700	1,700	2,271	
2,4-Dimethylphenol	0	0		0	660	660	882	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	107	
2,4-Dinitrophenol	0	0		0	660	660	882	
2-Nitrophenol	0	0		0	8,000	8,000	10,689	
4-Nitrophenol	0	0		0	2,300	2,300	3,073	
p-Chloro-m-Cresol	0	0		0	160	160	214	
Pentachlorophenol	0	0		0	11.683	11.7	15.6	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	615	
Acenaphthene	0	0		0	83	83.0	111	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	401	
Benzo(a)Anthracene	0	0		0	0.5	0.5	0.67	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	40,084	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	6,013	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	361	
Butyl Benzyl Phthalate	0	0		0	140	140	187	

2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	1,096	
1,3-Dichlorobenzene	0	0		0	350	350	468	
1,4-Dichlorobenzene	0	0		0	730	730	975	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	5,345	
Dimethyl Phthalate	0	0		0	2,500	2,500	3,340	
Di-n-Butyl Phthalate	0	0		0	110	110	147	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	2,138	
2,6-Dinitrotoluene	0	0		0	990	990	1,323	
1,2-Diphenylhydrazine	0	0		0	15	15.0	20.0	
Fluoranthene	0	0		0	200	200	267	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	13.4	
Hexachlorocyclopentadiene	0	0		0	5	5.0	6.68	
Hexachloroethane	0	0		0	60	60.0	80.2	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	13,361	
Naphthalene	0	0		0	140	140	187	
Nitrobenzene	0	0		0	4,000	4,000	5,345	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	22,714	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	401	
Phenanthrene	0	0		0	5	5.0	6.68	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	174	
Aldrin	0	0		0	3	3.0	4.01	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	1.27	
Chlordane	0	0		0	2.4	2.4	3.21	
4,4-DDT	0	0		0	1.1	1.1	1.47	
4,4-DDE	0	0		0	1.1	1.1	1.47	
4,4-DDD	0	0		0	1.1	1.1	1.47	
Dieldrin	0	0		0	0.24	0.24	0.32	
alpha-Endosulfan	0	0		0	0.22	0.22	0.29	
beta-Endosulfan	0	0		0	0.22	0.22	0.29	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	0.11	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	0.69	
Heptachlor Epoxide	0	0		0	0.5	0.5	0.67	

☑ ***CFC*** CCT (min): 6.201 PMF: 1 Analysis Hardness (mg/l): 210.7 Analysis pH: 7.29

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	294	
Total Arsenic	0	0		0	150	150	200	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,478	
Total Boron	0	0		0	1,600	1,600	2,138	
Total Cadmium	0	0		0	0.413	0.47	0.63	Chem Translator of 0.878 applied
Total Chromium (III)	0	0		0	136.456	159	212	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	13.9	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	25.4	
Total Copper	0	0		0	16.931	17.6	23.6	Chem Translator of 0.96 applied
Free Cyanide	0	0		0	5.2	5.2	6.95	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	2,004	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	5.607	8.22	11.0	Chem Translator of 0.682 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.21	Chem Translator of 0.85 applied
Total Nickel	0	0		0	97.698	98.0	131	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	6.67	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	17.4	
Total Zinc	0	0		0	222.148	225	301	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	4.01	
Acrylonitrile	0	0		0	130	130	174	
Benzene	0	0		0	130	130	174	
Bromoform	0	0		0	370	370	494	
Carbon Tetrachloride	0	0		0	560	560	748	
Chlorobenzene	0	0		0	240	240	321	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	4,676	
Chloroform	0	0		0	390	390	521	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	4,142	
1,1-Dichloroethylene	0	0		0	1,500	1,500	2,004	
1,2-Dichloropropane	0	0		0	2,200	2,200	2,939	
1,3-Dichloropropylene	0	0		0	61	61.0	81.5	
Ethylbenzene	0	0		0	580	580	775	
Methyl Bromide	0	0		0	110	110	147	
Methyl Chloride	0	0		0	5,500	5,500	7,349	

Methylene Chloride	0	0		0	2,400	2,400	3,207	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	281	
Tetrachloroethylene	0	0		0	140	140	187	
Toluene	0	0		0	330	330	441	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	1,871	
1,1,1-Trichloroethane	0	0		0	610	610	815	
1,1,2-Trichloroethane	0	0		0	680	680	909	
Trichloroethylene	0	0		0	450	450	601	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	147	
2,4-Dichlorophenol	0	0		0	340	340	454	
2,4-Dimethylphenol	0	0		0	130	130	174	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	21.4	
2,4-Dinitrophenol	0	0		0	130	130	174	
2-Nitrophenol	0	0		0	1,600	1,600	2,138	
4-Nitrophenol	0	0		0	470	470	628	
p-Chloro-m-Cresol	0	0		0	500	500	668	
Pentachlorophenol	0	0		0	8.963	8.96	12.0	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	122	
Acenaphthene	0	0		0	17	17.0	22.7	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	78.8	
Benzo(a)Anthracene	0	0		0	0.1	0.1	0.13	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	8,017	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	1,216	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	72.2	
Butyl Benzyl Phthalate	0	0		0	35	35.0	46.8	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	214	
1,3-Dichlorobenzene	0	0		0	69	69.0	92.2	
1,4-Dichlorobenzene	0	0		0	150	150	200	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	1,069	
Dimethyl Phthalate	0	0		0	500	500	668	
Di-n-Butyl Phthalate	0	0		0	21	21.0	28.1	
2,4-Dinitrotoluene	0	0		0	320	320	428	
2,6-Dinitrotoluene	0	0		0	200	200	267	
1,2-Diphenylhydrazine	0	0		0	3	3.0	4.01	

Fluoranthene	0	0		0	40	40.0	53.4	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	2.67	
Hexachlorocyclopentadiene	0	0		0	1	1.0	1.34	
Hexachloroethane	0	0		0	12	12.0	16.0	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	2,806	
Naphthalene	0	0		0	43	43.0	57.5	
Nitrobenzene	0	0		0	810	810	1,082	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	4,543	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	78.8	
Phenanthrene	0	0		0	1	1.0	1.34	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	34.7	
Aldrin	0	0		0	0.1	0.1	0.13	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	0.006	
4,4-DDT	0	0		0	0.001	0.001	0.001	
4,4-DDE	0	0		0	0.001	0.001	0.001	
4,4-DDD	0	0		0	0.001	0.001	0.001	
Dieldrin	0	0		0	0.056	0.056	0.075	
alpha-Endosulfan	0	0		0	0.056	0.056	0.075	
beta-Endosulfan	0	0		0	0.056	0.056	0.075	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	0.048	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	0.005	
Heptachlor Epoxide	0	0		0	0.0038	0.004	0.005	

☑ ***THH*** CCT (min): 6.201 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	7.48	
Total Arsenic	0	0		0	10	10.0	13.4	
Total Barium	0	0		0	2,400	2,400	3,207	

Total Boron	0	0		0	3,100	3,100	4,142	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	4	4.0	5.34	
Dissolved Iron	0	0		0	300	300	401	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	1,336	
Total Mercury	0	0		0	0.050	0.05	0.067	
Total Nickel	0	0		0	610	610	815	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.32	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	4.01	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	134	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	7.62	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	44.1	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	90.9	
Methyl Bromide	0	0		0	100	100.0	134	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	76.2	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	134	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	13,361	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	
Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	40.1	

2,4-Dichlorophenol	0	0		0	10	10.0	13.4	
2,4-Dimethylphenol	0	0		0	100	100.0	134	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.67	
2,4-Dinitrophenol	0	0		0	10	10.0	13.4	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	5,345	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	93.5	
Anthracene	0	0		0	300	300	401	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	267	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.13	
2-Chloronaphthalene	0	0		0	800	800	1,069	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,336	
1,3-Dichlorobenzene	0	0		0	7	7.0	9.35	
1,4-Dichlorobenzene	0	0		0	300	300	401	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	802	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,672	
Di-n-Butyl Phthalate	0	0		0	20	20.0	26.7	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	26.7	
Fluorene	0	0		0	50	50.0	66.8	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	5.34	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	45.4	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	13.4	

n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	26.7	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.094	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	5.61	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	26.7	
beta-Endosulfan	0	0		0	20	20.0	26.7	
Endosulfan Sulfate	0	0		0	20	20.0	26.7	
Endrin	0	0		0	0.03	0.03	0.04	
Endrin Aldehyde	0	0		0	1	1.0	1.34	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 25.765 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	

Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	0.06	0.06	0.19	
Benzene	0	0		0	0.58	0.58	1.79	
Bromoform	0	0		0	7	7.0	21.6	
Carbon Tetrachloride	0	0		0	0.4	0.4	1.23	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	2.47	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	2.93	
1,2-Dichloroethane	0	0		0	9.9	9.9	30.6	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	2.78	
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.83	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	61.7	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.62	
Tetrachloroethylene	0	0		0	10	10.0	30.9	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	1.7	
Trichloroethylene	0	0		0	0.6	0.6	1.85	
Vinyl Chloride	0	0		0	0.02	0.02	0.062	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	0.093	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	4.63	

Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.0003	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.003	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0003	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.003	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.031	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.093	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.99	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	0.37	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.0003	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.15	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.15	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.15	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.093	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0002	
Hexachlorobutadiene	0	0		0	0.01	0.01	0.031	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	0.31	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.003	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.002	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.015	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	10.2	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	
Aldrin	0	0		0	0.0000008	8.00E-07	0.000002	
alpha-BHC	0	0		0	0.0004	0.0004	0.001	
beta-BHC	0	0		0	0.008	0.008	0.025	
gamma-BHC	0	0		0	N/A	N/A	N/A	

Chlordane	0	0		0	0.0003	0.0003	0.0009	
4,4-DDT	0	0		0	0.00003	0.00003	0.00009	
4,4-DDE	0	0		0	0.00002	0.00002	0.00006	
4,4-DDD	0	0		0	0.0001	0.0001	0.0003	
Dieldrin	0	0		0	0.000001	0.000001	0.000003	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.00002	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.00009	

☑ *Recommended WQBELs & Monitoring Requirements*

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Boron	Report	Report	Report	Report	Report	µg/L	2,138	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.042	0.065	0.63	0.98	1.57	µg/L	0.63	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	13.9	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	1.57	2.45	23.6	36.8	58.9	µg/L	23.6	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Free Cyanide	0.36	0.56	5.34	8.34	13.4	µg/L	5.34	THH	Discharge Conc ≥ 50% WQBEL (RP)
Dissolved Iron	Report	Report	Report	Report	Report	µg/L	401	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	µg/L	225	AFC	Discharge Conc > 10% WQBEL (no RP)

D. WETT Results

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Survival
TIWC (decimal)	0.73
No. Per Replicate	1
TST b value	0.75
TST alpha value	0.2

Facility Name

City of Lebanon Authority WWTP

Permit No.

PA0027316

Replicate No.	Test Completion Date 10/9/2018 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 7/27/2019 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 10/27/2020 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Replicate No.	Test Completion Date 5/10/2021 Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Ceriodaphnia
Endpoint	Reproduction
TMWC (decimal)	0.73
No. Per Replicate	1
T ST b value	0.75
T ST alpha value	0.2

Facility Name
City of Lebanon Authority WWTP

Permit No.
PA0027316

Test Completion Date: 10/9/2018

Replicate No.	Control	TMWC
1	26	33
2	35	41
3	28	34
4	36	31
5	33	36
6	31	35
7	25	32
8	28	29
9	30	33
10	31	34
11		
12		
13		
14		
15		
Mean	30.300	33.800
Std Dev.	3.653	3.225
# Replicates	10	10

T-Test Result	8.2764
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 9/24/2019

Replicate No.	Control	TMWC
1	24	26
2	24	26
3	24	18
4	29	27
5	23	28
6	22	28
7	20	25
8	22	24
9	20	31
10	22	30
11		
12		
13		
14		
15		
Mean	23.000	26.300
Std Dev.	2.582	3.622
# Replicates	10	10

T-Test Result	6.9673
Deg. of Freedom	15
Critical T Value	0.8662
Pass or Fail	PASS

Test Completion Date: 10/27/2020

Replicate No.	Control	TMWC
1	42	36
2	36	41
3	43	42
4	33	39
5	35	35
6	39	38
7	32	35
8	39	40
9	34	40
10	36	40
11		
12		
13		
14		
15		
Mean	36.900	38.600
Std Dev.	3.725	2.503
# Replicates	10	10

T-Test Result	9.2094
Deg. of Freedom	17
Critical T Value	0.8633
Pass or Fail	PASS

Test Completion Date: 5/11/2021

Replicate No.	Control	TMWC
1	43	42
2	40	43
3	32	38
4	33	43
5	21	41
6	40	39
7	45	42
8	38	37
9	41	39
10	40	43
11		
12		
13		
14		
15		
Mean	37.300	40.700
Std Dev.	6.993	2.263
# Replicates	10	10

T-Test Result	7.0447
Deg. of Freedom	16
Critical T Value	0.8647
Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Survival
TWC (decimal)	0.73
No. Per Replicate	10
T ST b value	0.75
T ST alpha value	0.25

Facility Name

City of Lebanon Authority WWTP

Permit No.

PA0027316

Test Completion Date 10/9/2018

Replicate No.	Control	TWC
1	7	7
2	7	8
3	8	8
4	8	8
5	5	8
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	7.000	7.800
Std Dev.	1.225	0.447
# Replicates	5	5
T-Test Result	6.7576	
Deg. of Freedom	7	
Critical T Value	0.7111	
Pass or Fail	PASS	

Test Completion Date 9/24/2019

Replicate No.	Control	TWC
1	10	10
2	9	9
3	10	8
4	10	9
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	9.750	9.000
Std Dev.	0.500	0.816
# Replicates	4	4
T-Test Result	3.2547	
Deg. of Freedom	4	
Critical T Value	0.7407	
Pass or Fail	PASS	

Test Completion Date 10/27/2020

Replicate No.	Control	TWC
1	10	10
2	10	10
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	4	4
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

Test Completion Date 5/10/2021

Replicate No.	Control	TWC
1	10	10
2	10	10
3	10	10
4	10	10
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	10.000	10.000
Std Dev.	0.000	0.000
# Replicates	4	4
T-Test Result		
Deg. of Freedom		
Critical T Value		
Pass or Fail	PASS	

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic
Species Tested	Pimephales
Endpoint	Growth
TWC (decimal)	0.73
No. Per Replicate	10
T ST b value	0.75
T ST alpha value	0.25

Facility Name

City of Lebanon Authority WWTP

Permit No.

PA0027316

Test Completion Date 10/9/2018

Replicate No.	Control	TWC
1	0.4038	0.45
2	0.4288	0.5212
3	0.4462	0.435
4	0.4887	0.4675
5	0.4275	0.4375
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.439	0.462
Std Dev.	0.032	0.035
# Replicates	5	5

T-Test Result	6.9819
Deg. of Freedom	7
Critical T Value	0.7111
Pass or Fail	PASS

Test Completion Date 9/24/2019

Replicate No.	Control	TWC
1	0.434	0.409
2	0.409	0.451
3	0.449	0.445
4	0.395	0.469
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.422	0.444
Std Dev.	0.024	0.025
# Replicates	4	4

T-Test Result	8.1886
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

Test Completion Date 10/27/2020

Replicate No.	Control	TWC
1	0.425	0.434
2	0.416	0.462
3	0.455	0.507
4	0.452	0.483
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.437	0.472
Std Dev.	0.019	0.031
# Replicates	4	4

T-Test Result	8.3850
Deg. of Freedom	4
Critical T Value	0.7407
Pass or Fail	PASS

Test Completion Date 5/10/2021

Replicate No.	Control	TWC
1	0.504	0.478
2	0.41	0.471
3	0.444	0.463
4	0.444	0.433
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Mean	0.451	0.461
Std Dev.	0.039	0.020
# Replicates	4	4

T-Test Result	6.9727
Deg. of Freedom	5
Critical T Value	0.7267
Pass or Fail	PASS

E. TRC Calculations

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

4.48	= Q stream (cfs)	0.5	= CV Daily
8	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.134	1.3.2.iii	WLA cfc = 0.124
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.050	5.1d	LTA_cfc = 0.072

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.062	AFC
		INST MAX LIMIT (mg/l) = 0.202	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SOUTHCENTRAL REGIONAL OFFICE
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET ADDENDUM

Application Type	**Renewal**	Application No.	**PA0027316**
Facility Type	**Sewage**	APS ID	**789786**
Major / Minor	**Major**	Authorization ID	**1359674**

Applicant and Facility Information

Applicant Name	**Lebanon City Authority**	Facility Name	**Lebanon City STP**
Applicant Address	2321 Ridgeview Road	Facility Address	2321 Ridgeview Road
	Lebanon, PA 17042-9431		Lebanon, PA 17042-9431
Applicant Contact	Jonathan Beers	Facility Contact	Frank Discuillo
Applicant Phone	(717) 272-2841	Facility Phone	(717) 272-2841
Client ID	43458	Site ID	454832
SIC Code	4952	Municipality	Lebanon City
SIC Description	Trans. & Utilities - Sewerage Systems	County	Lebanon
Date Published in PA Bulletin	August 6, 2022	EPA Waived?	No
Comment Period End Date	September 6, 2022	If No, Reason	

Purpose of Application: Application for a renewal of an NPDES permit for discharge of treated Sewage

Internal Review and Recommendations

No comment was received during the day comment period. No change was made to the final permit in comparison to the draft permit. EPA reviewed the draft permit but has no comment. EPA communication is attached below. No open violations were found when a search was conducted on 9/15/2022.

Permit issuance recommended.

Approve	Return	Deny	Signatures	Date
X			*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	September 15, 2022
X			Daniel W. Martin Daniel W. Martin, P.E. / Environmental Engineer Manager	September 26, 2022
X			Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	September 26, 2022

Internal Review and Recommendations

EPA Communication

From: Fulton, Jennifer <FultonJennifer@epa.gov>
Sent: Thursday, August 11, 2022 8:33 AM
To: Kwedza, John
Cc: Furjanic, Sean; Schumack, Maria; Martin, Daniel; Martinsen, Jessica; Hales, Dana; Blanco-Gonzalez, Joel
Subject: [External] PA0027316 Lebanon City Authority

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown senders. To report suspicious email, use the Report Phishing button in Outlook.*

Hello Pascal,

According to the Memorandum of Agreement (MOA) between the U.S. Environmental Protection Agency Region III (EPA) and the Pennsylvania Department of Environmental Protection (PADEP), the EPA is reviewing a revised draft National Pollutant Discharge Elimination System (NPDES) permit for:

Redraft Permit: Lebanon City Authority
Also known as: Lebanon City STP
NPDES Number: PA0027316
EPA-received: July 21, 2022
30-day Response: August 20, 2022

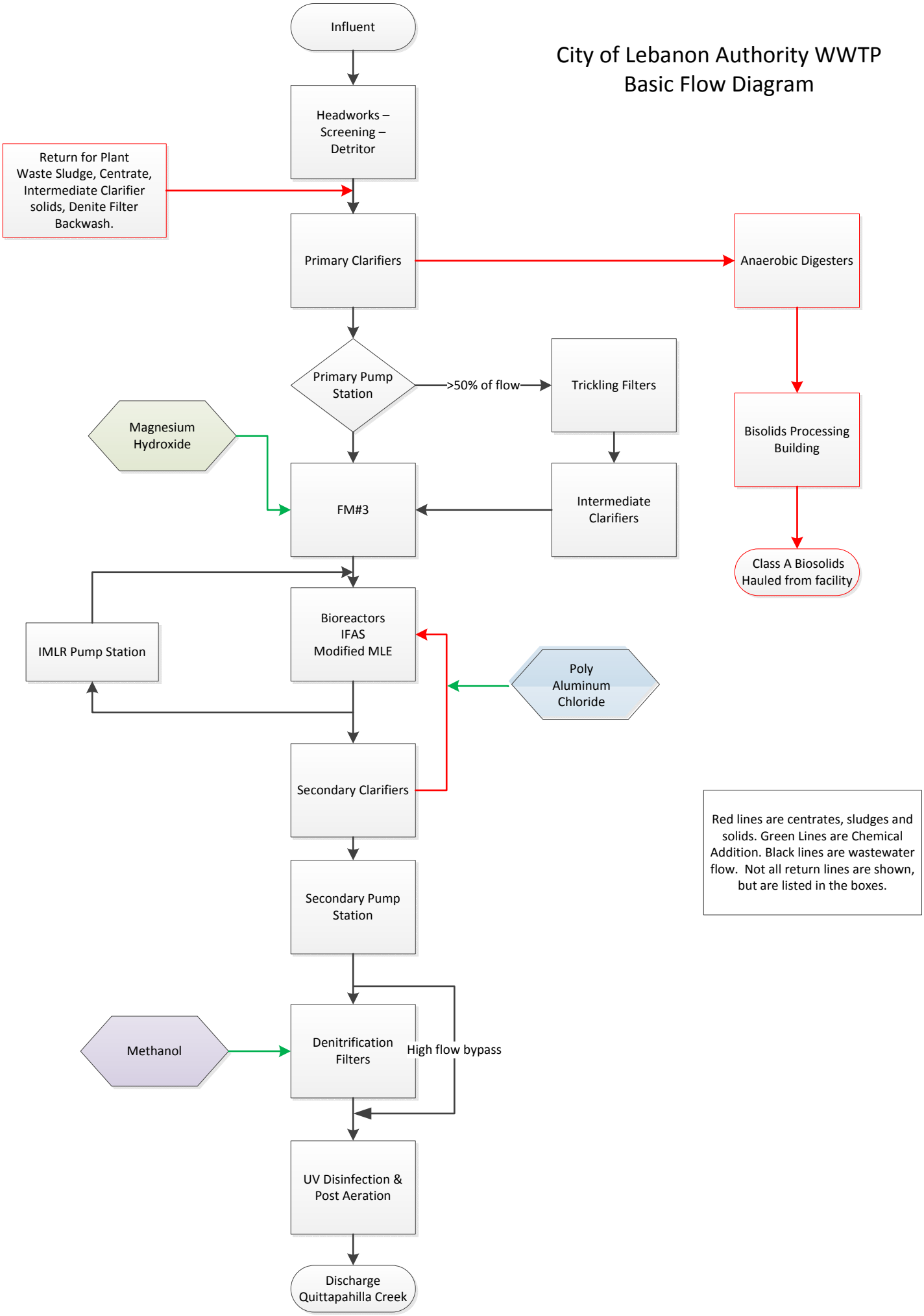
Thank you for our August 9, 2022 phone call regarding this matter. This is a major municipal point source discharging to the Quittapahilla Creek and Chesapeake Bay. EPA has chosen to perform a limited review of the revised draft permit based on the assumptions and requirements set forth in the Quittapahilla Creek Watershed Total Maximum Daily Load (TMDL) and Chesapeake Bay TMDL, whole effluent toxicity (WET) requirements, and pretreatment requirements. As a result of our limited review, we will not be providing any comment related to the requirements above.

If there are changes proposed to the draft permit, fact sheet, and/or permit components, please coordinate with Joel Blanco-Gonzalez by email at blanco-gonzalez.joel@epa.gov and/or by phone at (215) 814-2768 prior to issuance.

Thank you,
Jen Fulton

Jennifer Fulton
Acting Chief, Clean Water Branch
US EPA Mid-Atlantic Region
Phone 304-234-0248
Email fulton.jennifer@epa.gov

City of Lebanon Authority WWTP
Basic Flow Diagram



Red lines are centrates, sludges and solids. Green Lines are Chemical Addition. Black lines are wastewater flow. Not all return lines are shown, but are listed in the boxes.

SNITZ CREEK

QUITTAPAHILLA CREEK

UV BUILDING

UV TANK #2

UV TANK #1

IRONWOOD TANK

PLANT EFFLUENT METERING CHAMBER

FINAL CLARIFIER No. 4

FINAL CLARIFIER No. 3

FINAL CLARIFIER No. 2

FINAL CLARIFIER No. 1

FLOW MANAGEMENT CHAMBER

SCUM MANHOLE #2

SCUM MANHOLE #1

PRIMARY POWER STATION

GENERATOR / FUEL STORAGE PAD

CHLORINE STORAGE SHED

CAMEL GARAGE

SECONDARY PUMP STATION

SECONDARY DISTRIBUTION CHAMBER

DENTIRIFICATION FILTER BUILDING

MIXED LIQUOR PUMP STATION

BIOREACTOR 4

BIOREACTOR 3

BIOREACTOR 2

BIOREACTOR 1

BIOREACTOR DISTRIBUTION CHAMBER

CONTROL BUILDING

Gate to bypass primary treatment flow to UV

PRIMARY CLARIFIER No. 1

PRIMARY DISTRIBUTION CHAMBER

ELECTRICAL ROOM

GARAGE AND UTILITY BUILDING

CHEMICAL FEED BUILDING

PLANT DRAIN PUMP STATION

HEADWORKS BUILDING

NORTH CORNWALL FORCEMAIN

Gate to bypass plant flow to UV

CITY GRAVITY MAIN

mudwell waste C/UV

PLANT INFLUENT METERING CHAMBER

RECYCLE CHAMBER

PRIMARY CLARIFIER No. 2

SPILL CONTAINMENT VALVE CHAMBER

SPILL CONTAINMENT CHAMBER

METHANOL STORAGE AREA

METHANOL FILL STATION

PRIMARY PUMP STATION

Carbon Shunt

BIOSOLIDS STORAGE SILO

BIOSOLIDS PROCESSING BUILDING

FLASH MIX TANK No. 3

TRICKLING FILTER INFLUENT METERING CHAMBER

PRIMARY DIGESTER

DIGESTER CONTROL HOUSE

SECONDARY DIGESTER & BioGas STORAGE

INTERMEDIATE CLARIFIER No. 2

INTERMEDIATE CLARIFIER No. 1

WASTE GAS BURNER

TRICKLING FILTER No. 2

TRICKLING FILTER No. 1

GARAGE

SHEET LEGEND

- Process Flow
- Return Flow
- By–Pass Flow
- Recycle Flow
- Raw Sludge Flow

PROCESS FLOW DIAGRAM

CITY OF LEBANON AUTHORITY Water-Quality Management Since 1958

SITE PLAN

SCALE: Feet

0 25 50 100 150

2023 Sampling Plan for Local Limits Development

City of Lebanon Authority
2311 Ridgeview Road
Lebanon, PA 17042
NPDES PA0027316

The NPDES Permit for the City of Lebanon Authority (CoLA) WWTP took effect on October 1, 2022.

The Sampling Plan contains the following information:

A. Permits, Limits and Items Reviewed to Determine Pollutants of Concern
B. List of Pollutants and the reason for their inclusion
C. List of Pollutants, method number, sample type and minimum detection level
D. List of Pollutants reviewed, but not included.
E. List of Sampling Locations and Procedure.
F. Sampling Plan Checklist

Sampling will begin after CoLA is notified of the acceptance of this plan. Goal is to have sampling completed within 3 months to allow for sufficient time to retest and resample if there are any issues or questions with the data.

The Number of Sampling Days for the locations listed in E are shown below. The facility plans to use the quarterly IPP plant sampling from 2021 and 2022 plus additional sampling to make up it to the total sampling event goal. We are excluding 2020 due to the COVID caused shut-downs and abnormal conditions.

New pollutants (Boron and Dissolved Iron) will only be addressed during the new samplings. These are Monitor and report only. Dissolved Iron may be an issue due to the filter being quickly blinded.

Parameter	POTW				Background - non permitted
	Influent	Intermediate Stages (3)	Effluent	Sludges	
National POC	25-30	20-30	25-30	6	20
Site Specific POC	25-30	20-30	25-30	6	20
% Solids				6	

Please forward any questions to Cora Shenk, Compliance Manager at cshenk@lebanonauthority.org or 717-272-2841.

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

A. Permits, Limits and Items Reviewed to Determine Pollutants of Concern

1	Current Local Limits as defined by the City of Lebanon Authority Wastewater Treatment Plant Industrial Pretreatment Regulations - February 2020
2	NPDES Permit - Signed September 26, 2022; Effective Date October 1, 2022
3	Class A - Exceptional Quality Biosolids Limits
4	WQM Part II application - Facility Design Wastewater Pollutant Loadings.
5	Priority Pollutant Scan Data - Influent, Biosolids
6	NPDES Permit renewal effluent testing data (initial testing in 2021 and additional specific parameter testing at lower detection limits in 2022).

The facility does not accept oil & gas production wastewater.
Facility is not under any TMDLs or 303(d) listing.

