Auburndale Program Doc.

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

February 19, 1997

Mr. John Dickson
Wastewater Superintendent
City of Auburndale
P.O. Box 186
Auburndale, Florida 33823

Re: Pretreatment Program Proposed Local Limits
Permit Number FL0021466

Dear Mr. Dickson:

The Department has reviewed the January 8 letter from Jerry Murphy of Chastain Skillman, Inc., regarding your local limits submission. Based on our on February 11 and 17 telephone conversations with Jerry Murphy, we understand that you will replace the "phenols" local limit with one for "chlorinated phenols." This change was discussed because the water quality standard for chlorinated phenols was used in the calculations. Based on this revision, we are preliminarily approving your local limit submission.

Please schedule the revised local limits and the related pretreatment program ordinance revisions for adoption by the City of Auburndale. The adopted local limits and ordinance revision should be submitted to the Department, in accordance with the requirements of Rule 62-625.540, Florida Administrative Code (F.A.C.), as a formal program modification following their adoption. Please note, the revised local limits and ordinance provisions should not become effective until they are formally approved according to the procedures of Rule 62-625.510, F.A.C.

If you have any questions on this correspondence or need clarification on local limit requirements, please contact me or John Coates at (904) 488-4524.

Sincerely,

Robert E. Heilman

Robert E. Heilman, P.E.
Pretreatment Coordinator

cc: Ed Snipes, P.E., DEP Tampa
Al Herndon, P.E., USEPA Region IV
Bobby M. Tillman, City of Auburndale

Department of Environmental Protection

TELEPHONE CONTACT:

☒Initiated ☐received Date: 2/17/97 Time:

Person Contacted: John Dickson Telephone: (941) 965-5549

Title: Representing: Auburndale

Summary:

called to see what Auburndale wanted to do about the timing of adopting their local limits. — They never really answered our "question" or to whether they would want to wait until their 1997 audit is done and they have reviewed the rest of their ordinance. John's not in — left Message.

4:20 pm — John called back to talk about the limits.

He said that he knew the city Manager wanted to proceed and get the new limits adopted as soon as possible.

Follow Up Required:

☐yes ☒no Contact person: John A. Coates

Action Required:

Copy to File: Major Auburndale Minor Program

CC: R. Heitman → file

BH

Department of Environmental Protection

TELEPHONE CONTACT:

☒ Initiated ☐ received Date: 2/4/97 Time: ~9:30

Person Contacted: Jerry Murphy Telephone: ( ) on file

Title: Sen. Env. Cons Representing: Chastain-Skillman

Summary:

Called Jerry to discuss the Jan. 8, 1997 submission for Auburndale.

(1) Jerry said he would submit Enclosure 3 by fax which we did not receive.

(2) Jerry said he would change the parameter to "chlorinated phenols" from "phenols" since they used the 0.001 mg/L limit.

(3) Jerry and I discussed the typo on the tables limit for vinyl chloride since their table did not agree with the changes in the ordinance (Enclosure 2). We agreed that the change as written in the ordinance

Jerry said he'd send the fax this morning.

Follow Up Required:

☒ yes ☐ no Contact person: John Coates

Action Required: review fax

Copy to File: Major Auburndale Minor Prog.

CC: R. Hallman → file

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

FACSIMILE TRANSMITTAL SHEET

TO: Jerry Murphy
LOCATION: Chastain-Skillman, Inc.
FAX NUMBER: (813) 647-3806 (941)
VOICE NUMBER: (813) 646-1402
DATE: February 11, 1997 Jerry Tried to send a few days ... Didn't realize it didn't go through!

FROM: John Coates
LOCATION: Domestic Wastewater Section - Tallahassee
FAX NUMBER: (904) 921-6385
VOICE NUMBER: (904) 488-4524
NUMBER OF PAGES: 2 (including cover sheet)

Comments:
Jerry,
Please see written note of next page... Looks like we should drop the 0.013 mg/L background concentration since it applies to "phenols" instead of "***chlorinated*** phenols." If we do so, looks like the local limit should be 0.045 mg/L. Will this work for yourself and Auburndale? Please call. Thanks.
John Coates

If there are any problems with this transmittal, please call the person listed above.