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

B. List of Pollutants and the reason for their inclusion.

Pollutant	Reason to Include[1]
As	Standard / Current Local Limit
Cd	Standard / Current Local Limit
Cr	Standard / Current Local Limit
Cu	Standard / Current Local Limit/NPDES Permit
Cyanide	Standard / Current Local Limit
Pb	Standard / Current Local Limit
Hg	Standard / Current Local Limit
Ni	Standard / Current Local Limit
Ag	Standard / Current Local Limit
Zn	Standard / Current Local Limit/NPDES Permit monitor
Mo	Standard / Land Application Biosolids Limit
Se	Standard / Land Application Biosolids Limit
Phenols	Previous Limit
BOD	Standard / NPDES Permit/Passthrough
TSS	Standard / NPDES Permit/Passthrough
NH4	Standard / NPDES Permit/Passthrough
Phos	NPDES Permit/Chesapeake Loading
TN	NPDES Permit/Chesapeake Loading
Boron	NPDES Permit as Monitor
Dissolved Iron 2	NPDES Permit as Monitor

1. At least 1 Reason is listed for inclusion in Local Limits Development
2. Sample Prep by filterng is very hard on

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

C. List of Pollutants, Method Number, Sample Type and Detection Level

Pollutant	Method	Sample Type Grab[1]/comp	Detection Level ppm	target permit QL
As	EPA 200.8, rev 5.4	Composite	0.001	0.003
Cd	EPA 200.8, rev 5.4	Composite	0.0010	0.002
Cr	EPA 200.8, rev 5.4	Composite	0.0010	0.004
Cu	EPA 200.8, rev 5.4	Composite	0.001	0.004
Pb	EPA 200.8, rev 5.4	Composite	0.001	0.001
Hg	EPA 245.1	Composite	0.0002	0.0002
Ni	EPA 200.8, rev 5.4	Composite	0.0010	0.004
Ag	EPA 200.8, rev 5.4	Composite	0.0005	0.0004
Zn	EPA 200.8, rev 5.4	Composite	0.005	0.005
Mo	EPA 200.8, rev 5.4	Composite	0.003	0.004
Se	EPA 200.8, rev 5.4	Composite	0.001	0.004
Cyanide	Kelada-01 rev 1.2	Grab	0.002	0.01
Phenols	EPA 420.4	Grab	0.002	0.005
BOD	SM 5210B	Composite	2	
TSS	SM 2540D	Composite	2.5	
NH4	SM 4500NH3D	Composite	0.1	
Phos	EPA 365.1	Composite	0.005	0.01
TN - TKN	EPA 351.2	Composite	0.5	1
TN - Nox	EPA 353.2	Composite	0.5	0
Boron	EPA200.7, rev 4.4	Composite	0.200	0.2
Dissolved Iron	EPA 200.8, rev 5.4	Composite	0.020	0.02
pH	SM 4500H+	Grab	2-12 S.U.	

1. Grab samples for Cyanide and Phenols, will be a composite of 3 or 6 individual grabs depending on Location. (Collection System sampling will have fewer grabs.)
update: 12/28/2022

City of Lebanon Authority WWTP – PA0027316
Local Limits Development Sampling Plan
D. List of Pollutants reviewed, but not included.

A detection limit for Free Cyanide higher than the Target Quantitation Limit with the analysis of pollutants for the 2021 NPDES Permit renewal had a possible effluent limit proposed. This was resampled and analyzed at the TQL and Limit or monitoring were not included.

There were no other pollutants with above the quantitation limit that were of concern.

City of Lebanon Authority WWTP
Local Limits Development Sampling Plan

E. Sampling Locations and considerations

	Sampling Locations:		Description
1	POTW	Influent	After barscreen and detritor
2	POTW	Primary	Primary Clarifier Effluent
3	POTW	Bioreactor Influent	Convergence of Trickling Filter (Intermed Clarifier) effluent and bypassed Primary Clarifier Effluent. Primary Clarifer Effluent bypasses the Trickling Filters for the BOD to be used in the Bioreactors for denitrificiation.
4	POTW	Denitrification Filters Influent	Final Clarifier Effluent.
5	POTW	Plant Effluent	Prior to UV disinfection and Post Aeration
6	POTW	Primary Clarifier Sludge	Taken from Primary Sludge Pumps.
7	POTW	sludge to disposal	Dried Product - Class A /EQ Biosolids
8	Collection System	background / unregulated samples	Taken throughout the Collection Area - in areas that do not include the 4 permited industries.
9	Collection System	Domestic Samples	Taken thoughout the collection area - in areas that contain only domestic wastewater. Used to characterize wastestream.

Composite Samplers utilized within the POTW are refrigerated - the portable samplers that will be used in the collection system will be iced.
Samples will be preserved as required by the method.
Sampling events will occur throughout the week - with the minimum of 4 samples taken on weekends (2 on Saturday and 2 on Sunday).
Sampling events will not occur when there is POTW upset, high flows, power outage, equipment failure, Holidays or anytime that would be considered abnormal.
Sample 6 will be run for Cyanide, Phenols and NH4. Plant Removal efficiencies will be used for Metals.

Sampling Plan Checklist

	Y/N
List of Pollutants to be Evaluated	
• Standard 15 pollutants?[3]	Y
• Existing local limit pollutants?	Y
• Other pollutants listed in the NPDES permit?	Y
• Toxic pollutants listed in other disposal requirements (sludge, air, etc.)	Y
• Other pollutants identified in priority pollutant scans?	Y - none
• Other pollutants identified in an applicable TMDL or 303(d) listing?	NA
• If POTW accepts oil & gas waste, does plan address pollutants in this waste?	NA
• If no to any of the above, is appropriate justification provided?	—
Appropriate Sampling Points	
• Influent (prior to any recycle stream)?	Y
• Effluent?	Y
• Background (including unregulated commercial and industrial)?	Y
• Digester influent (for non-conservative pollutants w/inhibition criteria)?	Y
• Internal points (influent to treatment units with inhibition criteria)?	Y
• Hauled waste?	NA
Number of Samples	
• Use of existing data?	Y
• At least 20 sample events?	Y
Sample Type	
• Grab for required pollutants?[4]	Y
• 24-hour composite for all others?	Y
Analytical Methods	
• Use of EPA approved methods?	Y
• Use of most sensitive methods?	QL's

[3] Arsenic, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, nickel, selenium, silver, zinc, BOD, TSS, and ammonia

[4] Cyanide, total phenols, volatile organics, oil & grease, sulfide, and pH

LEBANON WASTEWATER TREATMENT FACILITY

2021, 2022 & 2023 Influent BOD Loading lbs/day

2021								2022	High	Low	limit	% of limit		2023
	aver	*16,569*	*max*	*22,604*	*std dev*	*2,498*	**current numbers**				limit	% of limit		
	aver	*16,826*	*max*	*37,673*	*std dev*	*2,966*	**before exclusions**	numbers outside 2 deviations not used	22758	10894	22350	74.13	**edited 9/1/2023 CAS**	

2021

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2	12,295	15,500	16,584	20,777	13,390	16,677	13,817	14,223	15,986	14,086	17,405	17,419
2-3	13,653	24917xx	19,081	17,483	14,024	15,365	12,019	15,085	18,221	11,968	17,559	17,308
3-4	xx10016	26501xx	20,326	12,715	17,708	15,403	13,672	14,824	18,913	13,416	16,098	16,345
4-5	17,129	23051xx	18,660	14,216	18,144	13,707	13,800	16,227	14,089	16,193	15,819	14,857
5-6	18,815	22,137	16,706	19,073	16,786	11,806	12,147	17,677	14,194	16,651	16,839	13,963
6-7	20,545	17,174	14,787	19,944	18,594	12,049	15,023	13,278	17,890	16,803	14,062	14,969
7-8	19,582	16,335	16,349	20,358	15,188	15,796	16,782	10615xx	19,571	18,510	14,463	16,646
8-9	14,293	19,589	19,576	23622xx	12,914	18,512	19,569	10,955	18,442	18,206	18,592	17,574
9-10	10744x	25039xx	24565xx	16,746	13,985	13,233	15,275	14,080	16,439	12,585	16,892	19,857
10-11	13,802	21,370	21,103	13,687	16,254	16,534	12,383	16,873	14,297	15,496	18,083	16,619
11-12	20,239	21,417	21,543	16,946	19,989	14,902	14,150	13,886	14,060	15,859	18,291	14,282
12-13	22,322	19,109	23272x	16,933	18,862	12,083	14,186	15,711	13,257	19,369	16,677	14,815
13-14	19,658	16,080	14,430	19,178	19,318	12,792	15,713	17,547	19,509	13,879	12,294	19,398
14-15	18,939	13,282	13,435	20,226	15,745	16,408	13,216	11,928	14,927	17,393	13,922	17,636
15-16	16,172	16,824	23317x	19,998	12,971	15,339	17,701	11,612	18,409	15,446	16,511	16,839
16-17	14,474	22,257	21,464	16,766	14,422	12,497	14,156	14,869	18,937	12,875	17,669	18,640
17-18	14,179	16,475	21,056	14,318	16,123	15,573	10306x	16,330	19,616	11,746	18,808	18,006
18-19	19,566		23312x	14,792	17,499	12,570	13,039	15,916	14,032	17,344	18,375	19,135
19-20	19,606	16,765	17,767	15,207	15,198	13,627	20,888	15,691	14,607	15,703	16,547	17,035
20-21	22998xx	17,190	14,537	16,749	19,717	13,483	18,750	14,404	15,768	16,039	15,842	18,627
21-22	20,384	14,412	14,736	17,275	15,096	15,103	19,220	11,347	18,092	15,849	14,863	17,255
22-23	22,404	15,185	17,150	21,982	11010xx	16,622	20,357	12,955	14,551	15,199	22,457	18,580
23-24	15,373	25086xx	18,891	14,094	12,866	15,359	15,227	16,474	23976xx	13,378	15,239	18,599
24-25	17,283	25744xx	20,398	14,067	14,920	15,551	13,580	16,045	20,599	11,990	19,067	16,131
25-26	19,600	19,897	21,404	14,880	16,708	14,356	12,868	14,796	19,943	15,197	16,442	13,581
26-27	22,105	17,221	16,011	17,854	17,736	14,180	15,585	17,137	18,546	15,568	15,759	17,434
27-28	22,103	13,179	13,080	20,001	16,114	15,314	16,059	14,766	18,478	15,402	13,965	17,329
28-29	19,411	12,936	13,729	15,074	15,461	14,328	15,129	12,652	17,735	16,244	14,053	16,504
29-30	20,393		18,024	19,850	13,569	12,918	15,972	13,536	17,492	15,473	16,779	18,364
30-31	14,675		19,874	18,334	15,068	12,439	14,240	15,971	18,123	13,797	16,402	18,525
31-1	16,222		18,613		14,339		12,187	18,196		14,279		14,288
TOT.=	505,223	364,333	479,316	499,521	478,709	434,529	456,709	444,991	494,722	471,940	495,775	526,558
AVG.=	18,044	17,349	17,752	17,225	15,957	14,484	15,224	14,833	17,059	15,224	16,526	16,986
MIN.=	12,295	12,936	13,080	12,715	12,866	11,806	12,019	10,955	13,257	11,746	12,294	13,581
MAX.=	22,404	22,257	21,543	21,982	19,989	18,512	20,888	18,196	20,599	19,369	22,457	19,857

2022

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2	13,437	16,483	19,181	16,520	14,108	18,368	12,490	14,826	18,089	16,694	17,512	20,392
2-3	15,647	17,503	23520xx	14,999	20,456	14,654	11,000	17,629	14,677	13,535	16,136	16,265
3-4	17,567	17,417	23127xx	13,628	19,057	16,368	11,523	17,108	12,478	17,223	17,243	20,402
4-5	20,756	37672xx	15,175	16,816	18,750	12,966	15,955	18,319	13,358	18,056	14,717	16,272
5-6	20,132	16,669	14,711	17,617	22,351	13,113	17,712	17,386	13,465	18,891	15,717	14,908
6-7	17,111	14,444	14,912	16,708	19,945	15,234	15,108	11,726	18,899	18,395	16,129	17,689
7-8	17,427	15,344	17,669	21,508	23466x	19,299	20,509	13,755	16,532	16,571	15,957	22,044
8-9	16,735	16,514	18,039	15,899	15,374	19,111	15,901	22,189	20,956	14,117	22,556	20,042
9-10	14,323	22983x	17,280	14,595	16,992	19,796	15,549	23974x	16,641	16,464	17,808	16,016
10-11	19,061	18,697	17,126	14,469	18,728	16,752	16,492	19,968	14,084	13,975	29291x	11,950
11-12	17,682	17,280	25090x	18,471	15,803	12,011	20,718	17,792	13,985	18,532	15,111	13,794
12-13	16,830	18,056	14,349	20,779	18,995	14,281	21,564	16,500	15,444	17,817	16,580	16,983
13-14	19,442	15,696	14,710	17,708	16,576	15,620	20,357	13,284	17,716	19,209	13,477	17,982
14-15	16,946	17,769	16,907	17,848	12,983	19,132	22,142	12,789	17,992	16,513	18,957	15,699
15-16	15,309	18,846	17,992	18,430	14,933	13,051	17,203	16,797	18,356	15,001	21,101	17,250
16-17	13,004	15,165	17,088	14,389	18,535	18,458	16,791	20,298	15,739	12,798	17,140	15,083
17-18	18,444	17,934	19,192	17,105	19,409	16,709	15,890	19,879	14,175	14,308	15,916	13,924
18-19	18,841	17,329	18,646	21,288		13,078	21,253	19,379	13,169	19,878	16,606	13,828
19-20	25317xx	13,052	15,452	21,331	17,929	12,366	23157x	14,273	14,277	26305x	16,473	16,292
20-21	25821xx	12,980	16,144	20,002	15,363	18,883	17,382	12,588	16,769	19,127	14,881	19,259
21-22	18,908	17,114	17,429	20,361	12,859	18,541	22,410	13,095	14,616	18,383	15,846	23511x
22-23	16,005	16,420	19,810	14,945	14,877	17,287	17,867	16,220	16,365	13,055	18,301	21,728
23-24	15,693	16,501	17,985	12,956	18,414	21,973	20,498	17,237	15,830	15,944	18,352	18,482
24-25	18,269	17,432	19,920	14,114	20,689	14,083	18,718	16,707	13,535	15,968	16,130	22,515
25-26	25569xx	16,206	19,283	17,335	18,809	11,440	22,597	20,014	14,098	19,058	13,773	12,505
26-27	18,289	13,730	16,683	19,524	20,763	12,291	18,101	14,937	17,969	18,259	13,522	15,403
27-28	17,646	15,865	16,433	18,668	18,218	14,371	17,879	11,956	16,994	18,072	16,029	16,194
28-29	22,604	18,428	18,180	18,141	12,919	14,139	22,179	12,952	16,002	20,083	20,897	18,350
29-30	17,340		19,868	17,234	14,477	15,195	14,725	15,846	16,693	14,476	20,533	18,035
30-31	17,360		18,115	13,995	14,222	15,696	14,755	18,851	15,955	13,743	19,105	15,108
31-1	16,891		18,483		16,206		13,378	16,452		17,675		12,841
TOT.=	487,699	428,874	486,760	517,382	498,739	474,266	528,648	490,752	474,856	501,818	492,505	507,233
AVG.=	17,418	16,495	17,384	17,246	17,198	15,809	17,622	16,358	15,829	16,727	16,983	16,908
MIN.=	13,004	12,980	14,349	12,956	12,859	11,440	11,000	11,726	12,478	12,798	13,477	11,950
MAX.=	22,604	18,846	19,920	21,508	22,351	21,973	22,597	22,189	20,956	20,083	22,556	22,515

2023

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2	12,642	15,527	18,426	12,403	16,063	17,013	12,924	14,551				
2-3	16,259	11,971	20,740	14,465	16,693	16,294	12,551	13,937				
3-4	19,509	19,807	15,659	17,976	17,544	14,476	12,668	17,015				
4-5	19,850	15,164	14,951	16,982	17,229	15,778	14,379	15,075				
5-6	17,562	16,736	16,819	20,430	16,076	20,949	17,222	12,405				
6-7	13,318	16,446	13,478	21,479	13,545	27712x	17,114	11,284				
7-8	12,116	18,632	21,818	17,696	12,260	18,977	18,101	14,215				
8-9	14,105	17,684	17,857	15,920	14,732	19,588	13,571	18,545				
9-10	18,890	18,848	21,825	15,570	17,269	18,737	17,983	15,486				
10-11	17,963	16,500	14,732	17,187	16,636	14,149	17,794	18,894				
11-12	18,684	17,302	14,213	22,048	15,894	14,826	17,180	14,750				
12-13	17,948	17,303	15,110	19,989	15,817	20,777	18,010	11,532				
13-14	16,720	17,076	16,419	21,232	14,150	18,926	16,260	12,989				
14-15	16,978	18,921	21,523	19,481	14,425	19,020	14,910	12,128				
15-16	16,216	18,818	21,467	13,734	15,125	21,220	13,162	16,851				
16-17	19,953	18,735	24754.x	13,527	18,283	16,680	12,123	17,805				
17-18	22,594	15,812	18,082	15,819	17,644	12,014	18,037	16,422				
18-19	17,116	17,696	15,280	17,514	18,168	12,438	18,081	14,271				
19-20	17,831	14,665	24967x	20,086	15,585	18,245	16,299	13,800				
20-21	14,723	18,966	16,573	23278x	13,653	16,701	18,302	14,368				
21-22	15,491	20,153	22854x	16,796	15,782	14,470	14,350	15,657				
22-23	14,179	18,239	18,510	14,749	19,331	16,383	15,328	15,099				
23-24	19,322	17,143	22,151	13,802	17,040	18,419	13,167	15,589				
24-25	17,814	15,605	15,267	18,340	17,641	11,550	15,436	16,050				
25-26	18,865	16,029	14,035	18,212	19,422	13,092	17,446					
26-27	17,770	15,461	14,086	21,115	16,402	16,690	15,246					
27-28	16,525	19,544	16,682	18,382	12,362	20,193	15,365					
28-29	14,371	26902x	19,712	16,060	14,471	17,430	16,021					
29-30	13,202		16,506	13,331	15,716	21,345	14,572					
30-31	16,686		17,515	14,594	18,133	16,243	13,550					
31-1	16,898		14,394		15,575		14,159					
TOT.=	522,099	464,785	483,831	498,919	498,664	492,625	481,312	358,718	0	0	0	
AVG.=	16,842	17,214	17,280	17,204	16,086	16,987	15,526	14,947	#DIV/0!	#DIV/0!	#DIV/0!	
MIN.=	12,116	11,971	13,478	12,403	12,260	11,550	12,123	11,284	0	0	0	
MAX.=	22,594	20,153	22,151	22,048	19,422	21,345	18,302	18,894	0	0	0	

LEBANON WASTEWATER TREATMENT FACILITY

2022 - 2023 Phos Daily Influent - lbs/day

All Data — **edit: 9/1/2023** CAS

	aver	*266.4*	*max*	*317.1*	*std dev*	*22*	**current numbers**		**2023**	High	Low	average	limit	percent of limit
2022	*aver*	*267.0*	*max*	*354.5*	*std dev*	*25*	**before exclusions**	numbers outside 2 deviations not used		317	217	266	375	71.04

DATE	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***
1	248	269	272	254	273	250	226	264	262	233	264	232	249	256	265	274	270	306	225	248				
2	254	270	259	270	317	270	218	257	255	247	270	231	265	254	288	282	255	284	219	259				
3	277	286	268	273	295	247	213x	251	239	259	265	240	289	245	307	290	283	269	239	246				
4	267	273	267	305	299	221	247	270	206x	269	259	244	287	282	248	282	295	275	241	241				
5	267	254	249	283	316	233	250	242	229	284	249	279	307	281	310	293	296	291	262	233				
6	282	221	249	326x	259	268	266	232	237	261	251	274	277	320x	257	299	250	293	282	226				
7	255	268	290	327x	233	278	248	231	220	260	277	275	278	303	321x	265	277	312	298	260				
8	252	259	262	261	229	266	247	281	260	239	269	252	281	313	287	255	296	325x	293	243				
9	254	274	285	264	265	267	244	270	229	261	276	249	298	301	284	278	301	319x	335x	256				
10	275	267	271	277	244	300	251	260	194x	260	269	245	305	277	241	309	298	245	270	290				
11	268	257	264	294	242	223	248	260	234	287	272	255	306	276	260	337x	285	277	264	262				
12	275	246	257	290	266	244	255	237	249	270	241	259	298	294	271	299	272	338x	250	250				
13	283	259	247	290	293	231	253	215x	244	273	230	262	280	294	301	327x	262	269	293	251				
14	201x	276	298	262	238	268	266	223	236	241	270	274	260	292	304	315	256	276	256	279				
15	200x	274	295	273	238	244	259	259	243	238	277	311	263	323x	304	283	301	283	249	275				
16	188x	277	279	247	279	253	244	245	234	237	256	246	306	299	304	274	277	287	265	315				
17	233	266	292	248	280	243	242	274	219	256	279	251	274	274	295	275	287	252	277	277				
18	230	251	285	279		212x	284	259	235	256	250	260	270	261	305	307	308	240	274	261				
19	270	254	280	316	286	238	269	265	259	276	259	280	282	239	298	320x	302	284	262	241				
20	271	256	262	249	245	256	275	241	253	183x	253	305	264	284	287	341x	276	255	269	267				
21	263	267	287	293	246	282	275	220	236	252	260	310	237	295	315	288	282	276	236	287				
22	254	259	281	253	239	262	253	271	256	280	290	282	220	303	287	287	305	267	256	273				
23	237	291	277	249	261	288	238	235	239	256	264	321x	265	305	297	293	316	275	235	289				
24	275	280	271	244	260	275	251	264	208x	280	253	277	247	277	290	318x	312	251	267	290				
25	354x	248	262	288	268	237	288	245	225	286	263	247	247	285	264	296	290	239	266	273				
26	288	235	252	285	245	250	284	264	249	260	247	269	260	264	252	302	258	283	253	243				
27	293	257	267	284	247	294	279	241	260	237	249	292	224	309	300	279	252	278	238	270				
28	278	282	298	294	242	277	267	237	259	226	267	242	205x	316	265	275	245	254	261	284				
29	272		292	256	223	274	257	279	239	218	271	262	244		289	255	287	267	239	298				
30	280		266	240	266	249	231	286	239	233	272	253	256		295	271	295	239	231					
31	339x		290		271		229	272		268		252	259		280		303		260					
AVG.=	265	263	273	272	262	258	255	255	242	257	262	264	270	284	285	285	284	271	258	265	#DIV/0!	#DIV/0!	#DIV/0!	
MIN.=	230	221	247	240	223	221	218	220	219	218	230	231	220	239	241	255	245	239	219	226	0	0	0	
MAX.=	293	291	298	316	317	300	288	286	262	287	290	311	307	316	315	315	316	312	298	315	0	0	0	

LEBANON WASTEWATER TREATMENT FACILITY

2022 & 2023 Influent Total Suspended Solids lbs/day

edit: 9/1/2023 CAS

	aver	*10,694.1*	*max*	*13,781.5*	*std dev*	*1,187*	**current numbers**								**2023**		High	Low		average	limit	percent of limit		
2022	*aver*	*10,864*	*max*	*17,434*	*std dev*	*1,481*	**before exclusions**						numbers outside 2 deviations not used				13826	7902		10694	17550	60.93		

DATE	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***
1-2	9636	10287	9882	9809	11999	12245	10070	10131	9633	10791	10680	10039	10704	10966	9944	11228	10436	11736	9161	11917				
2-3	9978	10608	9006	8782	11512	11061	9542	14974x	9199	8851	10520	9403	10936	11199	10076	9967	8676	12190	10384	11214				
3-4	11236	12897	9761	8764	13612	10727	8157	11431	8855	11875	10497	11279	11549	12617	12654	11497	9479	11908	10846	11397				
4-5	13109	10561	10117	10414	10755	9438	10540	10667	9471	11914	9142	11234	10136	10473	12597	11551	10506	9655	10672	10768				
5-6	9918	9936	9605	10080	13109	9095	11380	11616	10648	16051x	9521	11405	10392	11036	10966	12369	10144	11774	11178	10018				
6-7	10140	7932	8895	13045	12876	11957	10868	10929	11117	11236	9342	11234	9630	11231	8565	12837	10148	10542	10344	10171				
7-8	8899	9383	15559x	15909x	12715	12866	11059	8967	9760	10696	9411	12151	8208	11833	10389	12885	9431	12886	11009	10778				
8-9	9388	8152	9621	12396	8222	11140	9918	12188	11925	8892	10781	11250	8822	12401	10218	12322	11405	12433	10158	11046				
9-10	9754	8910	9795	11281	10501	10170	10151	13478	10969	10344	10967	10677	10999	12091	10630	10380	10588	11020	17434x	10270				
10-11	9530	12464	12422	9250	11237	12975	10702	12752	9859	9874	11601	9752	11914	12804	9379	11833	11372	8625	12126	13078				
11-12	8243	8925	10929	11801	10454	9626	14730x	13058	9527	10839	9108	10617	12330	10775	11478	12230	11430	12794	11378	10046				
12-13	10699	9404	11709	11216	12625	10655	11265	13081	9884	10705	9215	9234	9848	10548	8608	11943	10601	15440x	10806	12235				
13-14	11320	8809	11806	9459	10046	10054	12214	12482	10842	13057	8217	7209x	9745	9559	10794	12108	9858	10608	11037	10292				
14-15	9415	10523	10621	10531	10685	10700	10970	9675	11561	9705	10480	10126	12988	11403	10875	11109	9914	10467	9261	10421				
15-16	9824	9623	9114	10592	10145	9213	9618	12419	10294	10379	12368	13690	10749	11274	10779	10673	11000	11061	10983	10982				
16-17	9413	9395	10551	10559	10476	12753	11919	13433	9237	9239	13050	10137	10866	10780	10904	9603	10594	11229	10051	12502				
17-18	12133	11065	11278	12614	7128x	10744	12886	13383	9951	10926	10393	10248	10973	10168	11114	10000	11421	10857	9531	13624				
18-19	11287	11075	10479	13164		9849	14922x	11148	8925	10916	11749	8805	11236	10533	12506	10726	11239	9842	10979	9246				
19-20	9918	8853	9749	11829	15124x	9957	16725x	9821	9714	14030x	10533	10571	9812	9553	14255x	11786	10197	12191	10414	9226				
20-21	9357	9259	9063	12150	12244	10754	12062	10759	10025	11308	8952	11087	8861	12527	10304	12705	9840	11213	12790	9349				
21-22	8394	11140	10656	11997	10149	9617	15738x	9683	10455	11066	9874	14235x	10238	12295	12397	10184	10187	10510	9420	11149				
22-23	9409	10262	11450	9394	9326	9689	14429x	11523	10250	9764	10372	13186	10900	12131	14206x	13416	10987	12602	9189	9781				
23-24	9645	9928	10939	10365	10290	13987x	12632	11153	8851	11287	10846	15255x	9790	11542	11829	12375	10299	12306	8524	11212				
24-25	10464	9161		9133	11822	10639	14632x	10704	9205	10259	9693	14601x	12460	9527	11619	10284	10799	10071	9209	14198x				
25-26	13284	9122	9482	9802	11466	9734	14437x	10891	8452	12651	7902	9533	11473	10439	11301	9895	10458	9770	14523x	12980				
26-27	11140	8652	9678	10559	10625	11066	12800	10028	10142	11198	8703	11662	11232	10559	9687	11556	9511	10664	12232	10451				
27-28	9131	8730	10050	10612	11558	10635	13232	10308	9650	10204	10326	10831	11947	10920	13616	11541	8904	11791	11832	10230				
28-29	11466	10077	10518	9834	9480	9246	14839x	9768	10344	10022	10118	10708	10765	17041x	8780	11876	9343	10378	10416	11784				
29-30	10112		11392	10924	10184	9065	10174	9931	9042	8808	9579	10850	10655		11672	9516	11238	11103	11209	11862				
30-31	10508		10389	10496	11641	10521	11531	11237	9470	9655	10144	11529	12708		11619	11315	10304	12995	10274	10107				
31-1	13782		12387		10929		9050	10287		10077		11576	10610		11261		11793		12254					
AVG.=	10,340	9,826	10,391	10,719	11,096	10,558	10,989	11,231	9,909	10,570	10,136	10,845	10,757	11,155	10,916	11,390	10,390	11,215	10,609	10,970	#DIV/0!	#DIV/0!	#DIV/0!	
MIN.=	8,243	7,932	8,895	8,764	8,222	9,065	8,157	8,967	8,452	8,808	7,902	8,805	8,208	9,527	8,565	9,516	8,676	8,625	8,524	9,226	0	0	0	
MAX.=	13,782	12,897	12,422	13,164	13,612	12,975	13,232	13,478	11,925	13,057	13,050	13,690	12,988	12,804	13,616	13,416	11,793	12,995	12,790	13,624	0	0	0	

Contents of this work book: Click Title to jump to that page

Tab Title	Descriptoin
NH3-N inf 22-23, lb'!A1	2022-2023 Plant ammonia loading based on Influent concentration and Total Influent Flow. Outliers equal to or more than 2 standard deviations are not included in the calculations
NH3-N inf 21-23, lb'!A1	2021-2023 Plant Ammonia loading based on Influent concentration and Total Influent Flow. Outliers equal to or more than 2 standard deviations are not included in the calculations.
Effluent Ammonia limits are based on Water Quality of the stream. From the NPDES permit fact sheet "A summer monthly average of 1.8 mg/l of NH3 and a winter limit of 3.6mg/l are necessary to protect the aquatic life from toxicity effects". This is based on a flow of 8 mgd. Seeing as our discharge to the Creek is significantly lower than our influent due to sale of reuse water to Ironwood cogeneration plant, if we adjust the influent daily loading to remove the portion that is destined to be reused our influent loading decreases to less than 70% of design.	
NH3-N inf to stream summary'!A1	2022 and 2023 to date - loading which reaches the stream
NH3-N inf 22, lbs To Strm Q adj'!A1	Lbs of influent ammonia loading which is treated to reach the creek, 2022
NH3-N inf 23, lbs To strm Q adj'!A1	Lbs of influent ammonia loading which is treated to reach the creek, 2023
2022 Inf Q'!A1	2022 Influent Flows
2022 To Stream Q'!A1	2022 Flows to Stream (Total Effluent Flows with recycle and sold reuse water subtracted)
2023 Inf Q'!A1	2023 Influent Flows
2023 To Stream Q'!A1	2023 Flows to Stream (Total Effluent Flows with recycle and sold reuse water subtracted)