Local Limit Project Summary Report

Project No: 21

Tuesday, February 11, 1997

PROGRAM NAME: Auburndale, City of

WWF NAME: Auburndale STP

Representative total WWF flow =	**Qt:**	1.4	**MGD**
Industrial user flow contribution =	**Qi:**	0.14	**MGD**
Calculated nonindustrial flow =	**Qni:**	1.26	**MGD**
Residuals disposal flow =	**Qs:**	0.00783156	**MGD**
Percent solids in disposal residuals =	**%:**	4.00%	

	Total Allowable Headworks Loading Criteria				Representative	Safety	Allowable	Uniform
	Passthrough	Interference	Residuals	Limiting	Nonindustrial	Factor	Industrial	Local
POLLUTANT NAME	TAHL (lb./d)	TAHL (lb./d)	TAHL (lb./d)	TAHL (lb./d)	Load (lb./d)	(lb./d)	Load (lb./d)	Limit (mg/L)
PHENOLS	244.1345	46.7040		46.7040	0.1366	0.0000	46.5674	39.88300
	Basis: interference based on NITRIFICATION and EPA Local Limit Guidance (EPA 833/B-87-202)-phenol							
PHENOLS, CHLORINATE	0.0531	0.0000		0.0531	0.0000	0.0000	0.0531	0.04545
	Basis: pass through based on SURFACE WATER, C-III FRESH and Rule 62-302,530, F.A.C. (C-III Fresh)							

Jerry,

Unfortunately, I did not anticipate that the calculation sheet would have a "background concentration" of 0.013 mg/L in what is now a calculation for "~~phenols~~ chlorinated phenols" instead of "phenols". If you assume that there is no background for chlorinated phenols, then you would calculate a local limit for chlorinated phenols of 0.045 mg/L.

Jan. 8, 1997 Proposed Limits

Summary of Proposed Pretreatments Limits Auburndale Wastewater Treatment Plants			
		Daily Maximum	
Pollutant	Background Concentration (mg/l)	Past Limit (mg/l)	Proposed Limit (mg/l)
Antimony	0.025	None	40.00
Arsenic	0.0005	0.01	0.27
Beryllium	0	None	0.0025
Boron	0.34	None	4.44
Cadmium	0.0005	0.05	0.018
Chromium - Total	0.02	2.00	0.20 3.3
Cobalt		None	0.48
Copper	0.08	2.00	0.280
Cyanide	0.005	0.036	0.073
Fluoride	0.405	None	7.25
Lead	0.0105	2.00	0.011
Manganese		None	3.0
Mercury*	0.0001	0.014	0.0005
Nickel	0.01	0.6	1.75
Oils & Grease		100	100
Phenols	0.013	4.0	4.0
Silver*		.004	0.005
Toxic Organics			
Benzene			0.13
Tetrachloroethylene			0.53
Trichloroethylene			0.71
Toluene			1.36
Vinyl Chloride			0.0004
Phenol			0.013
Zinc	0.145	1.00	1.50
BOD_5		2520	975.00
TSS		520	290.00
Total Dissolved Solids	400	None	1,405.00
Total Nitrogen		80	40.00

O.K.

need to round on ordinance

* NOTE: These limits are based on the lowest detection level for these contaminants.

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Reply to:

FAX TRANSMISSION

DATE 2/11/97 CSI PROJECT NO. 1880.01

SENT TO:

Name JOHN CONTES
Company FDEP
FAX No. 904-921-6385
No. of Sheets (including cover) 2

SENT FROM:

Name R. J. MURPHY
Company CHASTAIN-SKILLMAN, INC.
Phone No. (813)646-1402
FAX No. (813)647-3806 (Civil/Environmental/Structural)
FAX No. (813)646-8023 (Surveying and Accounting)

REFERENCE:

LTR - dtd 8 Jan 97 - Re. Auburndale Pretreatment Program

MESSAGE:

Attd is Copy of enclosure 3 of subject letter

Lakeland Office • 4705 Old Highway 37, P.O. Box 5710, Lakeland, Florida 33807-5710 813-646-1402
Sebring Office • 2702 Fairmount Drive, P.O. Box 1281, Sebring Florida 33870-1281 813/382-4160
Tampa Office • 4508 Oak Fair Boulevard, Suite 101, Tampa, Florida 33610-7349 813/621-9229

Calculations of Pretreatment Limits for Phenols

Pollutant:	Phenols – CHLORINATED			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern Chlorinated Phenols			
	Avg. Background Conc.:	0.013	mg/l	Previous
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.1366092	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Phenols		
	1 Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	4	mg/l	
	Influent Limiting Concentration:	4	mg/l	
	Influent Limiting Mass Loading:	46.704	pounds per day	
	2 Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	1.00E-03	mg/l	
	Maximum Effluent Conc.	0.001	mg/l	
	Reduction of Pollutant in POTW	78%	based on Plant Analyses	
	Maximum Influent Conc.	0.00454545	mg/l	
	Influent Mass Loading	0.05307273	pounds per day	
	3 Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	N.A.	mg/l	
	Reduction of Pollutant in POTW	78%	based on Plant Analyses	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
	4 Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	N.A.	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	#VALUE!	mg/day	
		#VALUE!	lbs. per day	
	Removal of Pollutant in POTW	78%		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day	
	5 Determination of Limiting Factor			
	Inhibition of Activated Sludge	46.704	lbs. per day	
	Class III Water Quality Standards	0.05307273	lbs. per day	
	Protection of Effluent Sprayfield		lbs. per day	
	Protection of Sludge Disposal		lbs. per day	
	Limiting Amount	0.05307273	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	0.05307273	lbs. per day	
	Loading Attributable to Domestic Sources	0.1366092	lbs. per day	
	Mass Loading Available for Industrial Loading	-0.0835366	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	-0.0715455	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.013	mg/l	
	Program Limit	0.013	mg/l	

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FAX TRANSMISSION

DATE: February 17, 1997 CSI PROJECT NO. 1880.01

SENT TO:

Name Mr. John Coates
Company FDEP
FAX No. (904) 921-6385
No. of Sheets (including cover): 1

SENT FROM:

Name R. Jerry Murphy
Company *CHASTAIN-SKILLMAN, INC.*
Phone No. *(941)646-1402*
FAX No. *(941)647-3806 (Civil/Environmental/Structural)*
FAX No. *(941)646-8023 (Surveying and Accounting)*

REFERENCE:

City of Auburndale Pretreatment Program & FDEP Fax Dated February 11, 1997, from Mr. John Coates

MESSAGE:

As stated in your fax, since there is no background concentration data for "chlorinated phenols", it is agreed that the local limit for industrial wastewater discharge is controlled relative to the Class III water quality standards. As indicated in your fax, this would provide a local limit of 0.045 mg/l for the pollutant chlorinated phenol.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
PRETREATMENT PROGRAM
CHAPTER 62-625, F.A.C.

Program Local Limits Development Checklist

Name of Program Auburndale
Date of Submission 3/24/97
Permit Number FL00 21466

	Satisfactory Y/N ✓=Y	Document Reference (Page No.) (1)
I. Industrial User Information		
A. List of known constituents of concern in industrial user discharges	✓	Jan 8, 1997
B. Identification of individual industrial user flow rates, if required for the chosen allowable industrial headworks loading allocation method	na	—
II. Wastewater Treatment Facility (WWF) Information		
A. Description of the covered wastewater treatment facilities.	✓	Jan 8, 1997
B. Applicable WWF effluent limitations for pass through to waters of the State.	✓	"
C. Other applicable WWF effluent limitations: Reuse Guidelines	✓	"
D. Applicable WWF Interference criteria	✓	"
E. Applicable WWF residual disposal requirements	✓	"
F. Representative WWF flow rates for nonindustrial & industrial contributions, total plant flow, and residuals generation	✓	"
G. Representative solids fraction for residuals disposal	✓	"
H. Nonindustrial (uncontrollable) loading analytical data	✓	"
I. WWF influent and effluent analytical data	✓	"
J. WWF unit operation analytical data	✓	"
K. Calculated/assumed treatment process removal efficiencies	✓	"
III. Local Limit Documentation		
A. List of proposed local limit parameters and concentrations	✓	"
B. List of existing local limit parameters and concentrations	✓	"
C. Justification for removing local limits, if appropriate	not necessary	"
D. Documentation of industrial loading allocation method	Lotus Form ✓	"
E. Documentation of basis for safety and growth factors	✓	"
F. Documentation of whether the local limits have been adopted in an ordinance or by resolution.	✓	3/24/97

Notes:

(1) The local limit submission on January 8, 1997 is based on the calculations and corrections to submissions dated October 22, 1996. The pretreatment program modification was originally submitted to EPA, Region IV prior to delegation on May 1, 1995.