LEBANON WASTEWATER TREATMENT FACILITY

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2022 & 2023 Influent Ammonia Lbs/day

edit: 9/1/2023 CAS

	aver	*1,443.9*	*max*	*1,858.3*	*std dev*	*144*	**current numbers**					**2023**		High	Low		average	limit	percent of limit				
2022	*aver*	*1,459*	*max*	*2,896*	*std dev*	*197*	**before exclusions**				numbers outside 2 deviations not used			1852.7	1064.7		1444	1570	91.97				
DATE	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***
1	1627	1397	1635	1482	1364	1281	1249	1376	1352	1376	1559	1549	1627	1407	1429	1445	1381	1603	1521	1305				
2	1619	1518	1355	1426	1261	1168	1471	1181	1282	1479	1384	1281	1619	1313	1558	1460	1504	1983x	1504	1858				
3	1779	1549	1737	1560	1408	1262	1327	1314	1261	1320	1486	1460	1779	1387	1587	1325	1563	2234x	1538	1722				
4	1542	1631	1526	1333	1018x	1239	1637	1387	1306	1224	1356	1507	1542	1484	1619	1401	1327	2202x	1621	1320				
5	1445	1569	1337	1258	1155	1197	1436	1346	1254	1474	1213	1470	1445	1519	1996x	1437	1363	1953x	1470	1350				
6	1762	1468	1295	1565	1300	1306	1638	1419	1612	1386	1438	1283	1762	1404	1289	1368	1363	1222	1417	1403				
7	1689	1391	1560	1540	1374	1278	1333	1334	1632	1390	1309	1383	1689	1484	1291	1473	1445	1702	1587	1307				
8	1555	1338	1387	1273	1357	1245	1152	1316	1744	1439	1450	1521	1555	1639	1435	1559	1585	1615	1674	1242				
9	1586	1311	1317	1389	1181	1190	1180	1398	1266	1394	1466	1417	1586	2507x	1421	1541	1496	1440	1696	1338				
10	1659	1329	1439	1434	1418	1280	1214	1298	1127	1302	1311	1439	1659	1448	1516	1447	1432	1805	1331	1420				
11	1607	1277	1403	1744	1240	1289	1335	1352	1363	1326	1466	1634	1607	1857	1484	1468	1372	1851	1493	1383				
12	847x	1401	1468	1434	2015x	1267	970x	1364	1334	1325	1441	1305	848x	1691	1584	1355	1434	1577	1086	1443				
13	1854x	1363	1481	2896x	1451	1189	1617	1321	1501	1343	1536	1318	1854x	1912x	1486	1641	1395	1324	1389	1440				
14	1445	1583	1413	1497	1471	1173	1533	1400	1083	1475	1437	1421	1445	1428	1264	1675	1418	1745	1459	1532				
15	1433	1167	1595	1451	1413	1284	1267	1272	1283	1299	1350	1320	1433	1479	1540	1663	1383	1462	1493	1488				
16	1395	1208	1419	1491	1462	1187	1260	1351	1315	1469	1679	1331	1395	1500	2067x	1783	1508	1520	1521	1676				
17	1502	1236	1573	1524	1025x	1184	1411	1683	1188	1308	1436	1565	1502	1598	1649	1537	1573	1509	2441x	1298				
18	1471	1432	1402	1435		1276	1868x	1344	1393	1309	1379	1543	1471	1643	1766	1542	1449	1511	1085	1660				
19	1383	1501	1260	1508	1451	1429	1261	1289	1372	1455	1441	1537	1383	1680	1704	1610	1347	1476	1604	1741				
20	1309	1480	1407	1364	1454	1367	1273	1388	1345	1524	1523	1529	1309	1358	1524	1884x	1419	1465	1729	1835				
21	1454	1321	1346	1546	1367	1345	1653	1577	1294	1256	1386	1419	1454	1424	1370	1413	1428	1443	1409	2258x				
22	1367	1343	1409	1436	1377	1251	1197	1479	1173	1259	1409	1680	1367	1323	1471	1565	1371	1410	1437	1401				
23	1430	1377	1557	1477	1923x	1394	1352	1383	1450	1444	1364	1452	1430	1422	1449	1549	1465	1451	1502	2001x				
24	1544	1481	1130	1515	1901x	1304	1378	1374	1255	1418	1417	1491	1544	1655	1504	1436	1401	1407	1346	1998x				
25	1843	1494	1427	1506	1650	1169	1436	1338	1140	1423	1533	1609	1843	1718	1549	1156	1374	1426	1484	1620				
26	1488	1425	1281	1474	1335	1333	1213	1388	1690	1446	1604	1601	1488	1810	1417	1542	1556	1435	1372	1641				
27	1608	1366	1249	1351	1582	1255	1071	1452	1423	1219	1572	1387	1608	1777	1758	1550	1467	1546	1376	1785				
28	1372	1516	984x	1241	1631	1427	1614	1574	1441	1330	1436	1428	1372	1362	1409	1548	1561	1477	1390	1772				
29	1738		1344	1535	1548	1489	1335	1344	1440	1417	1352	1384	1738		1463	1558	1437	1519	1432	1450				
30	1538		1419	1584	1460	1202	1293	1445	1338	1402	1484	1409	1538		1386	1724	994x	1441	1444	1490				
31	1563		998x		1378		1236	1404		1602		1518	1563		1389		1757		1354					
AVG.=	1,543	1,410	1,420	1,461	1,404	1,275	1,358	1,384	1,355	1,382	1,441	1,458	1,543	1,531	1,494	1,509	1,452	1,515	1,459	1,516	#DIV/0!	#DIV/0!	#DIV/0!	
MIN.=	1,309	1,167	1,130	1,241	1,155	1,168	1,071	1,181	1,083	1,219	1,213	1,281	1,309	1,313	1,264	1,156	1,327	1,222	1,085	1,242	0	0	0	
MAX.=	1,843	1,631	1,737	1,744	1,650	1,489	1,653	1,683	1,744	1,602	1,679	1,680	1,843	1,857	1,766	1,783	1,757	1,851	1,729	1,858	0	0	0	

LEBANON WASTEWATER TREATMENT FACILITY

2021, 2022 & 2023 Influent Ammonia Lbs/day — **edit: 9/1/2023** CAS

	aver	*1,422.5*	*max*	*1,914.2*	*std dev*	*177*
2021	*aver*	*1,447*	*max*	*3,661*	*std dev*	*237*

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2023 — numbers outside 2 deviations not used

High 1920.9 — Low 972.9

	average	limit	percent of limit
	1421	1570	90.51

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***	***JAN.***	***FEB.***	***MAR.***	***APR.***	***MAY***	***JUNE***	***JULY***	***AUG.***	***SEPT.***	***OCT.***	***NOV.***	***DEC.***
1	1592	1393	2145x	1968x	1519	1141	1137	1258	1070	1080	1405	3660x	1627	1397	1635	1482	1364	1281	1249	1376	1352	1376	1559	1549	1627	1407	1429	1445	1381	1603	1521	1305	1586			
2	1642	2167x	2277x	1358	1350	1273	1223	1231	995	1302	1843	2229x	1619	1518	1355	1426	1261	1168	1471	1181	1282	1479	1384	1281	1619	1313	1558	1460	1504	1983x	1504	1858	1497			
3	1713	1794	1878	1687	1667	1472	1229	1698	1158	1361	1511	1328	1779	1549	1737	1560	1408	1262	1327	1314	1261	1320	1486	1460	1779	1387	1587	1325	1563	2234x	1538	1722	1658			
4	1429	1921x	1384	1572	1160	1153	1324	1317	1130	1482	1504	1540	1542	1631	1526	1333	1018	1239	1637	1387	1306	1224	1356	1507	1542	1484	1619	1401	1327	2202x	1621	1320	1895			
5	1436	1545	1572	1424	1235	1047	1300	1589	1419	1457	1460	2055x	1445	1569	1337	1258	1155	1197	1436	1346	1254	1474	1213	1470	1445	1519	1996x	1437	1363	1953x	1470	1350	1773			
6	1625	1636	1472	1218	1522	1173	1301	1229	1455	1413	1794	1228	1762	1468	1295	1565	1300	1306	1638	1419	1612	1386	1438	1283	1762	1404	1289	1368	1363	1222	1417	1403	1539			
7	1545	1829	1679	1348	1519	1408	1199	1237	1201	1385	1807	1886	1689	1391	1560	1540	1374	1278	1333	1334	1632	1390	1309	1383	1689	1484	1291	1473	1445	1702	1587	1307	1736			
8	1255	1310	2217x	1377	1528	1109	1189	1353	1494	1178	1982x	1369	1555	1338	1387	1273	1357	1245	1152	1316	1744	1439	1450	1521	1555	1639	1435	1559	1585	1615	1674	1242	1473			
9	1456	1410	1542	1497	1792	1234	1247	1251	1587	1276	2100x	1581	1586	1311	1317	1389	1181	1190	1180	1398	1266	1394	1466	1417	1586	2507x	1421	1541	1496	1440	1696	1338	1416			
10	1668	1595	1447	1579	1453	1100	1153	1264	1170	1275	1296	1584	1659	1329	1439	1434	1418	1280	1214	1298	1127	1302	1311	1439	1659	1448	1516	1447	1432	1805	1331	1420	1468			
11	1582	1348	1461	1563	1391	1153	1256	1220	1204	1334	1639	1690	1607	1277	1403	1744	1240	1289	1335	1352	1363	1326	1466	1634	1607	1857	1484	1468	1372	1851	1493	1383	1427			
12	1433	1459	1697	1503	1326	1067	1261	1337	1170	1337	1239	1710	847x	1401	1468	1434	2015x	1267	970x	1364	1334	1325	1441	1305	848x	1691	1584	1355	1434	1577	1086	1443	1339			
13	1476	1499	1443	1504	1617	1175	1710	1169	1251	1776	1316	1688	1854x	1363	1481	2896x	1451	1189	1617	1321	1501	1343	1536	1318	1854	1912	1486	1641	1395	1324	1389	1440				
14	1498	1341	1553	1436	1404	1129	1272	1263	1307	2111x	1508	1832	1445	1583	1413	1497	1471	1173	1533	1400	1083	1475	1437	1421	1445	1428	1264	1675	1418	1745	1459	1532				
15	1528	1347	1518	1695	1297	1158	1572	1295	1289	1396	1315	1708	1433	1167	1595	1451	1413	1284	1267	1272	1283	1299	1350	1320	1433	1479	1540	1663	1383	1462	1493	1488				
16	1759	1439	1909	1463	1306	1226	1078	1339	1280	1525	1833	1697	1395	1208	1419	1491	1462	1187	1260	1351	1315	1469	1679	1331	1395	1500	2067x	1783	1508	1520	1521	1676				
17	1698	1420	1980x	1562	1322	1151	1103	1285	1193	1570	1392	1403	1502	1236	1573	1524	1025	1184	1411	1683	1188	1308	1436	1565	1502	1598	1649	1537	1573	1509	2441x	1298				
18	1394	1553	2631x	1586	1164	1148	1043	1276	1155	1480	1380	1612	1471	1432	1402	1435	1164	1276	1868	1344	1393	1309	1379	1543	1471	1643	1766	1542	1449	1511	1085	1660				
19	1418	1259	1481	1454	1190	1195	1301	1225	1144	1193	1368	1579	1383	1501	1260	1508	1451	1429	1261	1289	1372	1455	1441	1537	1383	1680	1704	1610	1347	1476	1604	1741				
20	1955xx	1409	1507	1372	1344	1227	1203	1240	1424	1718	1479	1380	1309	1480	1407	1364	1454	1367	1273	1388	1345	1524	1523	1529	1309	1358	1524	1884	1419	1465	1729	1835				
21	1455	1495	1322	1518	1143	1322	1244	1143	1350	1264	1491	1368	1454	1321	1346	1546	1367	1345	1653	1577	1294	1256	1386	1419	1454	1424	1370	1413	1428	1443	1409	2258x				
22	1068	1371	1400	1442	1163	1249	1089	1282	1143	1148	1914	1395	1367	1343	1409	1436	1377	1251	1197	1479	1173	1259	1409	1680	1367	1323	1471	1565	1371	1410	1437	1401				
23	1052	1450	2056xx	1332	1243	1207	1259	1287	1117	1415	1701	1454	1430	1377	1557	1477	1923x	1394	1352	1383	1450	1444	1364	1452	1430	1422	1449	1549	1465	1451	1502	2001x				
24	1210	1419	1464	1271	1311	1397	1022	1201	1191	1440	1846	1199	1544	1481	1130	1515	1901	1304	1378	1374	1255	1418	1417	1491	1544	1655	1504	1436	1401	1407	1346	1998x				
25	1182	1448	1779	1446	1245	1292	1111	1348	1201	1397	2043x	1268	1843	1494	1427	1506	1650	1169	1436	1338	1140	1423	1533	1609	1843	1718	1549	1156	1374	1426	1484	1620				
26	1201	1297	1302	1346	1140	1305	1228	1235	1358	1477	2452x	1381	1488	1425	1281	1474	1335	1333	1213	1388	1690	1446	1604	1601	1488	1810	1417	1542	1556	1435	1372	1641				
27	1813	1650	1530	1222	1181	1539	1052	1050	1842	1360	1874	1491	1608	1366	1249	1351	1582	1255	1071	1452	1423	1219	1572	1387	1608	1777	1758	1550	1467	1546	1376	1785				
28	1583	1355	1544	1122	1189	1228	1302	1045	1587	1211	1746	1284	1372	1516	981	1241	1631	1427	1614	1574	1441	1330	1436	1428	1372	1362	1409	1548	1561	1477	1390	1772				
29	1623		1447	1446	1162	1277	1233	1089	1164	1140	2774x	1236	1738		1344	1535	1548	1489	1335	1344	1440	1417	1352	1384	1738		1463	1558	1437	1519	1432	1450				
30	1540		1373	1413	1134	1139	1208	1148	1684	1090	1903	1145	1538		1419	1584	1460	1202	1293	1445	1338	1402	1484	1409	1538		1386	1724	994	1441	1444	1490				
31	1622		1671		1319		1172	1104		1080		1501	1563		998		1378		1236	1404		1602		1518	1563		1389		1757		1354					
AVG.=	1,483	1,464	1,535	1,440	1,333	1,223	1,226	1,258	1,291	1,352	1,583	1,484	1,543	1,410	1,392	1,461	1,386	1,275	1,375	1,384	1,355	1,382	1,441	1,458	1,554	1,545	1,494	1,522	1,438	1,515	1,459	1,516	1,567	#DIV/0!	#DIV/0!	
MIN.=	1,052	1,259	1,302	1,122	1,134	1,047	1,022	1,045	995	1,080	1,239	1,145	1,309	1,167	981	1,241	1,018	1,168	1,071	1,181	1,083	1,219	1,213	1,281	1,309	1,313	1,264	1,156	994	1,222	1,085	1,242	1,339	0	0	
MAX.=	1,813	1,829	1,909	1,695	1,792	1,539	1,710	1,698	1,842	1,776	1,914	1,886	1,843	1,631	1,737	1,744	1,901	1,489	1,868	1,683	1,744	1,602	1,679	1,680	1,854	1,912	1,766	1,884	1,757	1,851	1,729	1,858	1,895	0	0	

Average percent of maximum month average of 1870 lbs per day

	79%	**78%**	**82%**	**77%**	**71%**	**65%**	**66%**	**67%**	**69%**	**72%**	**85%**	**79%**	**83%**	**75%**	**74%**	**78%**	**74%**	**68%**	**74%**	**74%**	**72%**	**74%**	**77%**	**78%**	**83%**	**83%**	**80%**	**81%**	**77%**	**81%**	**78%**	**81%**				
	76%																																			

NH3-N annual loading to stream summarized

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year	Average Inf loading, lbs/day	Average Inf Q, mgd	Average To Stream Q	To stream Q as percent of total influent Q	average lbs/day to Stream as a Percent of total Q flow, calculated
2022	1411	5.325	3.8061	71%	1000
2023 to date	1531	5.2495	3.4574	66%	997

LEBANON WASTEWATER TREATMENT FACILITY

2022 Daily Influent Ammonia, lbs for flow only reaching creak

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Yearly Average Effluent NH4, mg/l: 1,000

DATE	*JAN.*	*FEB.*	*MAR.*	*APR.*	*MAY*	*JUNE*	*JULY*	*AUG.*	*SEPT.*	*OCT.*	*NOV.*	*DEC.*
1	1138.3	936.3	1131.4	998.4	1183.9	849.9	839.0	858.8	1200.8	899.4	957.5	1008.4
2	1136.8	1127.1	941.6	968.2	920.9	840.3	998.3	840.3	928.5	971.2	876.6	938.7
3	1238.9	1189.1	1268.6	1056.8	1167.9	902.8	823.6	1024.1	840.1	815.1	928.1	1368.0
4	1078.0	1384.0	1035.5	914.9	719.3	850.9	1055.5	1083.0	654.9	876.3	852.7	1378.7
5	1021.8	1292.4	940.6	861.5	769.5	849.6	867.9	904.6	727.2	1050.0	785.5	1450.3
6	1247.5	1662.1	891.7	1089.0	980.0	916.0	1051.6	892.4	1150.2	905.1	949.2	1192.3
7	1225.9	697.5	1072.7	1174.8	1141.0	953.9	846.1	834.0	1230.0	908.2	854.3	1206.0
8	1126.1	1036.3	969.8	982.6	1106.2	882.5	724.6	736.9	1275.8	939.2	1188.2	1357.4
9	1097.1	986.1	941.0	1118.0	962.2	811.5	792.7	956.8	793.7	880.0	1291.6	1329.6
10	1145.9	986.1	978.9	1074.3	1122.0	911.5	798.1	771.6	770.0	761.4	1173.6	1354.1
11	1205.7	924.8	983.8	1341.4	967.4	1043.7	832.0	705.0	977.1	864.3	1242.4	1384.6
12	620.7	998.6	1047.1	1040.3	1541.7	1002.6	598.4	764.6	873.3	834.6	1093.4	1182.6
13	1294.5	1001.8	1020.6	2082.9	1100.2	777.3	996.1	775.9	1019.2	920.1	1194.6	1245.2
14	1109.9	1138.0	995.7	1090.1	1124.1	806.7	874.1	847.4	702.4	978.2	1011.3	1140.6
15	1162.3	850.7	1120.1	967.8	1094.6	886.4	869.6	821.8	895.1	798.4	856.1	1062.7
16	1077.4	886.8	970.8	1067.4	1113.6	854.4	719.2	829.6	837.6	960.7	1155.7	1046.0
17	1111.7	903.4	1076.5	1046.0	770.7	761.5	937.1	980.5	799.7	837.5	953.1	1273.9
18	1087.7	1034.3	1031.9	1137.1		910.3	1213.1	833.0	920.4	819.2	945.0	1182.0
19	993.0	1061.1	856.2	1148.0	1143.1	987.2	782.7	801.8	795.4	895.4	1011.5	1170.1
20	999.7	1057.1	1020.2	1005.6	1196.6	913.4	792.6	812.7	847.1	925.2	1055.6	1114.0
21	1061.2	984.0	989.9	1091.9	1046.0	906.3	973.6	1091.3	822.4	740.1	907.6	1145.2
22	958.9	970.0	1110.2	1165.7	1044.3	860.2	732.2	927.6	758.4	798.7	861.9	1279.0
23	1076.3	957.9	1245.9	1331.1	1496.0	951.7	800.1	770.0	958.6	901.1	1104.6	1154.4
24	1108.8	1032.6	809.0	1380.6	1456.8	907.7	849.4	842.7	884.2	1004.1	1055.1	1259.1
25	1212.8	1121.5	977.9	1358.9	1226.3	746.7	896.5	794.6	813.4	923.0	1022.4	1373.0
26	1007.1	1064.9	868.5	1325.9	1020.1	907.0	782.4	822.4	1078.4	969.0	531.5	1263.2
27	1126.0	1032.9	845.9	1189.1	1187.4	840.6	661.7	909.5	985.6	756.2	1062.3	1279.4
28	984.3	1134.9	688.3	1145.3	1244.1	982.6	971.1	1030.0	967.7	911.0	864.5	1179.5
29	1240.7		932.0	1399.1	1142.2	992.4	889.5	760.2	886.7	886.6	885.2	1037.6
30	1096.7		919.9	1355.0	1072.3	765.9	790.6	900.0	841.1	910.0	969.2	946.1
31	1137.7		701.1		944.3		766.5	1174.2		991.5		1067.6
AVG.=	1,101	1,052	980	1,164	1,100	886	856	874	908	891	988	1,205
MIN.=	621	698	688	862	719	747	598	705	655	740	532	939
MAX.=	1,295	1,662	1,269	2,083	1,542	1,044	1,213	1,174	1,276	1,050	1,292	1,450

LEBANON WASTEWATER TREATMENT FACILITY

2023 Daily Influent Ammonia, lb - proportioned for flow to stream

Yearly Average Effluent NH4, mg/l: **997**

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DATE	*JAN.*	*FEB.*	*MAR.*	*APR.*	*MAY*	*JUNE*	*JULY*	*AUG.*	*SEPT.*	*OCT.*	*NOV.*	*DEC.*
1	1111.1	1237.1	931.6	973.3	951.4	849.3	1116.9	747.4				
2	1085.5	799.2	974.3	1007.6	1025.6	1127.4	926.3	1154.3				
3	1089.0	1005.9	1143.2	956.0	1105.9	1138.4	841.0	1101.7				
4	898.4	1072.9	1182.5	893.9	866.1	1315.2	918.5	831.5				
5	921.6	1057.8	1284.9	1014.9	887.0	1061.1	798.8	846.8				
6	1104.7	999.6	1034.0	815.9	921.8	710.0	846.0	794.6				
7	1161.8	977.1	934.9	881.9	989.9	1054.1	975.8	809.4				
8	1454.4	1129.4	1016.3	1025.0	1023.2	914.1	960.7	793.2				
9	1027.5	1715.0	965.4	1010.7	1010.4	868.0	1276.9	771.6				
10	1238.6	957.3	1067.0	956.6	972.3	1097.2	957.1	807.8				
11	1269.6	1186.0	1024.4	1015.7	823.7	955.2	1005.6	761.4				
12	968.1	1137.4	1065.4	766.7	973.8	1001.0	682.8	856.3				
13	939.8	1231.2	982.0	856.7	1267.2	820.7	878.0	876.9				
14	1043.8	962.1	849.3	813.4	1261.5	1020.0	1069.2	844.8				
15	916.8	990.2	985.8	1091.6	1279.8	848.0	1005.6	883.8				
16	1107.7	1015.7	1325.3	1194.4	1363.1	900.1	1100.9	1029.8				
17	988.0	1107.7	1054.9	976.1	1409.5	901.6	1560.3	742.5				
18	1077.6	1042.1	1138.1	1060.1	1304.2	886.7	732.9	994.7				
19	1226.4	1167.5	1117.7	1094.1	1204.0	820.6	1035.2	1150.7				
20	1114.7	807.9	972.0	1134.3	1216.6	746.9	1156.3	1296.3				
21	1100.1	917.4	831.6	764.0	1266.4	801.0	844.7	1292.7				
22	1057.2	894.1	936.8	1019.1	1028.7	855.1	862.1	906.2				
23	1012.9	856.9	982.6	1092.8	1079.4	829.0	911.5	1116.3				
24	983.4	1188.1	1054.6	866.7	906.0	995.5	768.4	1268.8				
25	1071.9	982.7	966.7	653.2	899.1	912.9	1018.3	1003.7				
26	1068.3	1182.5	960.7	993.6	893.0	785.9	797.2	999.1				
27	1047.5	1161.9	1116.3	942.0	886.0	950.4	816.7	1109.8				
28	1154.1	848.6	996.4	958.5	860.0	916.8	817.6	973.8				
29	1066.9		905.7	1022.4	827.9	908.8	881.0	890.8				
30	1105.9		920.6	1204.2	566.8	857.6	908.4	876.9				
31	1028.9		885.8		942.2		743.2	959.6				
AVG.=	1,079	1,058	1,020	969	1,033	928	942	951	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
MIN.=	898	799	832	653	567	710	683	742	0	0	0	0
MAX.=	1,454	1,715	1,325	1,204	1,409	1,315	1,560	1,296	0	0	0	0

LEBANON WASTEWATER TREATMENT FACILITY

2022 Plant Influent Flows, MGD

lick to Return to Description

Yearly Average flow, MGD = 5.3250

DATE	*JAN.*	*FEB.*	*MAR.*	*APR.*	*MAY*	*JUNE*	*JULY*	*AUG.*	*SEPT.*	*OCT.*	*NOV.*	*DEC.*
1	5.300	4.856	5.386	6.190	5.620	5.604	5.182	4.938	4.278	4.342	4.708	4.702
2	5.438	4.892	5.242	5.916	5.704	5.668	4.996	4.750	4.210	4.422	4.742	4.546
3	5.346	7.226	5.272	5.774	5.628	5.544	4.748	4.662	4.022	4.422	4.544	4.972
4	5.038	9.450	5.274	5.728	5.706	5.288	4.956	4.634	3.916	5.580	4.456	4.952
5	5.082	7.838	5.188	5.648	5.654	5.294	4.962	4.612	4.626	5.406	4.530	4.884
6	5.066	7.098	5.228	6.016	7.568	5.310	4.936	4.550	5.554	4.990	4.572	5.026
7	4.940	6.618	5.270	7.630	11.210	5.432	4.948	4.556	5.044	4.858	4.460	4.922
8	4.894	6.266	5.150	8.078	9.858	5.430	4.914	4.684	4.688	4.676	4.412	4.996
9	5.268	6.070	5.540	8.454	8.744	5.444	4.830	4.644	4.504	4.734	4.340	4.924
10	5.012	5.838	5.476	7.922	8.020	5.328	4.788	4.578	4.444	4.774	4.320	4.792
11	4.942	5.692	5.460	7.690	7.288	5.018	4.852	4.578	5.240	4.544	4.964	5.012
12	4.934	5.638	5.754	7.078	6.944	5.368	4.824	4.456	4.938	4.488	4.722	4.814
13	4.918	5.618	5.708	6.916	6.692	5.382	4.786	4.376	4.710	5.018	4.604	4.802
14	4.908	5.534	5.842	6.646	6.888	5.132	4.836	4.394	4.590	4.692	4.620	4.706
15	4.908	5.342	5.692	6.350	6.834	5.114	4.688	4.526	4.538	4.542	5.010	6.566
16	4.950	5.364	5.598	6.206	6.902	5.030	4.828	4.474	4.430	4.540	5.216	7.322
17	5.866	5.528	5.682	6.050	6.574	5.072	5.220	4.692	4.292	4.456	4.906	6.678
18	5.328	5.724	5.660	7.110	6.564	4.840	5.422	4.426	4.350	4.422	4.696	6.210
19	5.216	5.472	5.514	7.968	7.312	4.814	5.142	4.236	4.412	4.474	4.748	5.814
20	5.394	5.442	5.660	6.872	7.058	4.998	5.022	4.300	4.324	4.402	4.708	5.730
21	5.188	5.386	5.414	6.916	6.914	4.886	5.032	4.398	4.264	4.280	4.774	5.506
22	5.272	5.350	5.448	6.400	6.656	5.118	4.880	4.400	4.238	4.242	4.506	6.874
23	5.072	5.362	5.558	6.214	6.494	5.410	4.646	4.342	4.082	4.732	4.712	8.794
24	5.142	5.332	5.620	6.222	6.110	5.228	4.666	4.336	4.088	5.348	4.436	7.356
25	5.988	5.818	5.466	6.186	6.030	4.988	4.704	4.324	4.368	4.862	4.346	6.724
26	4.984	5.638	5.526	5.972	5.844	5.438	4.708	4.234	4.406	5.010	4.312	6.596
27	4.932	5.628	5.428	5.784	5.872	5.744	4.722	4.204	4.254	4.670	4.620	6.184
28	4.910	5.594	5.436	5.724	5.572	5.382	4.732	4.338	4.162	4.622	4.666	6.028
29	5.010		5.464	5.646	5.476	5.176	4.586	4.378	4.170	4.592	4.452	5.782
30	5.040		5.234	5.520	5.628	5.128	4.548	4.432	4.114	4.668	5.068	5.574
31	5.038		5.894		5.600		4.718	4.374		4.720		5.832
TOT =	159.324	165.614	170.084	196.826	208.964	157.608	150.822	138.826	133.256	145.528	139.170	177.620
AVG =	5.139	5.915	5.487	6.561	6.741	5.254	4.865	4.478	4.442	4.694	4.639	5.730
MIN =	4.894	4.856	5.150	5.520	5.476	4.814	4.548	4.204	3.916	4.242	4.312	4.546
MAX =	5.988	9.450	5.894	8.454	11.210	5.744	5.422	4.938	5.554	5.580	5.216	8.794

LEBANON WASTEWATER TREATMENT FACILITY
2022 Effluent to Stream Flows, MGD

lick to Return to Description

Yearly Average flow, MGD = 3.8061

DATE	*JAN.*	*FEB.*	*MAR.*	*APR.*	*MAY*	*JUNE*	*JULY*	*AUG.*	*SEPT.*	*OCT.*	*NOV.*	*DEC.*
1	3.709	3.254	3.727	4.171	4.878	3.719	3.481	3.083	3.799	2.838	2.892	3.061
2	3.818	3.633	3.642	4.017	4.167	4.079	3.391	3.381	3.050	2.904	3.003	3.330
3	3.723	5.548	3.851	3.911	4.668	3.965	2.948	3.633	2.679	2.730	2.839	4.660
4	3.522	8.017	3.578	3.932	4.030	3.631	3.196	3.617	1.963	3.995	2.801	4.529
5	3.593	6.457	3.650	3.869	3.766	3.759	2.999	3.099	2.683	3.850	2.934	4.817
6	3.587	8.036	3.600	4.185	5.704	3.723	3.168	2.861	3.963	3.259	3.019	4.672
7	3.585	3.319	3.623	5.821	9.307	4.056	3.141	2.849	3.801	3.175	2.910	4.291
8	3.544	4.854	3.600	6.234	8.039	3.848	3.092	2.622	3.430	3.052	3.616	4.459
9	3.644	4.565	3.959	6.805	7.122	3.714	3.244	3.178	2.824	2.989	3.824	4.621
10	3.461	4.331	3.726	5.936	6.346	3.795	3.148	2.721	3.037	2.792	3.866	4.510
11	3.707	4.122	3.830	5.913	5.686	4.063	3.023	2.388	3.755	2.961	4.208	4.246
12	3.613	4.018	4.103	5.133	5.312	4.248	2.977	2.498	3.232	2.827	3.582	4.363
13	3.434	4.128	3.935	4.975	5.074	3.517	2.949	2.570	3.199	3.437	3.581	4.538
14	3.770	3.978	4.117	4.841	5.265	3.530	2.758	2.660	2.976	3.111	3.251	3.778
15	3.982	3.893	3.997	4.235	5.292	3.531	3.218	2.924	3.166	2.791	3.178	5.287
16	3.822	3.938	3.829	4.444	5.257	3.620	2.755	2.748	2.821	2.969	3.590	5.753
17	4.342	4.042	3.888	4.153	4.942	3.261	3.468	2.734	2.888	2.853	3.256	5.436
18	3.940	4.134	4.166	5.634	4.834	3.454	3.522	2.744	2.874	2.767	3.219	4.756
19	3.744	3.867	3.747	6.064	5.759	3.325	3.192	2.634	2.557	2.753	3.332	4.426
20	4.119	3.888	4.105	5.066	5.809	3.339	3.126	2.518	2.723	2.673	3.262	4.174
21	3.787	4.013	3.983	4.885	5.292	3.293	2.963	3.043	2.709	2.521	3.127	4.444
22	3.697	3.864	4.294	5.196	5.049	3.520	2.986	2.760	2.739	2.690	2.756	5.234
23	3.818	3.729	4.446	5.600	5.053	3.693	2.749	2.417	2.698	2.952	3.817	6.991
24	3.693	3.718	4.025	5.669	4.683	3.640	2.877	2.659	2.881	3.786	3.303	6.213
25	3.941	4.366	3.746	5.580	4.483	3.186	2.937	2.568	3.116	3.153	2.898	5.736
26	3.373	4.214	3.746	5.371	4.464	3.699	3.036	2.509	2.811	3.358	1.429	5.205
27	3.453	4.256	3.675	5.092	4.408	3.847	2.917	2.634	2.947	2.897	3.122	5.703
28	3.523	4.187	3.803	5.282	4.250	3.705	2.847	2.839	2.796	3.166	2.809	4.980
29	3.576		3.788	5.146	4.040	3.449	3.056	2.477	2.568	2.873	2.916	4.335
30	3.593		3.394	4.723	4.134	3.268	2.780	2.760	2.586	3.031	3.311	3.744
31	3.667		4.141		3.838		2.927	3.657		2.921		4.103
TOT =	114.780	124.369	119.714	151.883	160.951	109.477	94.871	87.785	89.271	94.074	95.651	146.395
AVG =	3.703	4.442	3.862	5.059	5.192	3.649	3.060	2.832	2.976	3.035	3.188	4.722
MIN =	3.373	3.254	3.394	3.869	3.766	3.186	2.749	2.388	1.963	2.521	1.429	3.061
MAX =	4.342	8.036	4.446	6.805	9.307	4.248	3.522	3.657	3.963	3.995	4.208	6.991

Calculated by subtracting Ironwood (reuse) flows and Plant Water (recycle) flows from Total Effluent Flow. Both flows are removed after Total Effluent Flow metering.

LEBANON WASTEWATER TREATMENT FACILITY

2023 Plant Influent Flows, MGD

lick to Return to Description

Yearly Average flow, MGD = 5.2495

DATE	*JAN.*	*FEB.*	*MAR.*	*APR.*	*MAY*	*JUNE*	*JULY*	*AUG.*	*SEPT.*	*OCT.*	*NOV.*	*DEC.*
1	5.532	5.818	5.010	5.218	6.134	4.722	4.904	4.860				
2	5.802	5.788	5.034	5.288	5.654	4.872	4.902	4.802				
3	6.722	5.562	6.322	5.144	5.464	4.666	5.080	4.846				
4	6.330	5.460	7.058	5.168	5.338	4.706	4.884	4.782				
5	6.230	5.468	7.387	5.114	5.154	4.868	4.964	4.692				
6	6.142	5.344	5.405	5.030	5.028	4.788	5.042	4.764				
7	5.858	5.294	5.932	5.016	5.140	4.682	4.944	5.088				
8	5.812	5.368	5.834	4.958	5.180	4.688	4.872	4.834				
9	5.734	5.330	5.640	4.824	5.038	4.770	9.416	4.848				
10	5.580	5.152	5.680	5.178	5.050	4.536	7.902	4.810				
11	5.686	5.252	5.376	4.988	5.002	4.512	6.754	4.780				
12	5.518	5.226	5.490	5.078	5.044	5.714	6.170	4.956				
13	5.728	5.210	5.484	5.112	4.766	5.088	5.908	4.976				
14	5.562	5.064	5.433	4.970	4.872	5.102	5.552	5.250				
15	5.508	5.082	5.385	4.960	4.996	4.912	5.442	5.026				
16	5.616	5.212	5.272	5.006	5.122	4.914	5.286	5.678				
17	5.180	5.166	5.288	4.914	5.110	4.786	5.340	4.862				
18	5.222	5.052	5.280	5.024	5.066	4.646	5.224	4.820				
19	5.656	5.024	5.308	4.976	4.970	4.972	5.076	4.648				
20	5.534	5.252	5.148	5.112	4.916	4.734	5.288	4.594				
21	5.384	5.066	5.056	4.924	5.006	4.702	5.278	4.826				
22	5.538	5.086	5.010	5.156	5.028	4.722	5.008	4.654				
23	6.178	5.088	5.312	5.188	5.020	4.886	5.060	4.604				
24	5.836	4.924	5.400	5.138	4.942	4.792	5.258	4.626				
25	6.614	4.928	5.464	5.114	4.976	4.686	5.476	4.702				
26	7.126	5.024	5.328	5.094	4.832	5.198	5.238	4.524				
27	6.694	5.196	5.406	4.942	4.766	5.566	4.926	4.664				
28	6.552	5.186	5.264	5.394	4.554	5.318	5.292	4.710				
29	6.232		5.222	5.382	4.882	5.160	4.978	4.648				
30	6.194		5.160	6.340	4.864	4.994	4.850	4.522				
31	5.890		5.076		4.876		4.964	4.442				
TOT =	183.190	146.622	170.464	153.750	156.790	146.702	169.278	148.838	0.000	0.000	0.000	0.000
AVG =	5.909	5.237	5.499	5.125	5.058	4.890	5.461	4.801	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
MIN =	5.180	4.924	5.010	4.824	4.554	4.512	4.850	4.442	0.000	0.000	0.000	0.000
MAX =	7.126	5.818	7.387	6.340	6.134	5.714	9.416	5.678	0.000	0.000	0.000	0.000

LEBANON WASTEWATER TREATMENT FACILITY
2023 Effluent to Stream Flows, MGD

lick to Return to Description

Yearly Average flow, MGD = 3.4574

DATE	*JAN.*	*FEB.*	*MAR.*	*APR.*	*MAY*	*JUNE*	*JULY*	*AUG.*	*SEPT.*	*OCT.*	*NOV.*	*DEC.*
1	4.025	5.115	3.266	3.515	4.225	2.502	3.600	2.783				
2	4.226	3.523	3.149	3.650	3.855	2.770	3.018	2.983				
3	5.022	4.034	4.554	3.711	3.866	2.378	2.778	3.101				
4	4.379	3.946	5.156	3.298	3.485	2.811	2.767	3.012				
5	4.033	3.809	4.755	3.611	3.355	2.645	2.698	2.943				
6	4.697	3.805	4.335	3.001	3.401	2.782	3.010	2.699				
7	4.260	3.487	4.295	3.004	3.522	2.899	3.039	3.151				
8	4.791	3.700	4.131	3.260	3.343	2.654	2.796	3.088				
9	3.656	3.646	3.833	3.164	3.403	2.875	7.088	2.795				
10	3.779	3.406	3.998	3.424	3.429	2.758	5.681	2.736				
11	4.713	3.354	3.711	3.450	3.002	2.328	4.550	2.631				
12	3.935	3.515	3.692	2.873	3.424	3.626	3.880	2.942				
13	4.143	3.355	3.623	2.668	4.329	3.154	3.733	3.030				
14	4.361	3.413	3.650	2.414	4.334	2.983	4.070	2.894				
15	3.640	3.402	3.446	3.256	4.622	2.848	3.665	2.985				
16	4.037	3.530	3.381	3.354	4.630	2.909	3.826	3.488				
17	3.702	3.580	3.382	3.121	4.580	2.860	3.414	2.782				
18	3.756	3.204	3.403	3.454	4.559	2.726	3.529	2.888				
19	4.325	3.491	3.481	3.381	4.442	2.764	3.275	3.073				
20	4.100	3.125	3.283	3.077	4.216	2.414	3.537	3.245				
21	4.161	3.264	3.068	2.663	4.440	2.610	3.165	2.763				
22	3.999	3.436	3.191	3.357	3.772	2.864	3.005	3.010				
23	4.498	3.067	3.603	3.660	3.698	2.792	3.070	2.569				
24	3.997	3.535	3.786	3.102	3.195	3.391	3.001	2.937				
25	4.887	2.819	3.409	2.890	3.257	2.999	3.757	2.914				
26	5.207	3.282	3.611	3.282	2.774	2.847	3.044	2.754				
27	4.868	3.398	3.432	3.004	2.879	3.422	2.923	2.899				
28	4.707	3.230	3.722	3.341	2.509	3.301	3.112	2.589				
29	4.396		3.232	3.533	2.812	3.087	3.062	2.856				
30	4.362		3.428	4.429	2.774	2.972	3.051	2.662				
31	4.344		3.238		2.615		2.725	2.701				
TOT =	133.006	98.471	114.244	97.947	112.747	85.971	107.869	89.903	0.000	0.000	0.000	0.000
AVG =	4.291	3.517	3.685	5.059	3.637	2.866	3.480	2.900	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
MIN =	3.640	2.819	3.068	2.414	2.509	2.328	2.698	2.569	0.000	0.000	0.000	0.000
MAX =	5.207	5.115	5.156	4.429	4.630	3.626	7.088	3.488	0.000	0.000	0.000	0.000

Calculated by subtracting Ironwood (reuse) flows and Plant Water (recycle) flows from Total Effluent Flow. Both flows are removed after Total Effluent Flow metering.

Attachment 6: TKN Loading Calculations 2023

Contents - Discussion

Page	Description
Table 3 Summary'!A1	TKN Stream Loading: Table 3 shown in the Discussion. With working formulas
Table 4 History - Annual'!A1	Chesapeake Bay CAP Load summary. Table 4 shown in the discussion. With working formulas.
influent TKN mg-l'!A1	2021 through August 2023 Influent TKN concentrations mg/l
Plant influent flows'!A1	2021 through August 2023 Influent flows, MGD
TKN lbsperday'!A1	2021 through August 2023 Influent TKN influent loading lbs/day
lbs-day 2dev'!A1	2021 through August 2023 Influent TKN influent loading lbs/day with results that do not include those that are equal to or more than 2 standard deviations.

Table 3: TKN Stream Loading

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	Total Influent Flow - Annual Average, MGD	Total Effluent Flow-Annual Average, MGD	Annual Average Plant Water, mgd	Annual Average Reuse Water - Ironwood, mgd		Percent of flow reused & recycled	Percent of flow to stream	Percent of Total TKN Influent Loading	Annual Percent of Total Influent loading Reaching Stream
2021	5.7351	5.8017	0.2758	0.9974		0.22	0.78	0.89	0.69
2022	5.235	5..3250	0.3996	1.1193		0.29	0.71	0.89	0.63
2023	5.2495	5.1135	0.4	1.256		0.32	0.68	0.89	0.61

Average Percent of flow to stream	0.72413
Percent of Total TKN Influent Design Loading	0.88
Percent of Total Influent Loading Reaching Stream	0.63724

Chesapeak Bay CAP Load Summary

Table 4. Percent of Capload + Offsets used for reporting Year

	CAP Load lbs/year	additional Offsets lbs/year	Total N Allowed lbs/year	TN lbs for year	Percent of CAP used
Report Year 2021	146,117	10,375	156,492	124113	79%
Report Year 2022	146,117	10,375	156,492	82,595	53%
Report Year 2023 (estimat	146,117	10,375	156,492	61,187	39%

2016	146,117	10,375	156,492	88,194	56%
2017	146,117	10,375	156,492	76,750	49%

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LEBANON WASTEWATER TREATMENT FACILITY

####

Influe 2021, 2022, 2023 TKN Influent loading, mg/l

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	62.0		37.4										2022		High	Low									2023											
2021	aver	49.7	max	57.4	std dev	6.2					numbers outside 2 deviations not used				61.0	37.0																				
DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2															48.8			49.6																		
2-3																																				
3-4																														52.5						
4-5																																				
5-6																													45.1							
6-7																																				
7-8																																				
8-9																																				
9-10																																				
10-11																																				
11-12																													55.2							
12-13																															36.9					
13-14													52.8																		42.0					
14-15									38.3				53.1									56.9							53.3							
15-16						47.7							53.9																	46.9						
16-17													52.2							54.5																
17-18			44.5										48.4																							
18-19													50.7						48.8											52.4						
19-20										57.0			52.8																							
20-21																																				
21-22																																				
22-23																																				
23-24																														54.7	49.5					
24-25																															54.8					
25-26																						57.4														
26-27																														41.6	50.4					
27-28																															55.5					
28-29																			48.1																	
29-30																			49.7																	
30-31																														54.8						
31-1																											28.8		45.8		53.1					
TOT.=			44			48			38	57			364		49			50	147	55		114					29		199	303	342					
AVG.=			44			48			38	57			52		49			50	49	55		57					29		50	50	49					
MIN.=			44			48			38	57			48		49			50	48	55		57					29		45	42	37					
MAX.=			44			48			38	57			54		49			50	50	55		57					29		55	55	56					

LEBANON WASTEWATER TREATMENT FACILITY

####

Influent Flow

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2021	7.718		3.202										2022		High	Low							2023											
	aver	5.460	max	16.806	std dev	1.129					numbers outside 2 deviations not used				7.717835	3.202153																		
DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2	7.020	4.840	12.428	6.920	5.264	5.088	5.432	4.476	16.244	6.164	6.102	4.926	5.300	4.856	5.386	6.190	5.620	5.604	5.182	4.938	4.278	4.342	4.708	4.702	5.532	5.818	5.010	5.218	6.134	4.722	4.904	4.860				
2-3	7.374	4.866	10.792	6.784	5.222	5.020	5.004	4.556	16.806	6.004	5.816	4.738	5.438	4.892	5.242	5.916	5.704	5.668	4.996	4.750	4.210	4.422	4.742	4.546	5.802	5.788	5.034	5.288	5.654	4.872	4.902	4.802				
3-4	7.414	5.060	9.788	6.300	5.632	5.116	4.738	4.466	12.392	5.958	5.644	4.780	5.346	7.226	5.272	5.774	5.628	5.544	4.748	4.662	4.022	4.422	4.544	4.972	6.722	5.562	6.322	5.144	5.464	4.666	5.080	4.846				
4-5	7.232	5.484	9.022	6.002	5.564	5.026	4.436	4.578	9.544	5.866	5.498	5.004	5.038	9.450	5.274	5.728	5.706	5.288	4.956	4.634	3.916	5.580	4.456	4.952	6.330	5.460	7.058	5.168	5.338	4.706	4.884	4.782				
5-6	7.028	5.938	8.488	6.034	5.718	4.848	4.668	4.568	8.728	5.672	5.258	4.968	5.082	7.838	5.188	5.648	5.654	5.294	4.962	4.612	4.626	5.406	4.530	4.884	6.230	5.468	7.387	5.114	5.154	4.868	4.964	4.692				
6-7	6.694	5.752	7.880	5.890	5.616	4.832	4.728	4.536	8.004	5.612	5.404	4.958	5.066	7.098	5.228	6.016	7.568	5.310	4.936	4.550	5.554	4.990	4.572	5.026	6.142	5.344	5.405	5.030	5.028	4.788	5.042	4.764				
7-8	6.522	5.596	7.482	5.812	5.502	5.024	4.594	4.300	7.426	5.480	5.336	4.916	4.940	6.618	5.270	7.630	11.210	5.432	4.948	4.556	5.044	4.858	4.460	4.922	5.858	5.294	5.932	5.016	5.140	4.682	4.944	5.088				
8-9	6.324	5.326	7.070	5.938	5.570	4.836	5.112	4.408	8.408	5.390	5.270	4.800	4.894	6.266	5.150	8.078	9.858	5.430	4.914	4.684	4.688	4.676	4.412	4.996	5.812	5.368	5.834	4.958	5.180	4.688	4.872	4.834				
9-10	6.106	5.106	6.898	5.770	5.480	4.882	5.018	4.490	9.710	5.276	5.026	5.002	5.268	6.070	5.540	8.454	8.744	5.444	4.830	4.644	4.504	4.734	4.340	4.924	5.734	5.330	5.640	4.824	5.038	4.770	9.416	4.848				
10-11	6.062	5.034	6.802	5.738	5.732	4.812	4.640	4.738	8.202	5.234	4.996	4.884	5.012	5.838	5.476	7.922	8.020	5.328	4.788	4.578	4.444	4.774	4.320	4.792	5.580	5.152	5.680	5.178	5.050	4.536	7.902	4.810				
11-12	5.890	5.284	6.870	7.180	5.362	4.936	5.618	4.690	7.560	5.402	4.962	4.824	4.942	5.692	5.460	7.690	7.288	5.018	4.852	4.578	5.240	4.544	4.964	5.012	5.686	5.252	5.376	4.988	5.002	4.512	6.754	4.780				
12-13	5.844	5.366	6.806	7.124	5.372	4.704	6.300	4.606	7.160	5.138	6.848	4.976	4.934	5.638	5.754	7.078	6.944	5.368	4.824	4.456	4.938	4.488	4.722	4.814	5.518	5.226	5.490	5.078	5.044	5.714	6.170	4.956				
13-14	5.820	5.462	6.456	6.704	5.476	4.606	6.634	4.564	6.880	5.168	6.142	4.876	4.918	5.618	5.708	6.916	6.692	5.382	4.786	4.376	4.710	5.018	4.604	4.802	5.728	5.210	5.484	5.112	4.766	5.088	5.908	4.976				
14-15	5.720	5.072	6.268	6.332	5.394	4.834	5.980	4.428	6.556	5.124	6.048	4.850	4.908	5.534	5.842	6.646	6.888	5.132	4.836	4.394	4.590	4.692	4.620	4.706	5.562	5.064	5.433	4.970	4.872	5.102	5.552	5.250				
15-16	5.930	5.588	6.172	6.310	5.066	4.692	5.527	4.324	6.550	5.088	5.840	4.842	4.908	5.342	5.692	6.350	6.834	5.114	4.688	4.526	4.538	4.542	5.010	6.566	5.508	5.082	5.385	4.960	4.996	4.912	5.442	5.026				
16-17	6.334	6.986	6.070	6.092	5.116	4.668	5.547	4.424	6.396	5.078	5.680	4.880	4.950	5.364	5.598	6.206	6.902	5.030	4.828	4.474	4.430	4.540	5.216	7.322	5.616	5.212	5.272	5.006	5.122	4.914	5.286	5.678				
17-18	5.686	6.498	6.040	5.800	5.128	4.680	5.420	4.440	6.062	5.048	5.638	4.766	5.866	5.528	5.682	6.050	6.574	5.072	5.220	4.692	4.292	4.456	4.906	6.678	5.180	5.166	5.288	4.914	5.110	4.786	5.340	4.862				
18-19	5.626	6.046	7.356	5.796	5.130	4.526	5.126	5.646	5.842	4.928	5.592	4.892	5.328	5.724	5.660	7.110	6.564	4.840	5.422	4.426	4.350	4.422	4.696	6.210	5.222	5.052	5.280	5.024	5.066	4.646	5.224	4.820				
19-20	5.706	6.110	6.806	5.734	5.076	4.564	5.164	5.360	5.668	4.968	5.542	4.982	5.216	5.472	5.514	7.968	7.312	4.814	5.142	4.236	4.412	4.474	4.748	5.814	5.656	5.024	5.308	4.976	4.970	4.972	5.076	4.648				
20-21	6.074	5.806	6.432	5.594	5.656	4.554	4.974	5.006	5.712	4.906	5.490	4.742	5.394	5.442	5.660	6.872	7.058	4.998	5.022	4.300	4.324	4.402	4.708	5.730	5.534	5.252	5.148	5.112	4.916	4.734	5.288	4.594				
21-22	6.080	5.918	6.072	5.568	4.726	4.608	5.110	4.774	5.506	4.936	5.552	4.868	5.188	5.386	5.414	6.916	6.914	4.886	5.032	4.398	4.264	4.280	4.774	5.506	5.384	5.066	5.056	4.924	5.006	4.702	5.278	4.826				
22-23	5.620	5.690	6.084	5.632	4.616	4.814	4.872	5.230	5.504	4.796	5.598	4.822	5.272	5.350	5.448	6.400	6.656	5.118	4.880	4.400	4.238	4.242	4.506	6.874	5.538	5.086	5.010	5.156	5.028	4.722	5.008	4.654				
23-24	5.486	6.016	5.914	5.434	4.776	4.536	4.792	5.844	12.286	4.846	5.438	4.912	5.072	5.362	5.558	6.214	6.494	5.410	4.646	4.342	4.082	4.732	4.712	8.794	6.178	5.088	5.312	5.188	5.020	4.886	5.060	4.604				
24-25	5.220	6.596	6.832	5.406	4.822	4.504	4.574	5.374	9.648	4.890	5.576	4.872	5.142	5.332	5.620	6.222	6.110	5.228	4.666	4.336	4.088	5.348	4.436	7.356	5.836	4.924	5.400	5.138	4.942	4.792	5.258	4.626				
25-26	5.098	6.836	6.666	5.646	4.770	4.530	4.592	5.098	8.420	5.236	5.314	4.486	5.988	5.818	5.466	6.186	6.030	4.988	4.704	4.324	4.368	4.862	4.346	6.724	6.614	4.928	5.464	5.114	4.976	4.686	5.476	4.702				
26-27	5.238	6.618	6.530	5.546	5.238	4.498	4.614	4.904	7.830	5.288	4.908	4.884	4.984	5.638	5.526	5.972	5.844	5.438	4.708	4.234	4.406	5.010	4.312	6.596	7.126	5.024	5.328	5.094	4.832	5.198	5.238	4.524				
27-28	5.354	7.384	6.324	5.488	5.058	4.414	4.552	4.918	7.312	5.032	4.896	4.832	4.932	5.628	5.428	5.784	5.872	5.744	4.722	4.204	4.254	4.670	4.620	6.184	6.694	5.196	5.406	4.942	4.766	5.566	4.926	4.664				
28-29	5.438	10.480	7.586	5.254	5.222	4.474	4.604	4.974	6.972	4.956	4.870	4.780	4.910	5.594	5.436	5.724	5.572	5.382	4.732	4.338	4.162	4.622	4.666	6.028	6.552	5.186	5.264	5.394	4.554	5.318	5.292	4.710				
29-30	5.304		7.478	5.434	5.572	4.388	4.506	4.874	6.744	6.268	4.980	4.766	5.010		5.464	5.646	5.476	5.176	4.586	4.378	4.170	4.592	4.452	5.782	6.232		5.222	5.382	4.882	5.160	4.978	4.648				
30-31	5.130		7.156	5.482	5.252	4.506	4.458	4.848	6.410	7.224	4.856	4.736	5.040		5.234	5.520	5.628	5.128	4.548	4.432	4.114	4.668	5.068	5.574	6.194		5.160	6.340	4.864	4.994	4.850	4.522				
31-1	4.962		6.702		5.290		4.336	4.662		6.510		4.826	5.038		5.894		5.600		4.718	4.374		4.720		5.832	5.890		5.076		4.876		4.964	4.442				
TOT.=	185.336	166.758	225.270	178.744	163.418	141.520	155.670	148.104	246.482	167.486	164.120	150.390	159.324	165.614	170.084	196.826	208.964	157.608	150.822	138.826	133.256	145.528	139.170	177.620	183.190	146.622	170.464	153.750	156.790	146.702	169.278	148.838	0.000	0.000	0.000	
AVG.=	5.979	5.956	7.267	5.958	5.272	4.717	5.022	4.778	8.216	5.403	5.471	4.851	5.139	5.915	5.487	6.561	6.741	5.254	4.865	4.478	4.442	4.694	4.639	5.730	5.909	5.237	5.499	5.125	5.058	4.890	5.461	4.801	#DIV/0!	#DIV/0!	#DIV/0!	
MIN.=	4.962	4.840	5.914	5.254	4.616	4.388	4.336	4.300	5.504	4.796	4.856	4.486	4.894	4.856	5.150	5.520	5.476	4.814	4.548	4.204	3.916	4.242	4.312	4.546	5.180	4.924	5.010	4.824	4.554	4.512	4.850	4.442	0.000	0.000	0.000	
MAX.=	7.414	10.480	12.428	7.180	5.732	5.116	6.634	5.844	16.806	7.224	6.848	5.004	5.988	9.450	5.894	8.454	11.210	5.744	5.422	4.938	5.554	5.580	5.216	8.794	7.126	5.818	7.387	6.340	6.134	5.714	9.416	5.678	0.000	0.000	0.000	

LEBANON WASTEWATER TREATMENT FACILITY

Influent TKN - 2021 to 2023, lbs/day

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Average for Period *2114.2*
Plant Design Loading *2380* *Percent Loading* *89%*

DATE	2021 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2022 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	2023 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2															2192.1			2318.2																		
2-3																																				
3-4																														2043.0						
4-5																																				
5-6																													1938.6							
6-7																																				
7-8																																				
8-9																																				
9-10																																				
10-11																																				
11-12																													2302.8							
12-13																																				1898.8
13-14													2166.9																							2069.5
14-15									2094.7				2173.1									2226.6							2165.7							
15-16						1864.6							2206.7																	1921.3						
16-17													2154.6							2033.6															
17-18			2240.1										2369.8																							
18-19													2252.4						2206.7											2030.4						
19-20										2362.9			2298.2																							
20-21																																				
21-22																																				
22-23																																				
23-24																														2229.0	2088.9					
24-25																															2403.1					
25-26																						2327.5														
26-27																														1803.4	2201.7					
27-28																															2280.1					
28-29																			1898.3																	
29-30																			1900.9																	
30-31																														2282.4						
31-1																											1219.2		1862.5		2198.3					
TOT.=			2,240			1,865			2,095	2,363			15,622		2,192			2,318	6,006	2,034		4,554					1,219		8,270	12,310	15,140					
AVG.=			2,240			1,865			2,095	2,363			2,232		2,192			2,318	2,002	2,034		2,277					1,219		2,067	2,052	2,163					
MIN.=			2,240			1,865			2,095	2,363			2,155		2,192			2,318	1,898	2,034		2,227					1,219		1,862	1,803	1,899					
MAX.=			2,240			1,865			2,095	2,363			2,370		2,192			2,318	2,207	2,034		2,328					1,219		2,303	2,282	2,403					

LEBANON WASTEWATER TREATMENT FACILITY

Influent TKN - 2015 to 2017, lbs/day - Data excluded 2 deviations

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DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
2015	aver	2,139	max	2,403	std dev	166						
2018	aver	2,114	max	2,403	std dev	223	calculation all results				numbers outside 2 deviations not used	
1-2												
2-3												
3-4												
4-5												
5-6												
6-7												
7-8												
8-9												
9-10												
10-11												
11-12												
12-13												
13-14												
14-15									2094.7			
15-16						1864.6						
16-17												
17-18			2240.1									
18-19												
19-20										2362.9		
20-21												
21-22												
22-23												
23-24												
24-25												
25-26												
26-27												
27-28												
28-29												
29-30												
30-31												
31-1												
TOT.=			2,240			1,865			2,095	2,363		
AVG.=			2,240			1,865			2,095	2,363		
MIN.=			2,240			1,865			2,095	2,363		
MAX.=			2,240			1,865			2,095	2,363		