Ordinance 887 was passed on March 13 1997 and contains the preliminarily approved local limits in the January 8, 1997 submission.

Based upon this review, I have found the program local limits evaluation to be:

(X) Adequate ( ) Inadequate

Date: 4/23/97 Reviewed by: Joh. Coates

Note:
This review is a preliminary determination and is not necessarily the final determination by the Department.

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Reply to: Lakeland
(941) 646-1402
FAX (941) 647-3806

January 8, 1997

Mr. Robert Heilmann, P.E.
Pretreatment Coordinator
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: City of Auburndale Pretreatment Program
Permit Number FL0021486
CSI File No. 1880.01

Dear Mr. Heilmann:

We have reviewed your comments in your letter of November 26, 1996, relative to the referenced program. We have undertaken to modify the daily maximum limits and ordinance consistent with your comments (see enclosure one and two).

In addition, we have re-evaluated the technical justification for establishing the local limit for phenol. In doing so, it was noted that calculation sheet attached with our initial July 17 submission that we used the wrong Class III fresh water standard in calculating the program limit (i.e., 0.1 rather than standard, .001 mg/l). Implementing this correction provides a program limit for phenol of 0.013 mg/l or background level. A corrected copy of the original calculation sheet is attached as enclosure three.

We appreciate your noting these changes. Should any clarification be needed, please contact me at your convenience.

Sincerely,

CHASTAIN-SKILLMAN, INC.

R. Jerry Murphy, P.E., PhD.
Senior Engineering Consultant

PAB:mc

xc: John Dickson, City of Auburndale
Bobby Tillman, City of Auburndale
Al Herndon, P.E., USEPA Region IV
Ed Snipes, P.E., DEP - Tampa

Enclosure One

Summary of Proposed Pretreatment Limits

(Revised December 12, 1996)

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Summary of Proposed Pretreatments Limits Auburndale Wastewater Treatment Plants			
		Daily Maximum	
Pollutant	**Background Concentration (mg/l)**	**Past Limit (mg/l)**	**Proposed Limit (mg/l)**
Antimony	0.025	None	40.00
Arsenic	0.0005	0.01	0.27
Beryllium	0	None	0.0025
Boron	0.34	None	4.44
Cadmium	0.0005	0.05	0.018
Chromium - Total	0.02	2.00	0.20
Cobalt		None	0.48
Copper	0.08	2.00	0.280
Cyanide	0.005	0.036	0.073
Fluoride	0.405	None	7.25
Lead	0.0105	2.00	0.011
Manganese		None	3.0
Mercury*	0.0001	0.014	0.0005
Nickel	0.01	0.6	1.75
Oils & Grease		100	100
Phenols	0.013	4.0	4.0
Silver*		.004	0.005
Toxic Organics			
Benzene			0.13
Tetrachloroethylene			0.53
Trichloroethylene			0.71
Toluene			1.36
Vinyl Chloride			0.0004
Phenol			0.013
Zinc	0.145	1.00	1.50
BOD_5		2520	975.00
TSS		520	290.00
Total Dissolved Solids	400	None	1,405.00
Total Nitrogen		80	40.00

* NOTE: These limits are based on the lowest detection level for these contaminants.

TOXIC ORGANICS: Specific toxic organic compounds have been designated to limit the discharge of substances that have the following characteristics:

1. Common in even small industrial or commercial operations in a municipality;

2. Constitute a potential occupational hazard to wastewater operations or maintenance personnel due to the such substances' toxicity; or

3. May significantly adversely inhibit the wastewater treatment processes.

Benzene, tetrachloroethlyene, trichloroethylene, toluene and vinyl chloride are occupational hazards and should be screened at concentration levels delineated in the EPA Manual Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors (June 1992). The inhibition of activated sludge treatment processes is significant for the substance phenol. Limits for phenol concentration to mitigate inhibition are reported as 4 mg/l in EPA Guidance Manual on the Development and Implementation of Local Discharge Limitation Under the Pretreatment Program (Dec. 1987). Process removal efficiencies for all of these organic compounds, reported as median values in the cited EPA Guidance Document (Dec. 1987) for secondary activated sludge treatment, are 80 to 93%. This plant's performance evaluations conducted in 1989 and 1995 reported removal of phenol in the plant as 78 and 90%, respectively. The lower value, 78% removal efficiency, was used in calculating the allowable loading of all the designated organic compounds. Also, during the 1989 performance evaluation, background concentrations for phenol were reported as 0.12 mg/l. This value or 50% of the analytical method detection level was used as the background level in the calculations of pretreatment limits for each of the toxic organics compounds.