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
2015			High	Low								
2018			2560	1668								
1-2			2192.1			2318.2						
2-3												
3-4												
4-5												
5-6												
6-7												
7-8												
8-9												
9-10												
10-11												
11-12												
12-13												
13-14	2166.9											
14-15	2173.1									2226.6		
15-16	2206.7											
16-17	2154.6							2033.6				
17-18	2369.8											
18-19	2252.4						2206.7					
19-20	2298.2											
20-21												
21-22												
22-23												
23-24												
24-25												
25-26										2327.5		
26-27												
27-28												
28-29							1898.3					
29-30							1900.9					
30-31												
31-1												
TOT.=	15,622		2,192			2,318	6,006	2,034		4,554		
AVG.=	2,232		2,192			2,318	2,002	2,034		2,277		
MIN.=	2,155		2,192			2,318	1,898	2,034		2,227		
MAX.=	2,370		2,192			2,318	2,207	2,034		2,328		

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1-2												
2-3												
3-4						2043.0						
4-5												
5-6					1938.6							
6-7												
7-8												
8-9												
9-10												
10-11												
11-12					2302.8							
12-13							1898.8					
13-14							2069.5					
14-15					2165.7							
15-16						1921.3						
16-17												
17-18												
18-19						2030.4						
19-20												
20-21												
21-22												
22-23												
23-24						2229.0	2088.9					
24-25							2403.1					
25-26												
26-27						1803.4	2201.7					
27-28							2280.1					
28-29												
29-30												
30-31						2282.4						
31-1			1219.2xx		1862.5		2198.3					
TOT.=					8,270	12,310	15,140					
AVG.=					2,067	2,052	2,163					
MIN.=					1,862	1,803	1,899					
MAX.=					2,303	2,282	2,403					

As	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/21/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<.001	<0.001	2/5/2019	2.51
5/28/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5/16/2019	2.57
8/20/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	9/5/2019	3.54
11/13/2019	<0.001	<0.001	<0.001	N/A	<0.001	<0.001	<0.001	11/9/2019	3.18
3/5/2020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2/13/2020	2.48
5/27/2020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6/4/2020	2.35
9/1/2020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	9/9/2020	2.91
12/16/2020	<0.001	<0.001	<0.001	OOS	<0.001	<0.001	<0.001	11/5/2020	3.31
3/18/2021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2/17/2021	<1.61
6/16/2021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5/13/2021	2.54
9/15/2021	<0.001	<0.001	oos	<0.001	<0.001	<0.001	<0.001	8/12/2021	3.17
10/20/2021	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	12/9/2021	2.84
3/2/2022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3/17/2022	3.72
6/2/2022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	12/8/2022	4.13
8/17/2022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	8/4/2022	3.9
10/26/2022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	11/3/2022	4.25
3/1/2023	<0.001	<0.001	<0.001	<.001	<0.001	<.001	<.001	3/9/2023	3.55
5/6/2023	<0.001	<.001	<.001	<.001	<0.001	<0.001	<.001		
5/12/2023	<0.001	<.001	<.001	<.001	<0.001	<0.001	0.002		
5/15/2023	<0.001	<.001	<.001	<.001	<0.001	<.001	<.001	5/18/2023	3.02
6/1/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
6/4/2023	<0.001	<.001	<.001	<.001	<0.001	<0.001	<.001		
6/16/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
6/19/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			
6/24/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
6/27/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
7/1/2023	<0.001				<0.001				
7/13/2023	<0.001				<0.001				
7/14/2023	<0.001	<.001		<.001	<0.001	<0.001	<.001		
7/24/2023	<0.001				<0.001				
7/25/2023	<0.001	<.001	<.001	<.001	<0.001	<0.001	<.001		
7/27/2023	<0.001				<0.001				
7/28/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
8/1/2023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		

Cd	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/21/2019	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	2/5/2019	1.02
5/28/2019	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	5/16/2019	0.93
8/20/2019	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	9/5/2019	0.88
11/13/2019	<0.0010	<0.0010	<0.0010	N/A	<0.0010	<0.0010	<0.0010	11/9/2019	0.85
3/5/2020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	2/13/2020	0.72
5/27/2020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	6/4/2020	0.82
9/1/2020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	9/9/2020	0.91
12/16/2020	<0.0002	<0.0002	<0.0002	OOS	<0.0002	<0.0002	<0.0002	11/5/2020	0.95
3/18/2021	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	2/17/2021	0.82
6/16/2021	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	5/13/2021	0.78
9/15/2021	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	8/12/2021	0.87
10/20/2021	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	12/9/2021	1.09
3/2/2022	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	3/17/2022	0.97
6/2/2022	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	12/8/2022	1.14
8/17/2022	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	8/4/2022	1.1
10/26/2022	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	11/3/2022	1.27
3/1/2023	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	3/9/2023	0.93
5/6/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
5/12/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010		
5/15/2023	<.0010				<.0010			5/18/2023	0.94
6/1/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010		
6/4/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010		
6/16/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010		
6/19/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010			
6/24/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010		
6/27/2023	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010	<.0010		
7/1/2023	<.0002				<.0002				
7/13/2023	<.0002				<.0002				
7/14/2023	<.0002	<.0002		<.0002	<.0002	<.0002	<.0002		
7/24/2023	0.0002				<.0002				
7/25/2023	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002		
7/27/2023	<.0002				<.0002				
7/28/2023	<.0002	<.0002	<.0002	<.0002	<.0002	0.0002	<.0002		
8/1/2023	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002		

Cr	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.0022	0.0018	0.0015	<0.0010	<0.0010	0.0012	0.0026	2/5/2019	22.4
5/28/2019	0.002	0.0014	<0.0010	<0.0010	<0.0010	0.012	0.0087	5/16/2019	22.2
8/20/2019	0.0021	0.0018	0.0013	<0.0010	<0.0010	0.0011	0.0069	9/5/2019	26.8
11/13/2019	0.022	0.002	0.002	N/A	<0.0010	0.001	<0.0010	11/9/2019	22.7
3/5/2020	0.0017	0.0016	0.0012	<0.0010	<0.0010	<0.0010	0.0067	2/13/2020	20.5
5/27/2020	0.002	0.0017	0.0014	<0.0010	<0.0010	0.0068	0.0018	6/4/2020	22.7
9/1/2020	0.0016	0.0013	0.0011	<0.0010	<0.0010	<0.0010	0.0054	9/9/2020	27.1
12/16/2020	0.0027	0.0027	0.0016	OOS	<0.0016	0.0017	0.0028	11/5/2020	22.5
3/18/2021	0.0025	0.0019	0.0015	<0.0010	<0.0001	0.002	0.0052	2/17/2021	20.2
6/15/2021	0.0028	0.0019	0.0015	<0.0010	<0.0010	0.0018	0.0049	5/13/2021	22.5
9/15/2021	0.0027	0.0026		<0.00010	<0.00010	0.0016	0.002	8/12/2021	25.4
10/20/2021	0.0025	0.0015		<0.0010	<0.0010	0.0036	0.0016	12/9/2021	20.3
3/2/2022	0.0022	0.0018	0.0015	<.0010	0.0012	0.0017	0.0038	3/17/2022	24
6/2/2022	0.0019	0.0014	0.0012	<.0010	<.001	0.008	0.002	12/8/2022	21.4
8/17/2022	0.0039	0.0027	0.0022	0.0012	0.0011	0.0022	0.0055	8/4/2022	58.7
10/26/2022	0.0029	0.0023	0.002	<.0010	<0.001	0.0044	0.003	11/3/2022	30.3
3/1/2023	0.0041	0.0025	0.0024	0.0013	0.0015	0.0019	0.0422	3/9/2023	21.7
5/6/2023	0.0019	0.0015	0.0015	0.0011	0.001	0.0023	0.0046		
5/12/2023	0.0027	0.0021	0.0021	0.0014	<.005	0.0239	0.0126		
5/15/2023	0.0026				0.0012			5/18/2023	24.2
6/1/2023	0.0022	0.0023	0.0019	0.0012	0.0012	0.0177	0.0083		
6/4/2023	0.0027	0.0022	0.0052	0.0016	0.0014	0.004	0.0015		
6/16/2023	0.0027	0.0019	0.0018	<.0010	<0.001	0.0068	0.0046		
6/19/2023	0.0017	0.0023	0.0016	<.0010	<0.001	0.0194			
6/24/2023	0.0019	0.0016	0.0015	<.0010	0.001	0.0044	0.0016		
6/27/2023	0.0026	0.0016	0.0015	<.0010	<0.001	0.0071	0.0053		
7/1/2023	0.0016				<0.001				
7/13/2023	0.0019				<0.001				
7/14/2023	0.0026	0.0019		<.0010	<0.001	0.0865	0.0067		
7/24/2023	0.0023				<0.001				
7/25/2023	0.0032	0.0026	0.0021	<.0010	<0.001	0.0223	0.0205		
7/27/2023	0.0025				0.001				
7/28/2023	0.0033	0.002	0.0017	<.0010	<0.001	0.018	0.0034		
8/1/2023	0.0028	0.002	0.0018	0.0011	0.0011	0.0024	0.0032		

Cu	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.036	0.029	0.029	0.006	0.005	0.014	0.041	2/5/2019	364.4
5/28/2019	0.033	0.027	0.025	0.005	0.002	0.078	0.041	5/16/2019	314.5
8/20/2019	0.038	0.032	0.027	0.003	0.004	0.031	0.043	9/5/2019	392.6
13-Nov	0.03	0.025	0.021	N/A	0.004	0.051	0.027	11/9/2019	348.2
3/5/2020	0.035	0.037	0.031	0.007	0.009	0.11	0.028	2/13/2020	329.7
5/27/2020	0.036	0.03	0.028	0.006	0.01	0.025	0.02	6/4/2020	359.5
9/1/2020	0.026	0.027	0.029	0.017	0.011	0.013	0.028	9/9/2020	378.6
12/16/2020	0.044	0.034	0.027	OOS	0.009	0.054	0.071	11/5/2020	375.8
3/18/2021	0.036	0.027	0.022	0.007	0.005	0.046	0.023	2/17/2021	304.1
6/15/2021	0.045	0.027	0.027	0.01	0.006	0.047	0.018	5/13/2021	321.2
9/15/2021	0.047	0.051		0.007	0.008	0.045	0.018	8/12/2021	412.2
10/20/2021	0.046	0.027		0.01	0.006	0.041	0.035	12/9/2021	309
3/2/2022	0.031	0.031	0.026	0.008	0.006	0.043	0.051	3/17/2022	369.4
6/2/2022	0.03	0.025	0.025	0.006	0.005	0.055	0.03	12/8/2022	376.2
8/17/2022	0.054	0.032	0.031	0.014	0.036	0.073	0.088	8/4/2022	409.6
10/26/2022	0.037	0.024	0.021	0.007	0.006	0.092	0.042	11/3/2022	396.8
3/1/2023	0.054	0.031	0.028	0.009	0.007	0.038	0.06	3/9/2023	361.5
5/6/2023	0.028	0.027	0.031	0.011	0.007	0.017	0.014		
5/12/2023	0.043	0.03	0.03	0.008	0.014	0.028	0.0164		
5/15/2023	0.045				0.011			5/18/2023	354.1
6/1/2023	0.04	0.035	0.038	0.017	0.006	0.036	0.031		
6/4/2023	0.033	0.026	0.028	0.017	0.011	0.02	0.002		
6/16/2023	0.033	0.024	0.029	0.011	0.005	0.054	0.049		
6/19/2023	0.036	0.032	0.036	0.004	0.008	0.058			
6/24/2023	0.019	0.026	0.027	0.003	0.007	0.023	0.024		
6/27/2023	0.033	0.022	0.03	0.006	0.006	0.036	0.049		
7/1/2023	0.025				<0.001				
7/13/2023	0.023				0.009				
7/14/2023	0.034	0.026		0.009	0.01	0.022	0.017		
7/24/2023	0.031				0.007				
7/25/2023	0.036	0.029	0.027	0.012	0.007	0.048	0.054		
7/27/2023	0.025				0.008				
7/28/2023	0.046	0.027	0.024	0.006	0.008	0.07	0.062		
8/1/2023	0.046	0.028	0.03	0.005	0.009	0.051	0.05		

Pb	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.004	0.001	<0.001	<0.001	<0.001	0.001	0.004	2/5/2019	19.8
5/28/2019	0.003	0.001	<0.001	<0.001	<0.001	0.013	0.004	5/16/2019	19.3
8/20/2019	0.003	0.002	0.001	<0.001	<0.001	0.003	0.001	9/5/2019	24.8
11/13/2019	0.002	0.001	0.001	N/A	<.001	0.005	<.001	11/9/2019	19.1
3/5/2020	0.002	0.002	0.001	<0.001	<0.001	0.002	0.002	2/13/2020	18.4
5/27/2020	0.004	0.001	0.001	<0.001	<0.001	0.002	0.002	6/4/2020	20.7
9/1/2020	0.002	0.001	<0.001	<0.001	<0.001	0.008	0.001	9/9/2020	23.3
12/16/2020	0.003	0.002	0.001	OOS	<0.001	0.003	0.006	11/5/2020	26.1
3/18/2021	0.002	0.001	<0.001	<0.001	<0.001	0.007	0.001	2/17/2021	16.5
6/15/2021	0.003	0.001	<0.001	<0.001	<0.001	0.01	0.002	5/13/2021	19.4
9/15/2021	0.002	0.002		<0.001	<0.001	0.008	0.002	8/12/2021	18.5
10/20/2021	0.003	0.001		<0.001	<0.001	0.001	0.001	12/9/2021	23
3/2/2022	0.002	0.001	<.001	<0.001	<0.001	0.005	0.008	3/17/2022	22.8
6/2/2022	0.003	0.002	0.001	<0.001	<0.001	0.008	0.002	12/8/2022	19.3
8/17/2022	0.003	0.001	0.001	<0.001	<0.001	0.006	0.003	8/4/2022	28
10/26/2022	0.003	0.001	<0.001	<0.001	<0.001	0.003	0.002	11/3/2022	23.1
3/1/2023	0.004	0.002	<0.001	<0.001	<0.001	0.007	0.003	3/9/2023	23.3
5/6/2023	0.003	0.001	0.001	<.001	<0.001	0.003	0.005		
5/12/2023	0.003	0.001	0.001	<.001	<0.001	0.005	0.042		
5/15/2023	0.004				<0.001			5/18/2023	21.1
6/1/2023	0.003	0.003	0.002	<.001	<.001	0.006	0.004		
6/4/2023	0.003	0.001	0.001	<.001	<0.001	0.003	0.001		
6/16/2023	0.003	0.001	0.001	<.001	<0.001	0.006	0.006		
6/19/2023	0.003	0.001	0.002	<.001	<0.001	0.058			
6/24/2023	0.004	0.002	0.001	<.001	<0.001	0.004	0.003		
6/27/2023	0.007	0.002	0.002	<.001	<0.001	0.003	0.007		
7/1/2023	0.003				<0.001				
7/13/2023	0.002				<0.001				
7/14/2023	0.003	0.001		<.001	<0.001	0.004	0.006		
7/24/2023	0.003				<0.001				
7/25/2023	0.004	0.002	0.002	<.001	<0.001	0.003	0.008		
7/27/2023	0.003				<0.001				
7/28/2023	0.003	0.001	0.001	<.001	<0.001	0.004	0.011		
8/1/2023	0.004	0.002	0.001	<.001	<0.001	0.004	0.004		

Hg	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	2/5/2019	0.68
5/28/2019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	5/16/2019	0.59
8/20/2019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	9/5/2019	2.94
11/13/2019	<0.0001	<0.0001	<0.0001	N/A	<0.0001	<0.0001	<0.0001	11/9/2019	1.34
3/5/2020	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	2/13/2020	0.8
5/27/2020	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	6/4/2020	0.57
9/1/2020	0.0003	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	9/9/2020	0.76
12/16/2020	<0.00009	<0.00009	<0.00009	OOS	<0.00009	<0.00009	0.0001	11/5/2020	0.66
3/18/2021	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	2/17/2021	0.9
6/15/2021	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	5/13/2021	0.95
9/15/2021	<0.00009	<0.00009		<0.00009	<0.00009	<0.00009	0.0001	8/12/2021	0.72
10/20/2021	<0.00009	<0.00009		<0.00009	<0.00009	<0.00009	<0.00009	12/9/2021	1.01
3/2/2022	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.0001	<0.00009	3/17/2022	1.21
6/2/2022	0.0001	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	12/8/2022	0.87
8/17/2022	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	<0.00009	8/4/2022	0.67
10/26/2022	0.0001	<0.00009	<0.00009	<0.00009	<0.00008	0.0001	<0.00009	11/3/2022	0.75
3/1/2023	0.0001	<.00008	<.00008	<.00008	<0.00008	<.00008	0.0001	3/9/2023	0.73
5/6/2023	<.0002	<.0002	<.0002	<.0002	<0.00008	<.0002	<.0002		
5/12/2023	<.0002	<.0002	<.0002	<.0002	<0.00008	<.0002	0.0026		
5/15/2023	<.0002				<.0002			5/18/2023	0.96
6/1/2023	<.002	<.0002	<.0002	<.0002	<.0002	<.0002	0.0021		
6/4/2023	<0.00008	<.0002	<.0002	<.0002	<0.00008	<.0002	<.0002		
6/16/2023	<.0002	<.0002	<.0002	<.0002	<0.00008	<.0002	0.0002		
6/19/2023	<.0002	<.0002	<.0002	<.0002	<0.00008	<.0002			
6/24/2023	<.0002	<.0002	<.0002	<.0002	<0.00008	<.0002	<.0002		
6/27/2023	<.0002	<.0002	<.0002	<.0002	<0.00008	<.0002	<.0002		
7/1/2023	<0.00008				<0.00008				
7/13/2023	<0.00008				<0.00008				
7/14/2023	<0.00008	<0.00008		<0.00008	<0.00008	<0.00008	0.006		
7/24/2023	<0.00008				<0.00008				
7/25/2023	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	0.0002		
7/27/2023	<0.00008				<0.00008				
7/28/2023	0.0001	<.00008	<.00008	<.00008	<0.00008	<.00008	<.00008		
8/1/2023	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008		

Mo	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.002	0.002	0.002	0.001	0.001	<0.001	0.001	2/5/2019	9.4
5/28/2019	0.003	0.003	0.003	0.002	0.002	<0.001	0.001	5/16/2019	9.2
8/20/2019	0.004	0.004	0.004	0.004	0.004	<0.001	0.029	9/5/2019	13.5
11/13/2019	0.002	0.002	0.001	N/A	0.002	<0.001	<0.001	11/9/2019	12.3
3/5/2020	0.001	0.002	0.002	0.001	0.001	<0.001	0.001	2/13/2020	8.6
5/27/2020	0.003	0.003	0.003	0.002	0.002	<0.001	<0.001	6/4/2020	9.5
9/1/2020	0.001	0.002	0.002	0.001	0.001	<0.001	0.003	9/9/2020	12.6
12/16/2020	0.002	0.002	0.001	OOS	<0.001	<0.001	0.002	11/5/2020	10.4
3/18/2021	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	2/17/2021	8.4
6/15/2021	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	5/13/2021	9.3
9/15/2021	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	8/12/2021	10.7
10/20/2021	<0.003	<0.003		<0.003	<0.003	<0.003	<0.003	12/9/2021	8.7
3/2/2022	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	3/17/20222	9.7
6/2/2022	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	12/8/2022	11.2
8/17/2022	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	8/4/2022	15.6
10/26/2022	<0.003	<0.003	<0.003	<0.003	<0.003	0.006	<0.003	11/3/2022	11.7
3/1/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003	3/9/2023	9.7
5/6/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003		
5/12/2023	<.003	<.003	<.003	<.003	<.003	<.003	0.006		
5/15/2023	<.003				<.003			5/18/2023	9.9
6/1/2023	<.003	<.003	<.003	<.003	<.003	<.003	0.006		
6/4/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003		
6/16/2023	<.003	<.003	<.003	0.003	0.003	<.003	0.009		
6/19/2023	<.003	<.003	<.003	<.003	<.003	<.003			
6/24/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003		
6/27/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003		
7/1/2023	<.003				<.003				
7/13/2023	<.003	<.003		<.003	<.003	<.003	<.003		
7/14/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003		
7/24/2023	<.003				<.003				
7/25/2023	<.003	<.003	<.003	<.003	<.003	<.003	<.003		
7/27/2023	<.003				<.003				
7/28/2023	0.003	<.003	<.003	<.003	<.003	<.003	0.004		
8/1/2023	0.004	0.004	<.003	<.003	<.003	<.003	<.003		

Ni	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.0036	0.0032	0.0036	0.0026	0.0027	0.002	0.0039	2/5/2019	20.1
5/28/2019	0.0037	0.0031	0.003	0.002	0.0018	0.0111	0.0104	5/16/2019	18
8/20/2019	0.0109	0.0093	0.0075	0.0034	0.0029	0.0032	0.0162	9/5/2019	21.2
11/13/2019	0.004	0.004	0.004	N/A	<0.001	<0.001	<0.001	11/9/2019	17.6
3/5/2020	0.0033	0.0031	0.0028	0.0021	0.0022	0.002	0.0284	2/13/2020	18.1
5/27/2020	0.0036	0.0035	0.0032	0.0024	0.0024	0.0356	0.0035	6/4/2020	18.6
9/1/2020	0.0034	0.0033	0.0034	0.0024	0.0024	0.0023	0.0325	9/9/2020	19.9
12/16/2020	0.0042	0.0036	0.0032	OOS	0.0022	0.0027	0.005	11/5/2020	17.1
3/18/2021	0.0035	0.0034	0.0029	0.0023	0.0022	0.0033	0.0127	2/17/2021	15.5
6/15/2021	0.0039	0.0031	0.0031	0.0028	0.0027	0.0043	0.0042	5/13/2021	16.3
9/15/2021	0.0051	0.0077		0.0027	0.0025	0.0036	0.0035	8/12/2021	17.3
10/20/2021	0.0041	0.0033		0.0027	0.0025	0.0097	0.0028	12/9/2021	13.9
3/2/2022	0.0042	0.0038	0.0035	0.003	0.0916	0.0038	0.0068	3/17/2022	16.6
6/2/2022	0.0046	0.0067	0.0128	0.003	0.0026	0.0204	0.0052	12/8/2022	15.9
8/17/2022	0.0057	0.0048	0.0048	0.004	0.0039	0.0047	0.0061	8/4/2022	35.5
10/26/2022	0.0053	0.0043	0.0043	0.0033	0.0032	0.0058	0.0042	11/3/2022	19.1
3/1/2023	0.0053	0.0045	0.0045	0.0034	0.0034	0.0039	0.112	3/9/2023	14.8
5/6/2023	0.0036	0.0034	0.0032	0.0026	0.0026	0.0068	0.0088		
5/12/2023	0.0048	0.0042	0.0035	0.0033	<.0050	0.0491	0.0199		
5/15/2023	0.0047				0.0028			5/18/2023	15.4
6/1/2023	0.0051	0.0042	0.0044	0.0031	0.0029	0.0435	0.0165		
6/4/2023	0.0048	0.0041	0.0042	0.0042	0.0038	0.0152	0.0032		
6/16/2023	0.0047	0.0039	0.0037	0.0032	0.0028	0.0223	0.0092		
6/19/2023	0.137	0.0033	0.0033	0.0025	0.0023	0.0238			
6/24/2023	0.0034	0.0035	0.0033	0.0026	0.0027	0.0105	0.0043		
6/27/2023	0.0041	0.0038	0.0036	0.0025	0.0024	0.0171	0.0092		
7/1/2023	0.0051				0.0031				
7/13/2023	0.0036				0.009				
7/14/2023	0.004	0.0036		0.0027	0.0026	0.237	0.015		
7/24/2023	0.0066				0.0029				
7/25/2023	0.0056	0.0047	0.0044	0.0035	0.0033	0.0224	0.0243		
7/27/2023	0.0042				0.0034				
7/28/2023	0.008	0.0054	0.0052	0.0033	0.0033	0.0255	0.0249		
8/1/2023	0.0046	0.0041	0.0042	0.0036	0.0036	0.0047	0.0058		

Se	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	2/5/2019	6.02
5/28/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5/16/2019	7.32
8/20/2019	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	9/5/2019	6.19
11/13/2019	<0.001	<0.001	<0.001	N/A	<0.001	<0.001	<0.001	11/9/2019	5.42
3/5/2020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2/13/2020	4.56
5/27/2020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6/4/2020	5.84
9/1/2020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	9/9/2020	5.03
12/16/2020	0.001	<0.001	<0.001	OOS	<0.001	<0.001	0.001	11/5/2020	5.08
3/18/2021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2/17/2021	5.7
6/15/2021	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5/13/2021	5.34
9/15/2021	<0.001	<0.001		<0.001	<0.001	<0.001	<.001	8/12/2021	5.69
10/20/2021	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	12/9/2021	4.9
3/2/2022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3/17/2022	6.79
6/2/2022	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	12/8/2022	6.86
8/17/2022	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	8/4/2022	8.2
10/26/2022	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	<0.001	11/3/2022	5.69
3/1/2023	<.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3/9/2023	6.86
5/6/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
5/12/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
5/15/2023	<.001				<.001			5/18/2023	6.06
6/1/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
6/4/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
6/16/2023	0.001	<.001	<.001	<.001	<.001	<.001	<.001		
6/19/2023	<.001	<.001	<.001	<.001	<.001	<.001			
6/24/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
6/27/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
7/1/2023	<.001				<.001				
7/13/2023	<.001	<.001		<.001	<.001	<.001	<.001		
7/14/2023	<.001	<.001		<.001	<.001	<.001	<.001		
7/24/2023	<.001				<.001				
7/25/2023	0.001	<.001	<.001	<.001	<.001	<.001	<.001		
7/27/2023	<.001				<.001				
7/28/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		
8/1/2023	<.001	<.001	<.001	<.001	<.001	<.001	<.001		

Ag	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.0022	0.0017	0.0016	<0.0005	<0.0005	<0.0005	<0.005	2/5/2019	9.51
5/28/2019	0.0017	0.0016	0.0011	<0.0005	<0.0005	<0.0005	<0.0005	5/16/2019	10.4
8/20/2019	0.0011	0.0009	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	9/5/2019	16.9
11/13/2019	<0.0005	<0.0005	<0.0005	N/A	<0.0005	<0.0005	<0.0005	11/9/2019	15.5
3/5/2020	0.0007	0.0006	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	2/13/2020	13
5/27/2020	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	6/4/2020	13.7
9/1/2020	0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	9/9/2020	11.8
12/16/2020	0.0066	0.0055	0	OOS	<0.0005	<0.0005	0.0007	11/5/2020	17.3
3/18/2021	0.0009	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	2/17/2021	12.8
6/15/2021	0.0008	0.0006	0.0005	<0.0003	<0.0003	<0.0003	<0.0003	5/13/2021	9.27
9/15/2021	0.0015	0.0014		<0.0003	<0.0003	<0.0003	<0.0003	8/12/2021	26.7
10/20/2021	0.0027	0.002		<0.0003	<0.0003	<0.0003	<0.0003	12/9/2021	12.1
3/2/2022	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	3/17/2022	22.5
6/2/2022	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	12/8/2022	5.08
8/17/2022	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	8/4/2022	3.83
10/26/2022	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	11/3/2022	3.64
3/1/2023	0.0004	<0.0003	<.0003	<.0003	<.0003	<.0003	<.0003	3/9/2023	3.06
5/6/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003		
5/12/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	0.001		
5/15/2023	<.0003				<.0003			5/18/2023	3.73
6/1/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	0.0004		
6/4/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003		
6/16/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	0.0014		
6/19/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003			
6/24/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003		
6/27/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	0.0011		
7/1/2023	<.0003				<.0003				
7/13/2023	<.0003				<.0003				
7/14/2023	<.001	<.001		<.001	<.001	<.001	<.001		
7/24/2023	<.0003				<.0003				
7/25/2023	<.0003	<.0003	<.0003	<.0003	<.0003	<.0003	0.0006		
7/27/2023	<.0003				<.0003				
7/28/2023	0.0003	<.0003	<.0003	<.0003	<.0003	<.0003	0.0007		
8/1/2023	0.0005	<.0003	<.0003	<.0003	<.0003	<.0003	0.0004		

Zn	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.093	0.064	0.053	0.03	0.032	0.046	0.236	2/5/2019	753.1
5/28/2019	0.113	0.076	0.056	0.035	0.033	0.186	0.18	5/16/2019	674.5
8/20/2019	0.133	0.116	0.103	0.037	0.034	0.099	0.106	9/5/2019	907.9
11/13/2019	0.101	0.065	0.055	N/A	0.038	0.107	0.068	11/9/2019	878.2
3/5/2020	0.103	0.081	0.062	0.037	0.04	0.07	0.112	2/13/2020	737
5/27/2020	0.144	0.096	0.068	0.038	0.038	0.095	0.087	6/4/2020	801.8
9/1/2020	0.144	0.113	0.008	0.04	0.039	0.114	0.325	9/9/2020	1124.1
12/16/2020	0.145	0.109	0.079	OOS	0.039	0.129	0.147	11/5/2023	961.7
3/18/2021	0.112	0.075	0.056	0.035	0.049	0.187	0.069	2/17/2021	708
6/15/2021	0.176	0.108	0.084	0.041	0.036	0.138	2.62	5/13/2021	727.8
9/15/2021	0.129	0.112		0.031	0.035	0.139	0.112	8/12/2021	889.5
10/20/2021	0.802	0.351		0.044	0.037	0.119	0.098	12/9/2021	895.6
3/2/2022	0.136	0.1	0.08	0.052	0.048	0.22	0.123	3/17/2023	948.7
6/2/2022	0.159	0.098	0.068	0.036	0.034	0.178	0.102	12/8/2022	1132.7
8/17/2022	0.22	0.143	0.109	0.033	0.043	0.168	5.62	8/4/2022	1071.2
10/26/2022	0.151	0.083	0.064	0.031	0.03	0.391	1.03	11/3/2022	1214.9
3/1/2023	0.234	0.109	0.087	0.04	0.039	0.177	0.152	3/9/2023	1024.8
5/6/2023	0.148	0.089	0.07	0.04	0.04	0.123	0.187		
5/12/2023	0.14	0.074	0.064	0.037	0.05	0.207	0.411		
5/15/2023	0.15				0.035			5/18/2023	1011.5
6/1/2023	0.142	0.09	0.086	0.049	0.043	0.203	0.35		
6/4/2023	0.146	0.086	0.075	0.049	0.044	0.164	0.067		
6/16/2023	0.179	0.097	0.079	0.041	0.037	0.416	0.173		
6/19/2023	0.137	0.072	0.07	0.033	0.032	0.142			
6/24/2023	0.147	0.094	0.08	0.034	0.034	0.132	0.157		
6/27/2023	0.165	0.091	0.08	0.03	0.029	0.106	0.224		
7/1/2023	0.136				0.039				
7/13/2023	0.105				0.035				
7/14/2023	0.117	0.076		0.035	0.035	0.217	0.246		
7/24/2023	0.138				0.031				
7/25/2023	0.144	0.088	0.068	0.032	0.028	0.135	0.173		
7/27/2023	0.131				0.032				
7/28/2023	0.159	0.084	0.068	0.028	0.029	0.148	0.158		
8/1/2023	0.167	0.082	0.066	0.025	0.026	0.123	0.151		
Local Goals	0.2424				0.2104				
Local Limit	4.0904								

CN	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	2/5/2019	0.6
5/28/2019	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	5/16/2019	<.4
8/20/2019	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	9/5/2019	<0.420
11/13/2019	<0.004	<0.004	<0.004	0.005	0.005	<0.004	<0.004	11/9/2019	<0.422
3/5/2020	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	2/13/2020	<0.413
5/27/2020	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	6/4/2020	0.975
9/1/2020	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	9/9/2020	0.848
12/16/2020	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	11/5/2020	<0.416
3/18/2021	0.004	<0.004	0.005	<0.004	0.006	0.004	<0.004	2/17/2021	1.65
6/15/2021	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	5/13/2021	0.618
9/15/2021	<0.004	<0.004	0.004	0.004	<0.004	<0.004	<0.004	8/12/2021	0.486
10/20/2021	<0.004	<0.004	0.005	0.005	<0.004	<0.004	<0.004	12/9/2021	0.803
3/2/2022	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	3/17/2022	0.529
6/2/2022	0.007	0.009	0.01	0.007	0.008	0.004	0.006	12/8/2022	4.51
8/17/2022	0.007	0.009	<.002	<.002	<.002	<.002	<.002	8/4/2022	3.82
10/26/2022	0.003	0.004	<.002	0.002	0.002	0.004	0.008	11/3/2022	3.21
3/1/2023	0.01	<.006	<.006	<.006	<.006	0.008	<.006	3/9/2023	4.78
5/6/2023	0.006	<.006	<.006	<.006	<.006	<.006	<.006		
5/12/2023	<.006	<.006	<.006	<.006	0.016	<.006	0.015		
5/15/2023	0.012				0.009			5/18/2023	3.23
6/1/2023	<.006	<.006	<.006	<.006	0.009	0.01	<.006		
6/4/2023	<.006	<.006	<.006	<.006	0.007	<.006	<.006		
6/16/2023	0.011	<.006	<.006	<.006	<.006	<.006	<.006		
6/19/2023	0.007	<.006	<.006	<.006	0.007	0.008			
6/24/2023	0.008	<.006	<.006	0.023	<.006	<.006	0.008		
6/27/2023	0.014	<.006	<.006	0.012	0.008	<.006	0.015		
7/1/2023	0.01				<.006				
7/13/2023	<.006				0.008				
7/14/2023	<.006	<.006		<.006	<.006	<.006	0.007		
7/24/2023	<.006				<.006				
7/25/2023	<.006	<.006	<.006	<.006	<.006	<.006	<.006		
7/27/2023	<.006				<.006				
7/28/2023	<.006	<.006	<.006	<.006	<.006	<.006	<.006		
8/1/2023	<.006	<.006	<.006	<.006	<.006	0.009	0.007		

Phenol	Influent	(Primary Eff) Trick Inf	FM3 Bioreactor	DI inf	Effluent	Domestic	Non-permitted Background	Biosolids	
								Date	mg/kg dry
2/20/2019	0.069	0.119	0.068	0.033	<0.010	0.039	0.228	2/5/2019	14
5/28/2019	0.04	0.026	0.022	<0.010	<0.010	0.06	0.054	5/16/2019	1.8
8/20/2019	0.04	0.043	0.032	0.012	<0.010	0.054	0.038	9/5/2019	3.7
11/13/2019	0.039	0.029	0.016	<0.010	<0.010	0.057	0.052	11/9/2019	1.9
3/5/2020	0.055	0.049	0.034	0.023	0.019	0.21	0.068	2/13/2020	<1.0
5/27/2020	0.052	0.046	<0.010	0.014	0.015	0.068	0.046	6/4/2020	31
9/1/2020	0.037	0.044	0.031	0.011	<0.010	0.083	0.055	9/9/2020	9.9
12/16/2020	0.052	0.050	0.033	0.017	0.015	0.1	0.062	11/5/2020	44
3/18/2021	0.055	0.046	0.025	<0.010	<0.010	0.087	0.062	2/17/2021	24
6/15/2021	0.056	0.045	0.014	<0.002	<0.002	0.170	0.080	5/13/2021	17
9/15/2021	0.032	0.034	0.013	<0.002	0.002	0.022	0.033	8/12/2021	15
10/20/2021	0.052	0.035	0.01	<0.002	<0.002	0.086	0.039	12/9/2021	21
3/2/2022	0.04	0.03	0.01	<.002	<0.002	0.05	0.043	3/17/2022	4.9
6/2/2022	0.054	0.027	0.018	0.003	0.002	0.062	0.052	12/8/2022	4.9
8/17/2022	0.065	0.043	0.012	0.004	0.009	0.03	0.065	8/4/2022	2.7
10/26/2022	0.052	0.043	0.008	<.002	<.002	0.018	0.076	11/3/2022	8.6
3/1/2023	0.052	0.028	0.02	<.002	<.002	0.036	0.052	3/9/2023	7.1
5/6/2023	0.036	0.014	0.012	<.002	<.002	0.07	0.02		
5/12/2023	0.059	0.038	0.007	<.002	<.002	0.065	0.041		
5/15/2023	0.06				<.002			5/18/2023	11
6/1/2023	0.066	0.032	0.036	<.002	<.002	0.062	0.042		
6/4/2023	0.047	0.022	0.02	<.002	<.002	0.038	0.043		
6/16/2023	0.094	0.034	0.019	<.002	<.002	0.043	0.056		
6/19/2023	0.073	0.038	0.028	<.002	<.002	0.072			
6/24/2023	0.07	0.03	0.023	<.002	<.002	0.101	0.034		
6/27/2023	0.069	0.031	0.026	0.002	<.002	0.076	0.042		
7/1/2023	0.064				<.002				
7/13/2023	0.032				<.002				
7/14/2023	0.04	0.026		<.002	<.002	0.055	0.042		
7/24/2023	0.041				0.005				
7/25/2023	0.055	0.034	0.006	<.002	0.005	0.058	0.029		
7/27/2023	0.047				0.004				
7/28/2023	0.051	0.036	0.012	<.002	0.003	0.064	0.041		
8/1/2023	0.051	0.041	0.009	<.002	0.003	0.089	0.045		

	Biosolids
Date	mg/kg dry

	Biosolids
Date	mg/kg dry

Sludge pumped to Digester, gallons

AVG Monthly

	2021	2022	2023
January	65683	81480	63557
February	56969	79547	54840
March	62272	89628	55026
April	60600	83064	56376
May	64777	88494	54840
June	62996	87960	60600
July	68307	72019	62265
August	63573	58774	57627
September	66360	50616	
October	60600	49080	
November	62904	55800	
December	50752	60600	

64625 All restuls

dryer out of service

59432 removing the months during the dryer breakdown.
this number used for calculation

Sludge pumped to Centrifuges - Dry Tonnes

Total Monthly Dry Tons - centrifuge

	2021	2022	2023
January	154	53	100
February	45	99	58
March	130	116	104
April	87	133	115
May	144	92	69
June	119	105	54
July	84	67	97
August	69	88	90
September	163	122	64
October	98	50	
November	103	95	
December	46	108	
Total Tons	1242	1128	751
days	365	365	273
dry tons/day	3.40274	3.090411	2.750916
dry tonnes/day	3.0934	2.809465	2.500833

Averages	
2.801232	2021 to date
2.655149	2022 to date
2.500833	2023 to date
2.500623	last full year

Using last continuous year

Total Tons	1004
days	365
dry tons/day	2.750685
dry tonnes/day	2.500623

Dryer out of service

Possler, Aron

From: Possler, Aron
Sent: November 27, 2023 3:57 PM
To: Cora Shenk
Cc: Frank DiScuillo; Sanchez Gonzalez, Natalie
Subject: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review
Attachments: EPACopy_Lebanon_LL_2023-09-22.xlsx

Categories: EZ Record - Shared

Cora:

Thank you for submitting the Pretreatment Program Local Limits Reevaluation on behalf of the **City of Lebanon Authority ("Authority")**. I have completed review of the Authority's headworks analysis, which was submitted in accordance with § C.II(E) of the POTW's NPDES permit (issued September 26, 2022) and dated **September 22, 2023**. Based on this review, I am requesting revisions and clarifications to the submission for this process to continue. Please refer to the attached copy of the local limits reevaluation workbook in which the data inputs have been modified as discussed below. This copy is not intended to be used by the Authority directly but is included only as an indication of the effect of the changes based on the comments presented in order of table appearance in the local limits calculation workbook.

I. Limits Calculation Spreadsheet

A. Table 1 (Unit Operations)

"Activated Sludge Present" was unselected. On page 7 of "3 – Discussion 2023", the presence of "Trickling Filter, Nitrification, Anaerobic Digestion" is indicated. Additionally, activated sludge as a treatment type is listed as "No" on the Authority's 2022 annual report on the "POTW Information" spreadsheet. Please clarify if the Authority utilizes activated sludge treatment.

B. Table 2a (Stream Flow Partial Mix Factors)

The threshold human health partial mix factor value of "1" and the cancer risk level partial mix factor value of "1" were added, referenced from pages 38 and 41 of the POTW's draft NPDES permit fact sheet, dated July 19, 2022.

C. Table 2b (POTW and Receiving Stream Data)

The receiving stream hardness value of "249 mg/L" was replaced with the value of "308 mg/L", referenced from page 32 of the POTW's draft NPDES permit fact sheet.

D. Table 3 (Allowable Headworks Loadings Based on NPDES Effluent Limits)

Copper – The average monthly NPDES permit limit value of "0.024 mg/L" for **copper** was added, referenced from page 3 of the POTW's NPDES permit, dated September 29, 2022. This is more stringent than the PADEP governing WQBEL value of "24.2 µg/L". The Authority selected the median default removal efficiency through activated sludge treatment value of "86%" for **copper**. Whereas the Authority does not report the utilization of activated sludge treatment and reports the utilization of trickling filter treatment, the previous removal efficiency value was replaced with the median default removal efficiency through trickling filter treatment value of "61%", referenced from the *Local Limits Development Guidance Appendices*, Appendix R.

Molybdenum – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for **molybdenum**. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "45.73%".

Selenium – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for **selenium**. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "82.67%".

Silver – The Authority selected the influent/effluent removal efficiency value of "69.57%" for **silver**. Whereas most of the effluent monitoring data available were reported as non-detectable, the previous value was replaced with the median default removal efficiency through trickling filter treatment value of "66%".

Zinc – The PADEP governing WQBEL value of "0.227 mg/L" for **zinc** was added, referenced and converted from the value of "227 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

Ammonia Nitrogen – The NPDES permit limit value of "1.8 mg/L" for **ammonia nitrogen** was removed. In accordance with § 5.3.2 of the *Local Limits Development Guidance* (2004), "[i]f the POTW was designed to remove ammonia through specific processes such as nitrification and denitrification, breakpoint chlorination, or ammonia stripping, the engineering specifications that establish design loading rates should be used as the MAHL". This design loading for the POTW has been added per the comments following for Table 17.

Total Phosphorus – The NPDES permit limit value of "2 mg/L" for **total phosphorus** was removed. See the above comment. The design loading for the POTW has been added per the comments following for Table 17.

Boron – The PADEP governing WQBEL value of "2.179 mg/L" for **boron** was added, referenced and converted from the value of "2,179 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

Dissolved Iron – The PADEP governing WQBEL value of "0.409 mg/L" for **dissolved iron** was added, referenced and converted from the value of "409 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

E. Table 4 (Allowable Headworks Loadings Based on Chronic Water Quality Standards)

Chromium – The chronic water quality standard value of "0.01 mg/L" for **chromium** was removed. No chronic water quality standard exists for ***total* chromium** on "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c—only for **chromium III** and **chromium VI**.

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Chromium – The acute water quality standard value of "0.016 mg/L" for **chromium** was removed. No acute chronic water quality standard exists for ***total* chromium** under 25 Pa. Code § 93.8c.

Boron – The acute water quality standard value of "8.1 mg/L" for **boron** was added, referenced and converted from the value of "8100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

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Phenols – The human health water quality standard value of "10.4 mg/L" for **phenols** was replaced with the value of "0.005 mg/L", referenced from "Table 3" of 25 Pa. Code § 93.7. Pursuant to 25 Pa. Code § 93.4, "the uses set forth in Table 2 apply to all surface waters". The specific water quality criterion for phenolics is associated with the critical use of "Potable Water Supply (PWS)" listed on Table 2 of 25 Pa. Code § 93.4. Quittapahilla Creek is not excluded from this statewide water use.

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Dissolved Iron – The water quality standard value of "0.3 mg/L" for **dissolved iron** was added, referenced from "Table 3" of 25 Pa. Code § 93.7 as a specific water quality criterion associated with the critical use of PWS.

H. Table 17 (Comparison of Allowable Headworks Loadings)

The design loading values of "1,570 lbs/d", "22,350 lbs/d", "17,550 lbs/d", and "375 lbs/d" for **ammonia nitrogen**, **BOD_5**, **TSS**, and **total phosphorus**, respectively were added, referenced from page 3 of "3 – Discussion 2023".

I. Table 18 (Calculation of Local Limit)

Table 18 displays the calculated maximum allowable headworks loading, maximum allowable industrial loading, and local limit for each pollutant based on the changes suggested above. At a minimum, EPA guidance generally recommends a safety factor of 10% be used, with an additional growth factor if significant growth is expected within the service area. This will help ensure that user violations do not cause problems and that there is available capacity for new users to enter the system.

J. Table 19 (Comparison of Existing and Calculated Local Limits)

Table 19 displays the calculated allowable industrial loadings and the calculated uniform concentration limits of the pollutants of concern based on previous data and completed data analysis. Depending on the POTW's choice in adopting either the MAIL or uniform concentration values, the proposed local limit values for these pollutants are compared to the values calculated in either the MAIL column or the uniform concentration limit column. If the value for the pollutant in the "Proposed Local Limit" column is greater than the value for the same pollutant in the corresponding calculated column, the value in the "Proposed Local Limit" column will be highlighted in red bold print. This indicates that the POTW is proposing a limit that is less stringent than the limits reevaluation suggests is necessary. EPA guidance recommends that for most pollutants, where no current limit exists and the average influent loading is greater than 60% of the maximum allowable headworks loading (80% for ammonia nitrogen, BOD_5, TSS, total phosphorus, and total nitrogen) or the maximum influent loading is greater than 80% of the maximum allowable headworks loading (100% for ammonia nitrogen, BOD_5, TSS, total phosphorus, and total nitrogen), a new local limit should be adopted.
The proposed local limits that are less stringent than the existing local limits after appropriate rounding are as follows: **cadmium**, **copper**, **lead**, and **silver**. Where the proposed limit is less stringent than the currently approved limit, modification to the local limits would need to be handled as a substantial program modification as defined by 40 CFR 403.18(b)(2) and a public notice and comment period would need to be conducted prior to approval of the limits pursuant to 40 CFR § 403.11.

The proposed local limits that are less stringent than the calculated local limits after appropriate rounding are as follows: **copper**. Please provide justification for proposing a less stringent limit for this pollutant in comparison to the calculated limit.

- Pursuant to § 6.1.1 of the *Local Limits Development Guidance* (2004), "EPA recommends that local limits are needed when: . . . maximum daily influent loading of a toxic pollutant exceeds 80 percent of the MAHL any time in the 12-month period preceding analysis". Because Table 20 indicates the maximum percent loaded value for **phenols** as "83.93%", a local limit for **phenols** is recommended.

K. Table 20 (Comparison of Allowable Headworks Loadings and Current Influent Loadings)

Table 20 displays the calculated maximum allowable headworks loading for each pollutant and compares this loading to the average and maximum loadings based on the Authority's monitoring data included in its submission, and is the data used in the evaluation conducted in Table 19. A green highlighted value indicates that the current influent loading exceeds the 60% or 80% threshold discussed above, while a red highlighted value indicates that the current influent loading exceeds the maximum allowable headworks loading by 100% or more. This evaluation can help indicate whether limits for new pollutants are needed and whether reductions in the current influent levels would be necessary to meet the calculated maximum allowable headworks loadings used to produce such limits. This table suggests a closer look is needed for **phenols** as the maximum influent loading for this pollutant is above the respective maximum allowable headworks loading. This indicates that the pollutant may have the potential to overload the POTW under current conditions and the calculated limit. However, such indications may be caused by assumptions associated with the use of non-detectable data.

L. Table 21 (Comparison of Removal Rates)

Table 21 compares the overall removal rate used in the evaluation with the other internal removals used in the inhibition calculations and highlights any pollutants where the overall removal is less than any of the other removals used in the evaluation. The overall removal should be greater than any of the other removals because it includes more treatment processes on a general basis. In addition, this table compares the average nonindustrial loading to the average influent loading and highlights any pollutants where the nonindustrial loading is greater than the influent loading. The loading from one portion of the total influent should not exceed the cumulative loading to the treatment plant. This evaluation indicates that the average nonindustrial loading is greater than the average influent loading for the pollutants of **cadmium**, **chromium**, **copper**, **nickel**, **phenols**, and **dissolved iron**. On the surface, this may illustrate that there exists inflow and/or infiltration issues within the POTW's service area for these pollutants. However, such indications may be caused by assumptions associated with the use of non-detectable data. Please specify if there have been recorded instances of these potential issues.

M. Table 23 (Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data)

Table 23 compares the influent, effluent, and sludge goals to the monitoring data in the "Monitoring Data" spreadsheet and highlights any exceedances in red bold. This evaluation indicates that, at the current influent levels, there may be occasional exceedances of the calculated influent goal for **ammonia nitrogen** and effluent goal for **cyanide**.

If you have any questions or comments regarding this matter, please contact me or any member of the EPA Region 3 Pretreatment Team.

Thank you.

Aron Possler (*he*/*him*)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: September 22, 2023 4:36 PM
To: EPA_R3_Pretreatment <EPA_R3_Pretreatment@epa.gov>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org>
Subject: Lebanon Authority Local Limits Reevaluation - PA0027316

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Good Day,

Attached you will find the Local Limits Reevaluation for the City of Lebanon Authority Wastewater Treatment Facility – PA0027316. The Cover Letter is Item 2. This is only the 2nd one I've done, learn new things..

If you put all the files in the same folder you can use the contents page hyperlinks to open the files.

Thank You,

Cora

Cora A. Shenk|Compliance Manager
City of Lebanon Authority
2311 Ridgeview Road |Lebanon, PA 17042
Phone: 717.272.2841 | Fax: 717.272.1984 | Cell: 717.269.4129
cshenk@lebanonauthority.org
www.lebanonauthority.org

From:	Cora Shenk
To:	Possler, Aron
Cc:	Frank DiScuillo
Subject:	RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review
Date:	May 28, 2024 11:32:48 AM
Attachments:	2024-05-26 Response to EPA.docx Response to EPACopy_Lebanon_LL_2024-02-14 (002).xlsx WQM Permit - design loads.pdf

Aron –

I have almost the whole response ready, which does include more questions for you. I have some work to do on J. Table 19…. But I'm sending you what I have so far…

To finish - I want to compare a couple tables to make sure I'm accurate, and today and tomorrow – are not looking good. If you would like to wait until I get that part complete – just let me know.

I am using a Word doc, attached – which shows the responses for this time as COLA2 with the submission date of the response at the beginning of the document.

Also attached is the table labeled with Response – it has an edit to the phenol data and the proposed limits.

Also attached are some other fun items (plant design loadings).

Thank you and let me know how you want to proceed.

Cora

From: Possler, Aron <Possler.Aron@epa.gov>
Sent: Monday, May 20, 2024 9:20 AM
To: Cora Shenk <cshenk@lebanonauthority.org>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

No worries—thank you, Cora. My condolences for your loss.

Aron Possler (*he/him*)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

-----Original Message-----
From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: May 20, 2024 9:10 AM

To: Possler, Aron <Possler.Aron@epa.gov>
Subject: Re: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Good morning Aron,

I do - I'll get back to you in a couple days.

I just got back from bereavement leave today. I was off for 6 days - [redacted] I was prepping that before - so will review (get back on track) and finish it up.

They also updated my computer while gone - which is why I'm replying on my phone.

Cora - Sent from my mini portable electronic desk

On May 17, 2024, at 9:31 AM, Possler, Aron <Possler.Aron@epa.gov> wrote:

Good morning, Cora,

Just checking in to see if you had a response to my comments on the Authority's local limits reevaluation?

Thanks!
Aron

Aron Possler (he/him)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: February 14, 2024 10:59 AM
To: Possler, Aron <Possler.Aron@epa.gov>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Thank You Aron – I will be getting back to you with more..

Cora

From: Possler, Aron [mailto:Possler.Aron@epa.gov]
Sent: Wednesday, February 14, 2024 10:12 AM
To: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Hi Cora,

Please find attached the revised EPA-copy of the Authority's local limits reevaluation workbook. I've modified the default removal efficiencies for cadmium, copper, and silver to reflect the presence of activated sludge treatment, as discussed.

Let me know if you have any questions regarding my original review.

Thanks!
Aron

Aron Possler (he/him)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Sent: December 5, 2023 1:00 PM
To: Possler, Aron <Possler.Aron@epa.gov<mailto:Possler.Aron@epa.gov>>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Great Thank You…. I really hope you'll hear from me before Christmas. (But I doubt it.)

No worries! I have yet to encounter a local limits reevaluation that I don't have comments to. According to § C.II(E) of your NPDES permit, you have 3 months to respond to comments, but of course may always request more time if necessary.

For questions regarding categorization, our point person is Joe Camperson (camperson.joe@epa.gov<mailto:camperson.joe@epa.gov>). But, Ryan should also be able to help you as well (he is currently on leave).

When you're ready, I'll try my best to answer any questions you may have for this review.

Thanks!
Aron

Aron Possler (he/him)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Sent: December 4, 2023 2:21 PM
To: Possler, Aron <Possler.Aron@epa.gov<mailto:Possler.Aron@epa.gov>>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Good Afternoon Aron -
I have yet to wend my way through your whole reply, I do apologize it needed to be so long.

I do need to know how much time I have to respond. I know I already have questions and will have more, plus there are a couple things developing here I need some help with – new industries/processes that we haven't had before… Bringing on a new employee while we're short-staffed is more fun than I've had recently. Plus my supervisor would like to be part of the conversation.

Is there someone who would be better to talk to? Who is already familiar?

Thank You for your help,
Cora Shenk

From: Possler, Aron [mailto:Possler.Aron@epa.gov]
Sent: Monday, November 27, 2023 3:57 PM

To: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org<mailto:fdiscuillo@lebanonauthority.org>>; Sanchez Gonzalez, Natalie <sanchez-gonzalez.natalie@epa.gov<mailto:sanchez-gonzalez.natalie@epa.gov>>
Subject: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Cora:

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I. Table 18 (Calculation of Local Limit)

Table 18 displays the calculated maximum allowable headworks loading, maximum allowable industrial loading, and local limit for each pollutant based on the changes suggested above. At a minimum, EPA guidance generally recommends a safety factor of 10% be used, with an additional growth factor if significant growth is expected within the service area. This will help ensure that user violations do not cause problems and that there is available capacity for new users to enter the

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The proposed local limits that are less stringent than the existing local limits after appropriate rounding are as follows: cadmium, copper, lead, and silver. Where the proposed limit is less stringent than the currently approved limit, modification to the local limits would need to be handled as a substantial program modification as defined by 40 CFR 403.18(b)(2) and a public notice and comment period would need to be conducted prior to approval of the limits pursuant to 40 CFR § 403.11.

The proposed local limits that are less stringent than the calculated local limits after appropriate rounding are as follows: copper. Please provide justification for proposing a less stringent limit for this pollutant in comparison to the calculated limit.

* Pursuant to § 6.1.1 of the Local Limits Development Guidance (2004), "EPA recommends that local limits are needed when: . . . maximum daily influent loading of a toxic pollutant exceeds 80 percent of the MAHL any time in the 12-month period preceding analysis". Because Table 20 indicates the maximum percent loaded value for phenols as "83.93%", a local limit for phenols is recommended.

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Table 20 displays the calculated maximum allowable headworks loading for each pollutant and compares this loading to the average and maximum loadings based on the Authority's monitoring data included in its submission, and is the data used in the evaluation conducted in Table 19. A green highlighted value indicates that the current influent loading exceeds the 60% or 80% threshold discussed above, while a red highlighted value indicates that the current influent loading exceeds the maximum allowable headworks loading by 100% or more. This evaluation can help indicate whether limits for new pollutants are needed and whether reductions in the current influent levels would be necessary to meet the calculated maximum allowable headworks loadings used to produce such

limits. This table suggests a closer look is needed for phenols as the maximum influent loading for this pollutant is above the respective maximum allowable headworks loading. This indicates that the pollutant may have the potential to overload the POTW under current conditions and the calculated limit. However, such indications may be caused by assumptions associated with the use of non-detectable data.

L. Table 21 (Comparison of Removal Rates)

Table 21 compares the overall removal rate used in the evaluation with the other internal removals used in the inhibition calculations and highlights any pollutants where the overall removal is less than any of the other removals used in the evaluation. The overall removal should be greater than any of the other removals because it includes more treatment processes on a general basis. In addition, this table compares the average nonindustrial loading to the average influent loading and highlights any pollutants where the nonindustrial loading is greater than the influent loading. The loading from one portion of the total influent should not exceed the cumulative loading to the treatment plant. This evaluation indicates that the average nonindustrial loading is greater than the average influent loading for the pollutants of cadmium, chromium, copper, nickel, phenols, and dissolved iron. On the surface, this may illustrate that there exists inflow and/or infiltration issues within the POTW's service area for these pollutants. However, such indications may be caused by assumptions associated with the use of non-detectable data. Please specify if there have been recorded instances of these potential issues.

M. Table 23 (Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data)

Table 23 compares the influent, effluent, and sludge goals to the monitoring data in the "Monitoring Data" spreadsheet and highlights any exceedances in red bold. This evaluation indicates that, at the current influent levels, there may be occasional exceedances of the calculated influent goal for ammonia nitrogen and effluent goal for cyanide.

If you have any questions or comments regarding this matter, please contact me or any member of the EPA Region 3 Pretreatment Team.

Thank you.

Aron Possler (he/him)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Sent: September 22, 2023 4:36 PM
To: EPA_R3_Pretreatment
<EPA_R3_Pretreatment@epa.gov<mailto:EPA_R3_Pretreatment@epa.gov>>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org<mailto:fdiscuillo@lebanonauthority.org>>

Subject: Lebanon Authority Local Limits Reevaluation - PA0027316

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Good Day,

Attached you will find the Local Limits Reevaluation for the City of Lebanon Authority Wastewater Treatment Facility – PA0027316. The Cover Letter is Item 2. This is only the 2nd one I've done, learn new things..

If you put all the files in the same folder you can use the contents page hyperlinks to open the files.