Enclosure Two

Revision Pretreatment Ordinance Text

(Revised December 12, 1996)

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five (5) percent nor any single reading over ten (10) percent of the lower explosive limit (LEL) of the meter. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols (other than ethanol or methanol), ketones, adlehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides and any other substance which Auburndale, the State of Florida or the EPA has notified the user is a fire hazard or a hazard to the system.

(2) Solid or viscous substances in quantities or of such size as may be cause obstructions to the flow in a sewer or other interference with the operation of the wastewater treatment facilities, such as, but not limited to: Grease, garbage with particles greater than one-half (1/2) inch in any dimension, animal guts or tissues, paunch, manure, bones, hair, hides, or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rages, spent grains, spent hops, wastepaper, wood, plastics, gas, tar, asphalt residues, residues from refining, or processing of fuel or lubricating oil, mud or glass-grinding or polishing wastes.

(3) Any wastewater having pH less than 5.0 or greater than 9,5, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment and/or personnel of the POTW.

(4) Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the POTW or to exceed the limitations set forth in a categorical pretreatment standard. A "toxic pollutant" shall include, but not be limited to, any pollutant identified pursuant to Section 307(a) of the act.

(5) Any noxious or malodorous liquids, gases or solids which, either singly or by interaction with other wastes, are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for maintenance and repair.

(6) Any substance which may cause the POTW's effluent or any other product of the POTW, such as residues, sludges or scums, to be unsuitable of reclamation and reuse or to interfere with the reclamation process. In no case shall a substance discharged to the POTW cause the POTW to be in noncompliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the act; any criteria, guidelines or regulations affecting sludge use or disposal developed pursuant to the Solid Waste disposal Act, the Clean Air Act, the Toxic Substances Control Act or state criteria applicable to the sludge management method being used.

(7) Any substance which will cause the POTW to violate its NPDES and/or state disposal system permit or the receiving-water-quality standards.

(8) Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.

(9) Any wasetwater having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference but in no case wastewater with a temperature at the introduction into the POTW which exceeds 40 degrees C (104 degrees F), unless the POTW treatment plant is designed to accommodate such temperature.

(10) Any pollutants, including oxygen-demanding pollutants (BOD, COD, etc.), released at a flow rate and/or pollutant concentration which a user knows or has reason to know will cause interference to the POTW. In no case shall a slug load have flow rate or contain concentration or qualities or pollutants that exceed, for any time period longer than fifteen (15) minutes, more than five (5) times the average twenty-four-hour concentration, quantities, or flow during normal operation.

(11) Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the director in compliance with applicable state or federal regulations.

(12) Any water or waste containing fats, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between thirty-two (32) degrees and one hundred fifty (15) degrees Fahrenheit (zero (0) and sixty five (65) degrees Celsius).

(13) Any garbage that has not been properly shredded.

(14) Any waters or wastes containing strong acid-iron pickling wastes or concentrated plating solutions, whether neutralized or not.

(15) Materials which exert or cause:

a. Unusual concentrations of inert suspended solids (such as, but not limited to, fuller's earth, lime slurries and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).
b. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).
c. Unusual BOD, chemical oxygen demand or chlorine requirements in such quantities as to constitute a significant load on the POTW.
d. Unusual volume of flow or concentration of wastes constituting "slugs" as defined herein.
e. Unusual total phosphorous or total nitrogen concentrations in such quantities as to constitute a significant load on the POTW.
f. Alternation of a soils' assimilative properties, particularlyits' hydraulic conductivity, that my inhibit application of reclaimed water to such soil (i.e., a discharge with a sodium adsorption ratio (SAR) $\geq$ 10).

(16) Any wastewater which causes a hazard to human life or creates a public nuisance.

When the director determines that a user(s) is contributing to the POTW any of the above-enumerated substances in such amounts as to interfere with the operation of the POTW, the director shall:

a. Advise the user(s) of the impact of the contribution on the POTW; and
b. Develop effluent limitation(s) for such user to correct the interference with the POTW.