Thank You,
Cora
Cora A. Shenk|Compliance Manager
City of Lebanon Authority
2311 Ridgeview Road |Lebanon, PA 17042
Phone: 717.272.2841 | Fax: 717.272.1984 | Cell: 717.269.4129
cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>
https://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.lebanonauthority.org%2F&data=05%7C02%7CPossler.Aron%40epa.gov%7C1ec8780c657447162a4508dc78ce281c%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C638518074044357161%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=CAxrzguHnOCWMOvdD1cr735NK7DVoK%2BNDHfRgMV4qyc%3D&reserved=0<https://gcc02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.lebanonauthority.org%2F&data=05%7C02%7CPossler.Aron%40epa.gov%7C1ec8780c657447162a4508dc78ce281c%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C638518074044367270%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=HkZ0cFTbqiRM1Yxl5JpTqdkAdPUJikhljq677hhj0ro%3D&reserved=0>

Response to EPA – Local Limits Review – Review of Table updated on 2024-02-14

Thank you for submitting the Pretreatment Program Local Limits Reevaluation on behalf of the **City of Lebanon Authority ("Authority")**. I have completed review of the Authority's headworks analysis, which was submitted in accordance with § C.II(E) of the POTW's NPDES permit (issued September 26, 2022) and dated **September 22, 2023**. Based on this review, I am requesting revisions and clarifications to the submission for this process to continue. Please refer to the attached copy of the local limits reevaluation workbook in which the data inputs have been modified as discussed below. This copy is not intended to be used by the Authority directly but is included only as an indication of the effect of the changes based on the comments presented in order of table appearance in the local limits calculation workbook.

Response Dates:

CoLA1: 2/14/2024
COLA2: 5/28/2024
EPA: 5/31/2024

I. Limits Calculation Spreadsheet

A. Table 1 (Unit Operations)

"Activated Sludge Present" was unselected. On page 7 of "3 – Discussion 2023", the presence of "Trickling Filter, Nitrification, Anaerobic Digestion" is indicated. Additionally, activated sludge as a treatment type is listed as "No" on the Authority's 2022 annual report on the "POTW Information" spreadsheet. Please clarify if the Authority utilizes activated sludge treatment.

CoLA1: The Authority uses activated sludge – this was reviewed with EPA and the table was updated and is used for the rest of this review.
EPA: Acknowledged.

B. Table 2a (Stream Flow Partial Mix Factors)

The threshold human health partial mix factor value of "1" and the cancer risk level partial mix factor value of "1" were added, referenced from pages 38 and 41 of the POTW's draft NPDES permit fact sheet, dated July 19, 2022.

COLA2: OK.. see it now.
EPA: Acknowledged.

C. Table 2b (POTW and Receiving Stream Data)

The receiving stream hardness value of "249 mg/L" was replaced with the value of "308 mg/L", referenced from page 32 of the POTW's draft NPDES permit fact sheet.

COLA2: Should we be taking these with our quarterly samples to build up a history to use?
EPA: Section 5.2.2 of the *Local Limits Development Guidance* (2004) recommends that "the POTW should obtain from the State the appropriate hardness value for its receiving stream and use this value

to determine the applicable WQS or WQC". Based on this, the *Local Limits Spreadsheet User Manual v5-5* states "[t]he hardness can often be found in PADEP's water quality protection report (permit fact sheet) developed at the time of the drafting of the POTW's NPDES permit". Whereas PADEP governing WQBEL values for some metals depend on the hardness of the receiving water, utilizing the hardness, which was used to calculate these values, and which would later be input into Table 3 where applicable, is generally recommended. In this sense, we would *not* recommend taking quarterly samples for receiving stream hardness. The Authority may rely on the hardness value determined and utilized by PADEP in the development of the POTW's NPDES permit.

D. Table 3 (Allowable Headworks Loadings Based on NPDES Effluent Limits)

Copper – The average monthly NPDES permit limit value of "0.024 mg/L" for **copper** was added, referenced from page 3 of the POTW's NPDES permit, dated September 29, 2022. This is more stringent than the PADEP governing WQBEL value of "24.2 µg/L". The Authority selected the median default removal efficiency through activated sludge treatment value of "86%" for **copper**. Whereas the Authority does not report the utilization of activated sludge treatment and reports the utilization of trickling filter treatment, the previous removal efficiency value was replaced with the median default removal efficiency through trickling filter treatment value of "61%", referenced from the *Local Limits Development Guidance Appendices*, Appendix R.

CoLA2 – With us now adding the activated sludge, is “median default removal efficiency through activated sludge” now accurate?
EPA: Yes, the "median default removal efficiency through activated sludge treatment" is therefore recommended. Comments replacing instances of "Default (activated sludge)" with "Default (trickling filter)" are no longer applicable.

Molybdenum – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for **molybdenum**. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "45.73%".

CoLA2: IBID previous
EPA: Ditto.

Selenium – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for **selenium**. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "82.67%".

CoLA2: IBID previous
EPA: Ditto.

Silver – The Authority selected the influent/effluent removal efficiency value of "69.57%" for **silver**. Whereas most of the effluent monitoring data available were reported as non-detectable, the previous value was replaced with the median default removal efficiency through trickling filter treatment value of "66%".

CoLA2: IBID previous
EPA: Ditto.

Zinc – The PADEP governing WQBEL value of "0.227 mg/L" for **zinc** was added, referenced and converted from the value of "227 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

CoLA2: TY
EPA: Acknowledged.

Ammonia Nitrogen – The NPDES permit limit value of "1.8 mg/L" for **ammonia nitrogen** was removed. In accordance with § 5.3.2 of the *Local Limits Development Guidance* (2004), "[i]f the POTW was designed to remove ammonia through specific processes such as nitrification and denitrification, breakpoint chlorination, or ammonia stripping, the engineering specifications that establish design loading rates should be used as the MAHL". This design loading for the POTW has been added per the comments following for Table 17.

CoLA2: TY
EPA: Acknowledged.

Total Phosphorus – The NPDES permit limit value of "2 mg/L" for **total phosphorus** was removed. See the above comment. The design loading for the POTW has been added per the comments following for Table 17.

CoLA2: TY
EPA: Acknowledged.

Boron – The PADEP governing WQBEL value of "2.179 mg/L" for **boron** was added, referenced and converted from the value of "2,179 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

CoLA2: TY
EPA: Acknowledged.

Dissolved Iron – The PADEP governing WQBEL value of "0.409 mg/L" for **dissolved iron** was added, referenced and converted from the value of "409 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

CoLA2: TY
EPA: Acknowledged.

E. Table 4 (Allowable Headworks Loadings Based on Chronic Water Quality Standards)

Chromium – The chronic water quality standard value of "0.01 mg/L" for **chromium** was removed. No chronic water quality standard exists for ***total*** **chromium** on "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c—only for **chromium III** and **chromium VI**.

CoLA2: TY
EPA: Acknowledged.

Boron – The chronic water quality standard value of "1.6 mg/L" for **boron** was added, referenced and converted from the value of "1600 µg/L" at 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

F. Table 5 (Allowable Headworks Loadings Based on Acute Water Quality Standards)

Chromium – The acute water quality standard value of "0.016 mg/L" for **chromium** was removed. No acute chronic water quality standard exists for ***total*** **chromium** under 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

Boron – The acute water quality standard value of "8.1 mg/L" for **boron** was added, referenced and converted from the value of "8100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

G. Table 6 (Allowable Headworks Loadings Based on Human Health Water Quality Standards)

Phenols – The human health water quality standard value of "10.4 mg/L" for **phenols** was replaced with the value of "0.005 mg/L", referenced from "Table 3" of 25 Pa. Code § 93.7. Pursuant to 25 Pa. Code § 93.4, "the uses set forth in Table 2 apply to all surface waters". The specific water quality criterion for phenolics is associated with the critical use of "Potable Water Supply (PWS)" listed on Table 2 of 25 Pa. Code § 93.4. Quittapahilla Creek is not excluded from this statewide water use.

CoLA2: TY
EPA: Acknowledged.

Boron – The human health water quality standard value of "3.1 mg/L" for **boron** was added, referenced and converted from the value of "3100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

Dissolved Iron – The water quality standard value of "0.3 mg/L" for **dissolved iron** was added, referenced from "Table 3" of 25 Pa. Code § 93.7 as a specific water quality criterion associated with the critical use of PWS.

CoLA2: TY
EPA: Acknowledged.

H. Table 17 (Comparison of Allowable Headworks Loadings)

The design loading values of "1,570 lbs/d", "22,350 lbs/d", "17,550 lbs/d", and "375 lbs/d" for **ammonia nitrogen**, **BOD_5**, **TSS**, and **total phosphorus**, respectively were added, referenced from page 3 of "3 – Discussion 2023".

CoLA2: TY, Question - how are maximum months taken into consideration? For example, Ammonia nitrogen has 1570 for annual average… but 2700 for a maximum day. This may be a moot point, as we

run influent ammonia 98% of the time… only missing days when lab issues (equipment, personnel shortage, etc.). BOD and TSS are mandated for daily analysis. Included is the most current design loads
EPA: Because I was unable to find any EPA guidance on design loading and/or organic design capacity, and because we routinely utilize the values indicated in the POTW's NPDES permit, I'll revert to PA's definition, found at 25 Pa. Code § 94.1, which defines organic design capacity as "[t]he highest daily organic load at which a sewage treatment facility or a portion thereof is expected to provide a specific predetermined level of treatment." I would assume, so long as the values entered for design loadings and/or organic design capacities are consistent with this definition, that these values could be used in calculation of local limits in a headworks analysis.

I. Table 18 (Calculation of Local Limit)

Table 18 displays the calculated maximum allowable headworks loading, maximum allowable industrial loading, and local limit for each pollutant based on the changes suggested above. At a minimum, EPA guidance generally recommends a safety factor of 10% be used, with an additional growth factor if significant growth is expected within the service area. This will help ensure that user violations do not cause problems and that there is available capacity for new users to enter the system.

CoLA2: Acknowledged.

J. Table 19 (Comparison of Existing and Calculated Local Limits)

Table 19 displays the calculated allowable industrial loadings and the calculated uniform concentration limits of the pollutants of concern based on previous data and completed data analysis. Depending on the POTW's choice in adopting either the MAIL or uniform concentration values, the proposed local limit values for these pollutants are compared to the values calculated in either the MAIL column or the uniform concentration limit column. If the value for the pollutant in the "Proposed Local Limit" column is greater than the value for the same pollutant in the corresponding calculated column, the value in the "Proposed Local Limit" column will be highlighted in red bold print. This indicates that the POTW is proposing a limit that is less stringent than the limits reevaluation suggests is necessary. EPA guidance recommends that for most pollutants, where no current limit exists and the average influent loading is greater than 60% of the maximum allowable headworks loading (80% for ammonia nitrogen, BOD_5, TSS, total phosphorus, and total nitrogen) or the maximum influent loading is greater than 80% of the maximum allowable headworks loading (100% for ammonia nitrogen, BOD_5, TSS, total phosphorus, and total nitrogen), a new local limit should be adopted.

The proposed local limits that are less stringent than the existing local limits after appropriate rounding are as follows: **cadmium**, **copper**, **lead**, and **silver**. Where the proposed limit is less stringent than the currently approved limit, modification to the local limits would need to be handled as a substantial program modification as defined by 40 CFR 403.18(b)(2) and a public notice and comment period would need to be conducted prior to approval of the limits pursuant to 40 CFR § 403.11.

The proposed local limits that are less stringent than the calculated local limits after appropriate rounding are as follows: **copper**. Please provide justification for proposing a less stringent limit for this pollutant in comparison to the calculated limit.

COLA2 – I do not see this.
EPA: Due to changes made to the workbook, specifically replacing instances of "Default (trickling filter)"

with "Default (activated sludge)" under Table 3 for selected removal efficiencies, this comment is no longer applicable.

- Pursuant to § 6.1.1 of the *Local Limits Development Guidance* (2004), "EPA recommends that local limits are needed when: . . . maximum daily influent loading of a toxic pollutant exceeds 80 percent of the MAHL any time in the 12-month period preceding analysis". Because Table 20 indicates the maximum percent loaded value for **phenols** as "83.93%", a local limit for **phenols** is recommended.

COLA2 – I reviewed the influent sampling data. I eliminated the maximum number which was 0.094 mg/l; the next highest number was 0.073 mg/l – with an average of 0.053. Change included in our response workbook.
EPA: Acknowledged and acceptable. This comment is no longer applicable.

COLA2 other – with the changes made to other areas – the proposed limits need to be revisited. Added to response workbook.

Cadmium increased to 0.0805, still requires public notice
EPA: Acknowledged.

Chromium increased to 15.8329 … will probably increase the safety margin on this and bring it down – closer to the existing.
EPA: Acknowledged. Please provide an update on the calculated local limit value for **chromium** for this process to continue.

Molybdenum… We did not previously have a limit on Mo, and would prefer not to create one. Maximum percent loaded is 18%.
EPA: Acknowledged and acceptable.

Silver … would like to drop the limit. We are only at 1.06% of maximum percent loaded. Requires public notice.
EPA: Acknowledged and acceptable. It is also noted that the POTW has not exceeded either the influent or effluent goals for **silver** over the past five years.

K. Table 20 (Comparison of Allowable Headworks Loadings and Current Influent Loadings)

Table 20 displays the calculated maximum allowable headworks loading for each pollutant and compares this loading to the average and maximum loadings based on the Authority's monitoring data included in its submission, and is the data used in the evaluation conducted in Table 19. A green highlighted value indicates that the current influent loading exceeds the 60% or 80% threshold discussed above, while a red highlighted value indicates that the current influent loading exceeds the maximum allowable headworks loading by 100% or more. This evaluation can help indicate whether limits for new pollutants are needed and whether reductions in the current influent levels would be necessary to meet the calculated maximum allowable headworks loadings used to produce such limits. This table suggests a closer look is needed for **phenols** as the maximum influent loading for this pollutant is above the respective maximum allowable headworks loading. This indicates that the pollutant may have the potential to overload the POTW under current conditions and the calculated limit. However, such indications may be caused by assumptions associated with the use of non-detectable data.

COLA2: Please see item J on Phenols.

L. Table 21 (Comparison of Removal Rates)

Table 21 compares the overall removal rate used in the evaluation with the other internal removals used in the inhibition calculations and highlights any pollutants where the overall removal is less than any of the other removals used in the evaluation. The overall removal should be greater than any of the other removals because it includes more treatment processes on a general basis. In addition, this table compares the average nonindustrial loading to the average influent loading and highlights any pollutants where the nonindustrial loading is greater than the influent loading. The loading from one portion of the total influent should not exceed the cumulative loading to the treatment plant. This evaluation indicates that the average nonindustrial loading is greater than the average influent loading for the pollutants of **cadmium**, **chromium**, **copper**, **nickel**, **phenols**, and **dissolved iron**. On the surface, this may illustrate that there exists inflow and/or infiltration issues within the POTW's service area for these pollutants. However, such indications may be caused by assumptions associated with the use of non-detectable data. Please specify if there have been recorded instances of these potential issues.

Cadmium

COLA2: Looking at the data – the influent and effluent data are all non-detect. The The background was also ND – except for 1 result that was included. Otherwise, the only place the numbers are above are in the biosolids where the Cadmium accumulates.
EPA: Acknowledged.

Chromium

COLA3:

Copper

COLA3:

Nickel

COLA3:

Phenols

COLA3:

Dissolved Iron

COLA3:

M. Table 23 (Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data)

Table 23 compares the influent, effluent, and sludge goals to the monitoring data in the "Monitoring Data" spreadsheet and highlights any exceedances in red bold. This evaluation indicates that, at the current influent levels, there may be occasional exceedances of the calculated influent goal for **ammonia nitrogen** and effluent goal for **cyanide**.

COLA2: Concur with both..

Questions…

Ammonia Nitrogen – If the influent goal is based on the annual average… Should there be other goals for maximum month and maximum day?

EPA: EPA Region 3 does not assess "maximum monthly" or "maximum daily" goals regarding monitoring data workbook evaluation. The "Instructions for Completing the Pretreatment Monitoring Data Workbook" states "[f]or conventional/nonconventional pollutants such as BOD, TSS, ammonia (and other nitrogen pollutants such as total nitrogen and TKN), and total phosphorus monthly average results should be reported rather than results for each individual sample date".

Cyanide: How do the calculations take into account the cyanide that is released from the anaerobic digester and does not enter the facility as Cyanide?

EPA: Ideally, this would be factored by Table 12 (Allowable Headworks Loadings Based on Anaerobic Digestion Inhibition Level (Non-Conservative Pollutants)) with data entered by the Authority on the "Inhibition Removals" spreadsheet, "CN Inf to Anaerob Dig". However, with any theoretical calculation, results from this workbook may not be entirely reflective of "real world" conditions.

City of Lebanon Authority Wastewater Treatment Plant
Nutrient Reduction Additions and Alterations Project
Basis of Design
Part 1 - Design Wastewater Pollutant Loads

Influent Wastewater Flows	
Design Year	
Unit Processes - Flows and Pollution Loads	2032
Wastewater Flow, MGD	
Annual Average Daily Flow (AADF)	8.0
Maximum Month Average Daily Flow (MMADF)	11.0
Maximum Week Average Flow (MWAF)	15.0
Maximum Daily Flow (MDF)	21.0
Peak Hourly Flow (PHF)	30.0
Peak Instantaneous Flow (PIF)	30.0

Influent Wastewater Pollution Loads		
Biochemical Oxygen Demand (BOD_5)	lbs/day	mg/L
Annual Average	22,350	335
Maximum Month Average	32,900	359
Maximum Week Average	45,000	360
Maximum Day Average	67,000	383
Total Suspended Solids (TSS)	lbs/day	mg/L
Annual Average	17,550	263
Maximum Month Average	27,000	294
Maximum Week Average	33,500	268
Maximum Day Average	60,723	347
Ammonia-Nitrogen		
NH_4^+-N	lbs/day	mg/L
Annual Average	1,570	23.5
Maximum Month Average	1,870	20.4
Maximum Week Average	2,150	17.2
Maximum Day Average	2,700	15.4
Total Kjeldahl Nitrogen (TKN)	lbs/day	mg/L
Annual Average	2,380	35.7
Maximum Month Average	2,830	30.8

City of Lebanon Authority Wastewater Treatment Plant
Nutrient Reduction Additions and Alterations Project
Basis of Design
Part 1 - Design Wastewater Pollutant Loads

Influent Wastewater Pollution Loads (continuation)		
Total Kjeldahl Nitrogen (TKN)	lbs/day	mg/L
Maximum Week Average	3,260	26.1
Maximum Day Average	4,090	23.4
Phosphorus		
Total-P	lbs/day	mg/L
Annual Average	375	5.6
Maximum Month Average	440	4.8
Maximum Week Average	495	4.0
Maximum Day Average	656	3.7
Alkalinity		
$CaCO_3$	lbs/day	mg/L
Annual Average	12,410	186
Temperature		
Minimum Month	10	C
Maximum Month	23	C

Treated Effluent NPDES Permit Requirements		
Flow		
Average Monthly		monitor
Maximum Daily		monitor
pH		
Minimum		6.0
Instantaneous Maximum		9.0
$CBOD_5$ 05/01 to 10/31	lbs/day	mg/L
Average Monthly	667	10
Average Weekly	1,000	15
Instantaneous Maximum	--	20

From:	Possler, Aron
To:	Cora Shenk
Cc:	Frank DiScuillo
Subject:	RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review
Date:	June 3, 2024 3:02:00 PM
Attachments:	2024-05-26 Response to EPA.docx

Good afternoon, Cora,

Please find attached my comments to your responses on the original "Response to EPA – Local Limits Review – Review of Table updated on 2024-02-14" document, dated May 28, 2024. I have marked my responses in red.

While the revised submission and proposed local limits appear generally acceptable, please let me know how you'd like to proceed. If you have no further comments, the local limits reevaluation can proceed to acceptance.

Thanks!
Aron

Aron Possler (*he/him*)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: May 28, 2024 11:33 AM
To: Possler, Aron <Possler.Aron@epa.gov>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Aron –

I have almost the whole response ready, which does include more questions for you. I have some work to do on J. Table 19…. But I'm sending you what I have so far…

To finish - I want to compare a couple tables to make sure I'm accurate, and today and tomorrow – are not looking good. If you would like to wait until I get that part complete – just let me know.

I am using a Word doc, attached – which shows the responses for this time as COLA2 with the submission date of the response at the beginning of the document.

Also attached is the table labeled with Response – it has an edit to the phenol data and the proposed limits.

Also attached are some other fun items (plant design loadings).

Thank you and let me know how you want to proceed.

Cora

From: Possler, Aron <Possler.Aron@epa.gov>
Sent: Monday, May 20, 2024 9:20 AM
To: Cora Shenk <cshenk@lebanonauthority.org>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

No worries—thank you, Cora. My condolences for your loss.

Aron Possler (*he/him*)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

-----Original Message-----
From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: May 20, 2024 9:10 AM
To: Possler, Aron <Possler.Aron@epa.gov>
Subject: Re: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Good morning Aron,

I do - I'll get back to you in a couple days.

I just got back from bereavement leave today. I was off for 6 days - [redacted] I was prepping that before - so will review (get back on track) and finish it up.

They also updated my computer while gone - which is why I'm replying on my phone.

Cora - Sent from my mini portable electronic desk

On May 17, 2024, at 9:31 AM, Possler, Aron <Possler.Aron@epa.gov> wrote:

Good morning, Cora,

Just checking in to see if you had a response to my comments on the Authority's local limits reevaluation?

Thanks!
Aron

Aron Possler (he/him)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: February 14, 2024 10:59 AM
To: Possler, Aron <Possler.Aron@epa.gov>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Thank You Aron – I will be getting back to you with more..

Cora

From: Possler, Aron [mailto:Possler.Aron@epa.gov]
Sent: Wednesday, February 14, 2024 10:12 AM
To: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Hi Cora,

Please find attached the revised EPA-copy of the Authority's local limits reevaluation workbook. I've modified the default removal efficiencies for cadmium, copper, and silver to reflect the presence of activated sludge treatment, as discussed.

Let me know if you have any questions regarding my original review.

Thanks!
Aron

Aron Possler (he/him)

Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Sent: December 5, 2023 1:00 PM
To: Possler, Aron <Possler.Aron@epa.gov<mailto:Possler.Aron@epa.gov>>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Great Thank You…. I really hope you'll hear from me before Christmas. (But I doubt it.)

To: Possler, Aron <Possler.Aron@epa.gov<mailto:Possler.Aron@epa.gov>>
Subject: RE: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Good Afternoon Aron -
I have yet to wend my way through your whole reply, I do apologize it needed to be so long.

I do need to know how much time I have to respond. I know I already have questions and will have more, plus there are a couple things developing here I need some help with – new industries/processes that we haven't had before… Bringing on a new employee while we're short-staffed is more fun than I've had recently. Plus my supervisor would like to be part of the conversation.

Is there someone who would be better to talk to? Who is already familiar?

Thank You for your help,
Cora Shenk

From: Possler, Aron [mailto:Possler.Aron@epa.gov]
Sent: Monday, November 27, 2023 3:57 PM
To: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org<mailto:fdiscuillo@lebanonauthority.org>>; Sanchez Gonzalez, Natalie <sanchez-gonzalez.natalie@epa.gov<mailto:sanchez-gonzalez.natalie@epa.gov>>
Subject: PA0027316 City of Lebanon Authority Pretreatment Program Local Limits Review

Cora:

Thank you for submitting the Pretreatment Program Local Limits Reevaluation on behalf of the City of Lebanon Authority ("Authority"). I have completed review of the Authority's headworks analysis, which was submitted in accordance with § C.II(E) of the POTW's NPDES permit (issued September 26, 2022) and dated September 22, 2023. Based on this review, I am requesting revisions and clarifications to the submission for this process to continue. Please refer to the attached copy of the local limits reevaluation workbook in which the data inputs have been modified as discussed below. This copy is not intended to be used by the Authority directly but is included only as an indication of the effect of the changes based on the comments presented in order of table appearance in the local limits calculation workbook.

I. Limits Calculation Spreadsheet

A. Table 1 (Unit Operations)

"Activated Sludge Present" was unselected. On page 7 of "3 – Discussion 2023", the presence of "Trickling Filter, Nitrification, Anaerobic Digestion" is indicated. Additionally, activated sludge as a treatment type is listed as "No" on the Authority's 2022 annual report on the "POTW Information" spreadsheet. Please clarify if the Authority utilizes activated sludge treatment.

B. Table 2a (Stream Flow Partial Mix Factors)

The threshold human health partial mix factor value of "1" and the cancer risk level partial mix factor value of "1" were added, referenced from pages 38 and 41 of the POTW's draft NPDES permit fact sheet, dated July 19, 2022.

C. Table 2b (POTW and Receiving Stream Data)

The receiving stream hardness value of "249 mg/L" was replaced with the value of "308 mg/L", referenced from page 32 of the POTW's draft NPDES permit fact sheet.

D. Table 3 (Allowable Headworks Loadings Based on NPDES Effluent Limits)

Copper – The average monthly NPDES permit limit value of "0.024 mg/L" for copper was added, referenced from page 3 of the POTW's NPDES permit, dated September 29, 2022. This is more stringent than the PADEP governing WQBEL value of "24.2 µg/L". The Authority selected the median default removal efficiency through activated sludge treatment value of "86%" for copper. Whereas the Authority does not report the utilization of activated sludge treatment and reports the utilization of trickling filter treatment, the previous removal efficiency value was replaced with the median default removal efficiency through trickling filter treatment value of "61%", referenced from the Local Limits Development Guidance Appendices, Appendix R.

Molybdenum – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for molybdenum. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "45.73%".

Selenium – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for selenium. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "82.67%".

Silver – The Authority selected the influent/effluent removal efficiency value of "69.57%" for silver. Whereas most of the effluent monitoring data available were reported as non-detectable, the previous value was replaced with the median default removal efficiency through trickling filter treatment value of "66%".

Zinc – The PADEP governing WQBEL value of "0.227 mg/L" for zinc was added, referenced and converted from the value of "227 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

Ammonia Nitrogen – The NPDES permit limit value of "1.8 mg/L" for ammonia nitrogen was removed. In accordance with § 5.3.2 of the Local Limits Development Guidance (2004), "[i]f the POTW was designed to remove ammonia through specific processes such as nitrification and denitrification, breakpoint chlorination, or ammonia stripping, the engineering specifications that establish design loading rates should be used as the MAHL". This design loading for the POTW has been added per the comments following for Table 17.

Total Phosphorus – The NPDES permit limit value of "2 mg/L" for total phosphorus was removed. See the above comment. The design loading for the POTW has been added per the comments following for Table 17.

Boron – The PADEP governing WQBEL value of "2.179 mg/L" for boron was added, referenced and converted from the value of "2,179 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

Dissolved Iron – The PADEP governing WQBEL value of "0.409 mg/L" for dissolved iron was added, referenced and converted from the value of "409 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

E. Table 4 (Allowable Headworks Loadings Based on Chronic Water Quality Standards)

Chromium – The chronic water quality standard value of "0.01 mg/L" for chromium was removed. No chronic water quality standard exists for total chromium on "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c—only for chromium III and chromium VI.

Boron – The chronic water quality standard value of "1.6 mg/L" for boron was added, referenced and converted from the value of "1600 µg/L" at 25 Pa. Code § 93.8c.

F. Table 5 (Allowable Headworks Loadings Based on Acute Water Quality Standards)

Chromium – The acute water quality standard value of "0.016 mg/L" for chromium was removed. No acute chronic water quality standard exists for total chromium under 25 Pa. Code § 93.8c.

Boron – The acute water quality standard value of "8.1 mg/L" for boron was added, referenced and converted from the value of "8100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

G. Table 6 (Allowable Headworks Loadings Based on Human Health Water Quality Standards)

Phenols – The human health water quality standard value of "10.4 mg/L" for phenols was replaced with the value of "0.005 mg/L", referenced from "Table 3" of 25 Pa. Code § 93.7. Pursuant to 25 Pa. Code § 93.4, "the uses set forth in Table 2 apply to all surface waters". The specific water quality

criterion for phenolics is associated with the critical use of "Potable Water Supply (PWS)" listed on Table 2 of 25 Pa. Code § 93.4. Quittapahilla Creek is not excluded from this statewide water use.

Boron – The human health water quality standard value of "3.1 mg/L" for boron was added, referenced and converted from the value of "3100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

Dissolved Iron – The water quality standard value of "0.3 mg/L" for dissolved iron was added, referenced from "Table 3" of 25 Pa. Code § 93.7 as a specific water quality criterion associated with the critical use of PWS.

H. Table 17 (Comparison of Allowable Headworks Loadings)

The design loading values of "1,570 lbs/d", "22,350 lbs/d", "17,550 lbs/d", and "375 lbs/d" for ammonia nitrogen, BOD5, TSS, and total phosphorus, respectively were added, referenced from page 3 of "3 – Discussion 2023".

I. Table 18 (Calculation of Local Limit)

Table 18 displays the calculated maximum allowable headworks loading, maximum allowable industrial loading, and local limit for each pollutant based on the changes suggested above. At a minimum, EPA guidance generally recommends a safety factor of 10% be used, with an additional growth factor if significant growth is expected within the service area. This will help ensure that user violations do not cause problems and that there is available capacity for new users to enter the system.

J. Table 19 (Comparison of Existing and Calculated Local Limits)

Table 19 displays the calculated allowable industrial loadings and the calculated uniform concentration limits of the pollutants of concern based on previous data and completed data analysis. Depending on the POTW's choice in adopting either the MAIL or uniform concentration values, the proposed local limit values for these pollutants are compared to the values calculated in either the MAIL column or the uniform concentration limit column. If the value for the pollutant in the "Proposed Local Limit" column is greater than the value for the same pollutant in the corresponding calculated column, the value in the "Proposed Local Limit" column will be highlighted in red bold print. This indicates that the POTW is proposing a limit that is less stringent than the limits reevaluation suggests is necessary. EPA guidance recommends that for most pollutants, where no current limit exists and the average influent loading is greater than 60% of the maximum allowable headworks loading (80% for ammonia nitrogen, BOD5, TSS, total phosphorus, and total nitrogen) or the maximum influent loading is greater than 80% of the maximum allowable headworks loading (100% for ammonia nitrogen, BOD5, TSS, total phosphorus, and total nitrogen), a new local limit should be adopted.
The proposed local limits that are less stringent than the existing local limits after appropriate rounding are as follows: cadmium, copper, lead, and silver. Where the proposed limit is less stringent than the currently approved limit, modification to the local limits would need to be

handled as a substantial program modification as defined by 40 CFR 403.18(b)(2) and a public notice and comment period would need to be conducted prior to approval of the limits pursuant to 40 CFR § 403.11.

The proposed local limits that are less stringent than the calculated local limits after appropriate rounding are as follows: copper. Please provide justification for proposing a less stringent limit for this pollutant in comparison to the calculated limit.

* Pursuant to § 6.1.1 of the Local Limits Development Guidance (2004), "EPA recommends that local limits are needed when: . . . maximum daily influent loading of a toxic pollutant exceeds 80 percent of the MAHL any time in the 12-month period preceding analysis". Because Table 20 indicates the maximum percent loaded value for phenols as "83.93%", a local limit for phenols is recommended.

K. Table 20 (Comparison of Allowable Headworks Loadings and Current Influent Loadings)

Table 20 displays the calculated maximum allowable headworks loading for each pollutant and compares this loading to the average and maximum loadings based on the Authority's monitoring data included in its submission, and is the data used in the evaluation conducted in Table 19. A green highlighted value indicates that the current influent loading exceeds the 60% or 80% threshold discussed above, while a red highlighted value indicates that the current influent loading exceeds the maximum allowable headworks loading by 100% or more. This evaluation can help indicate whether limits for new pollutants are needed and whether reductions in the current influent levels would be necessary to meet the calculated maximum allowable headworks loadings used to produce such limits. This table suggests a closer look is needed for phenols as the maximum influent loading for this pollutant is above the respective maximum allowable headworks loading. This indicates that the pollutant may have the potential to overload the POTW under current conditions and the calculated limit. However, such indications may be caused by assumptions associated with the use of non-detectable data.

L. Table 21 (Comparison of Removal Rates)

Table 21 compares the overall removal rate used in the evaluation with the other internal removals used in the inhibition calculations and highlights any pollutants where the overall removal is less than any of the other removals used in the evaluation. The overall removal should be greater than any of the other removals because it includes more treatment processes on a general basis. In addition, this table compares the average nonindustrial loading to the average influent loading and highlights any pollutants where the nonindustrial loading is greater than the influent loading. The loading from one portion of the total influent should not exceed the cumulative loading to the treatment plant. This evaluation indicates that the average nonindustrial loading is greater than the average influent loading for the pollutants of cadmium, chromium, copper, nickel, phenols, and dissolved iron. On the surface, this may illustrate that there exists inflow and/or infiltration issues within the POTW's service area for these pollutants. However, such indications may be caused by assumptions associated with the use of non-detectable data. Please specify if there have been recorded instances of these potential issues.

M. Table 23 (Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data)

Table 23 compares the influent, effluent, and sludge goals to the monitoring data in the "Monitoring Data" spreadsheet and highlights any exceedances in red bold. This evaluation indicates that, at the current influent levels, there may be occasional exceedances of the calculated influent goal for ammonia nitrogen and effluent goal for cyanide.

If you have any questions or comments regarding this matter, please contact me or any member of the EPA Region 3 Pretreatment Team.

Thank you.

Aron Possler (he/him)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>>
Sent: September 22, 2023 4:36 PM
To: EPA_R3_Pretreatment
<EPA_R3_Pretreatment@epa.gov<mailto:EPA_R3_Pretreatment@epa.gov>>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org<mailto:fdiscuillo@lebanonauthority.org>>
Subject: Lebanon Authority Local Limits Reevaluation - PA0027316

Good Day,

Attached you will find the Local Limits Reevaluation for the City of Lebanon Authority Wastewater Treatment Facility – PA0027316. The Cover Letter is Item 2. This is only the 2nd one I've done, learn new things..

If you put all the files in the same folder you can use the contents page hyperlinks to open the files.

Thank You,
Cora
Cora A. Shenk|Compliance Manager
City of Lebanon Authority
2311 Ridgeview Road |Lebanon, PA 17042
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cshenk@lebanonauthority.org<mailto:cshenk@lebanonauthority.org>
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url=http%3A%2F%2Fwww.lebanonauthority.org%2F&data=05%7C02%7CPossler.Aron%40epa.gov%
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q677hhj0ro%3D&reserved=0>

From:	Cora Shenk
To:	Possler, Aron
Cc:	Frank DiScuillo; jbeers@lebanonauthority.org
Subject:	Lebanon Authority - PA0027316 Local Limits Final Submission
Date:	July 31, 2024 2:54:09 PM
Attachments:	2024-07-30 Response to EPA.docx 2024-07-30 Response to EPACopy_Lebanon_LL_2024-02-14 (2024-05).xlsx

Good Afternoon Aron,

Unless you see something, this is the final. There are some comments (green – CoLA3). No further questions.

Thank you for your help with this. This is always a learning experience.

Cora

Cora A. Shenk|Compliance Manager
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Response to EPA – Local Limits Review – Review of Table updated on 2024-02-14

Thank you for submitting the Pretreatment Program Local Limits Reevaluation on behalf of the **City of Lebanon Authority ("Authority")**. I have completed review of the Authority's headworks analysis, which was submitted in accordance with § C.II(E) of the POTW's NPDES permit (issued September 26, 2022) and dated **September 22, 2023**. Based on this review, I am requesting revisions and clarifications to the submission for this process to continue. Please refer to the attached copy of the local limits reevaluation workbook in which the data inputs have been modified as discussed below. This copy is not intended to be used by the Authority directly but is included only as an indication of the effect of the changes based on the comments presented in order of table appearance in the local limits calculation workbook.

Response Dates:

CoLA1: 2/14/2024
COLA2: 5/28/2024
EPA: 5/31/2024
CoLA3: 7/30/24

I. Limits Calculation Spreadsheet

A. Table 1 (Unit Operations)

"Activated Sludge Present" was unselected. On page 7 of "3 – Discussion 2023", the presence of "Trickling Filter, Nitrification, Anaerobic Digestion" is indicated. Additionally, activated sludge as a treatment type is listed as "No" on the Authority's 2022 annual report on the "POTW Information" spreadsheet. Please clarify if the Authority utilizes activated sludge treatment.

CoLA1: The Authority uses activated sludge – this was reviewed with EPA and the table was updated and is used for the rest of this review.
EPA: Acknowledged.

B. Table 2a (Stream Flow Partial Mix Factors)

The threshold human health partial mix factor value of "1" and the cancer risk level partial mix factor value of "1" were added, referenced from pages 38 and 41 of the POTW's draft NPDES permit fact sheet, dated July 19, 2022.

COLA2: OK.. see it now.
EPA: Acknowledged.

C. Table 2b (POTW and Receiving Stream Data)

The receiving stream hardness value of "249 mg/L" was replaced with the value of "308 mg/L", referenced from page 32 of the POTW's draft NPDES permit fact sheet.

COLA2: Should we be taking these with our quarterly samples to build up a history to use?
EPA: Section 5.2.2 of the *Local Limits Development Guidance* (2004) recommends that "the POTW

should obtain from the State the appropriate hardness value for its receiving stream and use this value to determine the applicable WQS or WQC". Based on this, the *Local Limits Spreadsheet User Manual v5-5* states "[t]he hardness can often be found in PADEP's water quality protection report (permit fact sheet) developed at the time of the drafting of the POTW's NPDES permit". Whereas PADEP governing WQBEL values for some metals depend on the hardness of the receiving water, utilizing the hardness, which was used to calculate these values, and which would later be input into Table 3 where applicable, is generally recommended. In this sense, we would *not* recommend taking quarterly samples for receiving stream hardness. The Authority may rely on the hardness value determined and utilized by PADEP in the development of the POTW's NPDES permit.

D. Table 3 (Allowable Headworks Loadings Based on NPDES Effluent Limits)

Copper – The average monthly NPDES permit limit value of "0.024 mg/L" for **copper** was added, referenced from page 3 of the POTW's NPDES permit, dated September 29, 2022. This is more stringent than the PADEP governing WQBEL value of "24.2 µg/L". The Authority selected the median default removal efficiency through activated sludge treatment value of "86%" for **copper**. Whereas the Authority does not report the utilization of activated sludge treatment and reports the utilization of trickling filter treatment, the previous removal efficiency value was replaced with the median default removal efficiency through trickling filter treatment value of "61%", referenced from the *Local Limits Development Guidance Appendices*, Appendix R.

CoLA2 – With us now adding the activated sludge, is “median default removal efficiency through activated sludge” now accurate?
EPA: Yes, the "median default removal efficiency through activated sludge treatment" is therefore recommended. Comments replacing instances of "Default (activated sludge)" with "Default (trickling filter)" are no longer applicable.

Molybdenum – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for **molybdenum**. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "45.73%".

CoLA2: IBID previous
EPA: Ditto.

COLA3: For clarification, Molybdenum did not recommend updating as Copper – but was changed to “ Influent/Sludge Removal”, which is 45.73 to 50%. This was not updated in the workbook provided in COLA2 response. The number changes - but we still do not wish to have a limit.

Selenium – The Authority selected the median default removal efficiency through activated sludge treatment value of "50%" for **selenium**. Whereas the Authority does not report the utilization of activated sludge treatment and where the applicable influent and sludge data were determined to be available and adequate, the previous removal efficiency value was replaced with influent/sludge removal efficiency of "82.67%".

CoLA2: IBID previous
EPA: Ditto.

COLA3: Same as COLA3 molybdenum. The change was to influent/sludge. It has been changed to default (activated sludge).

Silver – The Authority selected the influent/effluent removal efficiency value of "69.57%" for **silver**. Whereas most of the effluent monitoring data available were reported as non-detectable, the previous value was replaced with the median default removal efficiency through trickling filter treatment value of "66%".

CoLA2: IBID previous
EPA: Ditto.

Zinc – The PADEP governing WQBEL value of "0.227 mg/L" for **zinc** was added, referenced and converted from the value of "227 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

CoLA2: TY
EPA: Acknowledged.

Ammonia Nitrogen – The NPDES permit limit value of "1.8 mg/L" for **ammonia nitrogen** was removed. In accordance with § 5.3.2 of the *Local Limits Development Guidance* (2004), "[i]f the POTW was designed to remove ammonia through specific processes such as nitrification and denitrification, breakpoint chlorination, or ammonia stripping, the engineering specifications that establish design loading rates should be used as the MAHL". This design loading for the POTW has been added per the comments following for Table 17.

CoLA2: TY
EPA: Acknowledged.

Total Phosphorus – The NPDES permit limit value of "2 mg/L" for **total phosphorus** was removed. See the above comment. The design loading for the POTW has been added per the comments following for Table 17.

CoLA2: TY
EPA: Acknowledged.

Boron – The PADEP governing WQBEL value of "2.179 mg/L" for **boron** was added, referenced and converted from the value of "2,179 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

CoLA2: TY
EPA: Acknowledged.

Dissolved Iron – The PADEP governing WQBEL value of "0.409 mg/L" for **dissolved iron** was added, referenced and converted from the value of "409 µg/L" from page 44 of the POTW's draft NPDES permit fact sheet.

CoLA2: TY
EPA: Acknowledged.

E. Table 4 (Allowable Headworks Loadings Based on Chronic Water Quality Standards)

Chromium – The chronic water quality standard value of "0.01 mg/L" for **chromium** was removed. No chronic water quality standard exists for ***total*** **chromium** on "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c—only for **chromium III** and **chromium VI**.

CoLA2: TY
EPA: Acknowledged.

Boron – The chronic water quality standard value of "1.6 mg/L" for **boron** was added, referenced and converted from the value of "1600 µg/L" at 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

F. Table 5 (Allowable Headworks Loadings Based on Acute Water Quality Standards)

Chromium – The acute water quality standard value of "0.016 mg/L" for **chromium** was removed. No acute chronic water quality standard exists for ***total*** **chromium** under 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

Boron – The acute water quality standard value of "8.1 mg/L" for **boron** was added, referenced and converted from the value of "8100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

G. Table 6 (Allowable Headworks Loadings Based on Human Health Water Quality Standards)

Phenols – The human health water quality standard value of "10.4 mg/L" for **phenols** was replaced with the value of "0.005 mg/L", referenced from "Table 3" of 25 Pa. Code § 93.7. Pursuant to 25 Pa. Code § 93.4, "the uses set forth in Table 2 apply to all surface waters". The specific water quality criterion for phenolics is associated with the critical use of "Potable Water Supply (PWS)" listed on Table 2 of 25 Pa. Code § 93.4. Quittapahilla Creek is not excluded from this statewide water use.

CoLA2: TY
EPA: Acknowledged.

Boron – The human health water quality standard value of "3.1 mg/L" for **boron** was added, referenced and converted from the value of "3100 µg/L" from "Table 5 – Water Quality Criteria for Toxic Substances" of 25 Pa. Code § 93.8c.

CoLA2: TY
EPA: Acknowledged.

Dissolved Iron – The water quality standard value of "0.3 mg/L" for **dissolved iron** was added, referenced from "Table 3" of 25 Pa. Code § 93.7 as a specific water quality criterion associated with the critical use of PWS.

CoLA2: TY
EPA: Acknowledged.

H. Table 17 (Comparison of Allowable Headworks Loadings)

The design loading values of "1,570 lbs/d", "22,350 lbs/d", "17,550 lbs/d", and "375 lbs/d" for **ammonia nitrogen**, **BOD_5**, **TSS**, and **total phosphorus**, respectively were added, referenced from page 3 of "3 – Discussion 2023".

CoLA2: TY, Question - how are maximum months taken into consideration? For example, Ammonia nitrogen has 1570 for annual average… but 2700 for a maximum day. This may be a moot point, as we run influent ammonia 98% of the time… only missing days when lab issues (equipment, personnel shortage, etc.). BOD and TSS are mandated for daily analysis. Included is the most current design loads
EPA: Because I was unable to find any EPA guidance on design loading and/or organic design capacity, and because we routinely utilize the values indicated in the POTW's NPDES permit, I'll revert to PA's definition, found at 25 Pa. Code § 94.1, which defines organic design capacity as "[t]he highest daily organic load at which a sewage treatment facility or a portion thereof is expected to provide a specific predetermined level of treatment." I would assume, so long as the values entered for design loadings and/or organic design capacities are consistent with this definition, that these values could be used in calculation of local limits in a headworks analysis.

CoLA3: Thankfully we aren't addressing those at this time. Will keep this information for future reference.

I. Table 18 (Calculation of Local Limit)

Table 18 displays the calculated maximum allowable headworks loading, maximum allowable industrial loading, and local limit for each pollutant based on the changes suggested above. At a minimum, EPA guidance generally recommends a safety factor of 10% be used, with an additional growth factor if significant growth is expected within the service area. This will help ensure that user violations do not cause problems and that there is available capacity for new users to enter the system.

CoLA2: Acknowledged.

J. Table 19 (Comparison of Existing and Calculated Local Limits)

Table 19 displays the calculated allowable industrial loadings and the calculated uniform concentration limits of the pollutants of concern based on previous data and completed data analysis. Depending on the POTW's choice in adopting either the MAIL or uniform concentration values, the proposed local limit values for these pollutants are compared to the values calculated in either the MAIL column or the uniform concentration limit column. If the value for the pollutant in the "Proposed Local Limit" column is greater than the value for the same pollutant in the corresponding calculated column, the value in the "Proposed Local Limit" column will be highlighted in red bold print. This indicates that the POTW is proposing a limit that is less stringent than the limits reevaluation suggests is necessary. EPA guidance recommends that for most pollutants, where no current limit exists and the average influent loading is greater than 60% of the maximum allowable headworks loading (80% for ammonia nitrogen, BOD_5, TSS, total phosphorus, and total nitrogen) or the maximum influent loading is greater than 80% of the

maximum allowable headworks loading (100% for ammonia nitrogen, BOD_5, TSS, total phosphorus, and total nitrogen), a new local limit should be adopted.

The proposed local limits that are less stringent than the existing local limits after appropriate rounding are as follows: **cadmium**, **copper**, **lead**, and **silver**. Where the proposed limit is less stringent than the currently approved limit, modification to the local limits would need to be handled as a substantial program modification as defined by 40 CFR 403.18(b)(2) and a public notice and comment period would need to be conducted prior to approval of the limits pursuant to 40 CFR § 403.11.

The proposed local limits that are less stringent than the calculated local limits after appropriate rounding are as follows: **copper**. Please provide justification for proposing a less stringent limit for this pollutant in comparison to the calculated limit.

COLA2 – I do not see this.
EPA: Due to changes made to the workbook, specifically replacing instances of "Default (trickling filter)" with "Default (activated sludge)" under Table 3 for selected removal efficiencies, this comment is no longer applicable.

- Pursuant to § 6.1.1 of the *Local Limits Development Guidance* (2004), "EPA recommends that local limits are needed when: . . . maximum daily influent loading of a toxic pollutant exceeds 80 percent of the MAHL any time in the 12-month period preceding analysis". Because Table 20 indicates the maximum percent loaded value for **phenols** as "83.93%", a local limit for **phenols** is recommended.

COLA2 – I reviewed the influent sampling data. I eliminated the maximum number which was 0.094 mg/l; the next highest number was 0.073 mg/l – with an average of 0.053. Change included in our response workbook.
EPA: Acknowledged and acceptable. This comment is no longer applicable.

COLA2 other – with the changes made to other areas – the proposed limits need to be revisited. Added to response workbook.

> Cadmium increased to 0.0805, still requires public notice
> EPA: Acknowledged.
>
> Chromium increased to 15.8329 … will probably increase the safety margin on this and bring it down – closer to the existing.
> EPA: Acknowledged. Please provide an update on the calculated local limit value for **chromium** for this process to continue.
>
> **CoLA3: Changed safety margin to 40%. Number is still significantly higher at 11.1228 (previous 1.6385)**
>
> Molybdenum… We did not previously have a limit on Mo, and would prefer not to create one. Maximum percent loaded is 18%.
> EPA: Acknowledged and acceptable.
>
> Silver … would like to drop the limit. We are only at 1.06% of maximum percent loaded. Requires public notice.

EPA: Acknowledged and acceptable. It is also noted that the POTW has not exceeded either the influent or effluent goals for **silver** over the past five years.

K. Table 20 (Comparison of Allowable Headworks Loadings and Current Influent Loadings)

Table 20 displays the calculated maximum allowable headworks loading for each pollutant and compares this loading to the average and maximum loadings based on the Authority's monitoring data included in its submission, and is the data used in the evaluation conducted in Table 19. A green highlighted value indicates that the current influent loading exceeds the 60% or 80% threshold discussed above, while a red highlighted value indicates that the current influent loading exceeds the maximum allowable headworks loading by 100% or more. This evaluation can help indicate whether limits for new pollutants are needed and whether reductions in the current influent levels would be necessary to meet the calculated maximum allowable headworks loadings used to produce such limits. This table suggests a closer look is needed for **phenols** as the maximum influent loading for this pollutant is above the respective maximum allowable headworks loading. This indicates that the pollutant may have the potential to overload the POTW under current conditions and the calculated limit. However, such indications may be caused by assumptions associated with the use of non-detectable data.

COLA2: Please see item J on Phenols.

L. Table 21 (Comparison of Removal Rates)

Table 21 compares the overall removal rate used in the evaluation with the other internal removals used in the inhibition calculations and highlights any pollutants where the overall removal is less than any of the other removals used in the evaluation. The overall removal should be greater than any of the other removals because it includes more treatment processes on a general basis. In addition, this table compares the average nonindustrial loading to the average influent loading and highlights any pollutants where the nonindustrial loading is greater than the influent loading. The loading from one portion of the total influent should not exceed the cumulative loading to the treatment plant. This evaluation indicates that the average nonindustrial loading is greater than the average influent loading for the pollutants of **cadmium**, **chromium**, **copper**, **nickel**, **phenols**, and **dissolved iron**. On the surface, this may illustrate that there exists inflow and/or infiltration issues within the POTW's service area for these pollutants. However, such indications may be caused by assumptions associated with the use of non-detectable data. Please specify if there have been recorded instances of these potential issues.

Cadmium

COLA2: Looking at the data – the influent and effluent data are all non-detect. The The background was also ND – except for 1 result that was included. Otherwise, the only place the numbers are above are in the biosolids where the Cadmium accumulates.
EPA: Acknowledged.

Chromium

COLA3:

Copper

COLA3:

Nickel

COLA3:

Phenols

COLA3:

Dissolved Iron

COLA3:

M. Table 23 (Comparison of Influent, Effluent, and Sludge Goals to Monitoring Data)

Table 23 compares the influent, effluent, and sludge goals to the monitoring data in the "Monitoring Data" spreadsheet and highlights any exceedances in red bold. This evaluation indicates that, at the current influent levels, there may be occasional exceedances of the calculated influent goal for **ammonia nitrogen** and effluent goal for **cyanide**.

COLA2: Concur with both..

Questions…

Ammonia Nitrogen – If the influent goal is based on the annual average… Should there be other goals for maximum month and maximum day?
EPA: EPA Region 3 does not assess "maximum monthly" or "maximum daily" goals regarding monitoring data workbook evaluation. The "Instructions for Completing the Pretreatment Monitoring Data Workbook" states "[f]or conventional/nonconventional pollutants such as BOD, TSS, ammonia (and other nitrogen pollutants such as total nitrogen and TKN), and total phosphorus monthly average results should be reported rather than results for each individual sample date".

Cyanide: How do the calculations take into account the cyanide that is released from the anaerobic digester and does not enter the facility as Cyanide?
EPA: Ideally, this would be factored by Table 12 (Allowable Headworks Loadings Based on Anaerobic Digestion Inhibition Level (Non-Conservative Pollutants)) with data entered by the Authority on the "Inhibition Removals" spreadsheet, "CN Inf to Anaerob Dig". However, with any theoretical calculation, results from this workbook may not be entirely reflective of "real world" conditions.

From: Possler, Aron
To: Cora Shenk
Cc: Frank DiScuillo; jbeers@lebanonauthority.org; Sanchez Gonzalez, Natalie
Subject: PA0027316 City of Lebanon Pretreatment Program Local Limits Acceptance
Date: August 15, 2024 2:24:00 PM
Attachments: Lebanon.xlsb

Cora:

Thank you for submitting the Pretreatment Program Local Limits Reevaluation on behalf of the **City of Lebanon Authority** (Authority). I have completed review of the Authority's revised headworks analysis, which was submitted in accordance with § C.II(E) of the POTW's NPDES permit (issued September 26, 2022) and dated **July 31, 2024**. Based on this review, the proposed reevaluation of the Authority's local limits is acceptable.

Attached for your reference is a monitoring data workbook illustrating the influent, effluent, and sludge goals for the Authority's POTW based on the reevaluation. Such goals will be used in the evaluation of the monitoring data submitted with future pretreatment program annual reports. This workbook additionally shows the monitoring frequency for each pollutant. A monitoring frequency of "4" for the influent, effluent, and sludge parameters generally means that the Authority has proposed a local limit for that pollutant. A frequency of "1" for the influent and sludge, and "0" for effluent parameters indicates a pollutant that is a priority pollutant and for which a maximum allowable headworks loading was calculated, but for which no limit was proposed. A frequency of "0" for all sampling points designates a pollutant that is *not* a priority pollutant but for which an evaluation was done, and no limit was proposed.

Because some of the proposed local limits are less stringent than the currently approved local limits (namely cadmium, chromium, copper, lead, molybdenum, and silver), the revision to the limits is considered a substantial program modification as defined under 40 CFR 403.18(b)(2). As such, EPA, the Approval Authority, will issue a public notice pursuant to 40 CFR 403.11(b) providing for a period of not less than 30 days during which interested persons may submit their written views on the substantial program modification.

In addition, please note that the POTW's NPDES permit requires the Authority to adopt the revised limits (see, Table 1.) within four months of this acceptance by EPA. The NPDES permit also requires, if necessary, the Authority to notify any and all contributing municipalities of the need to adopt the revised local limits within the same four-month period to ensure that the limits are enforceable throughout the service area. After receipt of copies of both the adopted limits for the Authority and for any and all contributing municipalities, EPA will provide the Authority with a formal approval letter pursuant to 40 CFR 403.18(c)(2) unless significant adverse public comments are received.

Table 1. – Accepted Local Limits at Uniform Concentration

Pollutant	LL (mg/L)	Basis of Limitation
Arsenic	0.1644	Sludge

Cadmium	0.0805	Water Quality
Chromium	11.1228	Inhibition
Copper	2.4518	Inhibition
Cyanide	0.4716	Water Quality
Lead	1.3145	Sludge
Mercury	0.0057	Water Quality
Nickel	4.3593	Sludge
Zinc	2.8049	Inhibition

If you have any questions or comments regarding this matter, please contact me or any member of the EPA Region 3 Pretreatment Team.

Thank you.

Aron Possler (*he/him*)
Life Scientist
P (215) 814-2780
Permits Section [3WD41]
U.S. EPA Region 3

From: Cora Shenk <cshenk@lebanonauthority.org>
Sent: July 31, 2024 2:54 PM
To: Possler, Aron <Possler.Aron@epa.gov>
Cc: Frank DiScuillo <fdiscuillo@lebanonauthority.org>; jbeers@lebanonauthority.org
Subject: Lebanon Authority - PA0027316 Local Limits Final Submission

Good Afternoon Aron,

Unless you see something, this is the final. There are some comments (green – CoLA3). No further questions.

Thank you for your help with this. This is always a learning experience.

Cora

Cora A. Shenk|Compliance Manager
City of Lebanon Authority
2311 Ridgeview Road |Lebanon, PA 17042
Phone: 717.272.2841 | Fax: 717.272.1984 | Cell: 717.269.4129
cshenk@lebanonauthority.org
www.lebanonauthority.org

From:	Cora Shenk
To:	Possler, Aron
Cc:	Frank DiScuillo
Subject:	Lebanon Authority Local Limit Resolution
Date:	November 14, 2024 1:51:58 PM
Attachments:	Resolution No. 2024-8 Local Limits signed.pdf

Hello Aron,

Attached is the City of Lebanon Authority resolution approving the Local Limits passed by the City of Lebanon Authority Board. Please contact me with any questions.

Thank You,

Cora

Cora A. Shenk|Compliance Manager
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RESOLUTION NO. 2024-8

A RESOLUTION OF THE CITY OF LEBANON AUTHORITY ("THE AUTHORITY") ADOPTING AND IMPLEMENTING LOCAL LIMITS TO REGULATE WASTEWATER DISCHARGES APPLICABLE TO ALL DIRECT AND INDIRECT INDUSTRIAL USERS OF THE AUTHORITY'S WASTEWATER TREATMENT PLANT.

WHEREAS, the Authority is a municipality authority created and existing pursuant to the Municipalities Authorities Act, 53 Pa. C.S.A. §5601-5622; and

WHEREAS, the Authority owns and operates a wastewater collection and treatment system serving the City of Lebanon and certain surrounding municipalities; and

WHEREAS, the Authority has previously adopted uniform requirements for direct and indirect contributors into the wastewater collection and treatment system to comply with all then applicable State and Federal laws including the Clean Water Act of 1977 and the General Pretreatment Regulations (40 CFR Part 403); and

WHEREAS, the Federal Environmental Protection Agency has approved the adoption of new limits for industrial discharge for the Lebanon Wastewater Treatment Plant users which the Authority is required to adopt and implement.

NOW, THEREFORE, BE IT RESOLVED AND IT IS HEREBY RESOLVED BY THE BOARD OF THE CITY OF LEBANON AUTHORITY:

1. The City of Lebanon Authority hereby adopts and implements the following local limits:

Parameter	New Limit mg/l	Parameter	New Limit mg/l	Parameter	New Limit mg/l
Arsenic	0.1644	Cyanide	0.4716	Silver	No limit
Cadmium	0.0805	Lead	1.3145	Zinc	2.8049
Chromium	11.1228	Mercury	0.0057		
Copper	2.4518	Nickel	4.3593		

2. If any provision, paragraph, section or article of this resolution is invalidated by any Court of competent jurisdiction, the remaining provisions, paragraphs, words, sections and chapters shall not be affected and shall continue in full force and effect.

3. All other resolutions and parts of resolutions inconsistent or conflicting with any part of this resolution are hereby repealed to the extent of such inconsistency or conflict.

4. This resolution shall become effective immediately upon passage and approval.

APPROVED AND SO RESOLVED THIS 12 DAY OF November, 2024.

CITY OF LEBANON AUTHORITY

Betty Eccleman
VICE-CHAIRMAN

SECRETARY

(SEAL)