(b)(1) In order to protect the treatment plant from substances that may interfere with its operation, contaminate the sludge or cause a violation of its discharge permit, the following target limits are to be met at the influent to the treatment plant(s):

	Substance	*mg/l*
(a)	Cadmium	0.0005
(b)	Chromium (total)	1.0
(c)	Chromium (hexavalent)	0.2
(d)	Copper	0.24
(e)	Cyanide	0.01
(f)	Lead	0.008
(g)	Mercury	0.0005
(h)	Nickel	0.25
(i)	Zinc	0.29
(j)	BOD_5	300.0
(k)	TSS	250.0
(l)	TN	40.0
(m)	TP	40.0
(n)	Silver	0.01

(2) The limits set out above may be used as a guide in design and plant control.

(3) In order to ensure compliance with the target limits established in paragraph (b)(1) above, set standards to be met by each industrial user are established as follows; (Note: $CBOD_5$ and TSS are to be regarded as Guidelines, rather than absolute standards):

Parameter	*Daily Maximum (mg/l)*
Antimony	40
Arsenic	0.27
Berylium	0.0025
Boron	4.44
Cadmium	0.018
Chromium	0.20
Cobalt	0.48
Copper	0.28
Cyanide	0.073
Fluoride	7.3
Lead	0.01
Manganese	2.94
Mercury	0.0005
Nickel	1.75
Oils and Grease	100
Phenols	0.013
Silver	0.005

Parameter	*Daily Maximum (mg/l)*
Toxic Organics	
Benzene	0.13
Tetrachloroethylene	0.53
Trichloroethylene	0.71
Toluene	1.36
Vinyl Chloride	0.004
Phenol	0.013
Zinc	1.5
$CBOD_5$	975
TSS	290
Total Nitrogen	40
Total Phosphorus	24
TICH	6.0
Total Dissolved Solids	1405

c. Any user discharging or anticipating a discharge of substances in his wastes within ten (10) percent or in excess of the concentrations identified in subsection 23-22(b)(3) may be classified as a significant industrial user and subject to the wastewater discharge permitting requirements of this article.

Significant industrial users applying for wastewater contribution permits may request a variance from the values identified in section 23-22(b)(3). The evaluation of requests for variances will be based on such factors as quantities of subject wastes and flows in relation to the total POTW influent flows and waste concentrations, the flow volume and velocities in sewer line, the material utilized in the construction of the wastewater collection system, the nature of the sewage treatment process, the capacity of the POTW, the degree of treatability of wastes in the treatment plant, the quality of sludge for suitable disposal and water quality requirements of the receiving stream for the sewage treatment plant effluent. Variances, when granted, shall be specifically identified in the industrial user's wastewater contribution permit. Variances will not be granted from national standards.

d. If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in this section, and which, in the judgment of the director, may have a deleterious effect upon the POTW, processes equipment or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the director may:

1. Reject the wastes;

2. Require pretreatment to an acceptable condition for discharge to the public sewers;

3. Require control over the quantities and rates of discharges;

4. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges;

5. Require payment to cover the added cost of a monitoring program to determine compliance with the requirements of this article.

Enclosure Three

Revised Program Limit Calculation Sheet - Phenols

(Revised December 12, 1996)

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Department of Environmental Protection

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

November 26, 1996

Mr. John Dickson
Wastewater Superintendent
City of Auburndale
P.O. Box 186
Auburndale, Florida 33823

Re: Pretreatment Program Proposed Local Limits
Permit Number FL0021466

Dear Mr. Dickson:

The Department has reviewed the October 22 local limits submission received from Chastain Skillman. The review indicates that most of the comments identified in the Department's July 17 letter have been addressed. Based on the October 14 telephone conversation between Jerry Murphy of Chastain Skillman and John Coates of DEP, we are preliminarily approving your local limit submission subject to the following restrictions:

- The proposed daily maximum limit for arsenic in the October 22 submission should be revised to 0.27 mg/L, based on an allowable daily industrial loading of 0.32 lb/day and the 40 CFR 503.13 pollutant concentration of 41 mg/kg, as calculated in your July 29 submission.

- The proposed daily maximum limit for boron in the October 22 submission should be revised to 4.44 mg/L based on an allowable daily industrial loading of 5.63 lb/day and the recommended limit for sprayfield application on sandy soils of 0.75 mg/L, as calculated in your July 29 submission.

- The proposed daily maximum limit for silver in the October 22 submission is 0.004 mg/L; however, the calculated silver limit was 0.005 mg/L in the July 29 submission, based on the applicable water quality standard of 0.07 µg/L. The silver local limit should be based on the calculations in the July 29 submission (i.e., 0.005 mg/L); otherwise, an updated set of silver calculations should be submitted to support the value of 0.004 mg/L.

- The October 22 submission indicates that Auburndale wishes to establish local limits for benzene, tetrachloroethylene, trichloroethylene, toluene, and vinyl chloride based on levels to protect worker health and safety, as referenced in EPA's "Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors," (EPA 812-B-92-001). However, the values proposed are not those published in Table 4-2 of EPA's guidance manual; rather, they are from Table B-1. Please note that we have recently found some discrepancies between Table 4-2 and Table B-1 in Appendix B of EPA's guidance manual. For example, please note that the screening level value of 0.0003 mg/L for vinyl chloride is incorrect using EPA's numbers in Table B-1. Therefore the following limits, based on Table 4-2 in EPA's guidance manual, should be incorporated into the city's ordinance as local limits:

benzene	0.13 mg/L
tetrachloroethylene	0.53 mg/L
trichloroethylene	0.71 mg/L
toluene	1.36 mg/L
vinyl chloride	0.004 mg/L

  The control authority should independently review and verify the values in Table 4-2 of EPA's guidance manual before incorporating these in your local limits.

- The October 22 submission proposes to establish a local limit of 4.0 mg/L for phenol, based on the inhibition of the activated sludge process, by referencing the inhibition value in EPA's "Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program," (Dec. 1987). The activated sludge inhibition value in Table 3-2 of this guidance manual is 50 mg/L. However, the nitrification inhibition value in Table 3-4 is 4.0 mg/L. These inhibition values are to be used in the headworks loading allocation method to calculate technically defensible local limits as was done in the city's July 29 local limit submission. The adoption of a phenol local limit of 4.0 mg/L, as proposed in the October 22 submission, is not technically defensible; therefore, this local limit is not approved. The city must provide a technically defensible local limit for phenols or determine that it does not need a local limit for this parameter. Alternatively, the city may wish to develop a local limit for chlorinated phenols based on the Class III fresh water quality standard of 0.001 mg/L in Chapter 62-302, Florida Administrative Code (F.A.C.).

Once revisions are made to the draft local limits according to the comments above, you may schedule the revised local limits and the related pretreatment program ordinance revision for adoption by the City of Auburndale. To date, the Department has not reviewed your entire pretreatment program ordinance. We have only reviewed the ordinance revision which includes a prohibition for discharges that may impact the absorption capacity of your effluent sprayfield. During 1997, the Department will be conducting an audit of your pretreatment program. Since the audit includes a complete review of your pretreatment program ordinance, Auburndale may wish to adopt local limits at the same time as any ordinance revisions that are necessary as a result of the

1997 audit. If you choose to proceed with the adoption of your new local limits at this time, the adopted local limits and ordinance revision should be submitted to the Department as a formal program modification in accordance with Rule 62-625.540, F.A.C.

If you have any questions on this correspondence or need clarification on local limit requirements, please contact me or John Coates at (904) 488-4524.

Sincerely,

Robert E. Heilman

Robert E. Heilman, P.E.
Pretreatment Coordinator

cc: Ed Snipes, P.E., DEP Tampa
Al Herndon, P.E., USEPA Region IV
Bobby M. Tillman, City of Auburndale

Summary of Proposed Pretreatments Limits
Auburndale Wastewater Treatment Plants

Pollutant	Background Concentration (mg/l)	Daily Maximum	
		Past Limit (mg/l)	Proposed Limit (mg/l)
Antimony	0.025	None	40.00
Arsenic	0.0005	0.01	~~0.49~~ 0.27 based on a calculated loading of 0.32 lb/d. res. criteria of 4 µg/kg.
Beryllium	0	None	0.0025
Boron	0.34	None	~~16.94~~ 4.44
Cadmium	0.0005	0.05	0.018
Chromium - Total	0.02	2.00	0.20
Cobalt		None	0.48 ✓
Copper	0.08	2.00	0.280
Cyanide	0.005	0.036	0.073
Fluoride	0.405	None	7.25 ✓
Lead	0.0105	2.00	0.011
Manganese		None	3.0 ✓
Mercury	0.0001	0.014	0.0001
Nickel	0.01	0.6	1.75
Oils & Grease		100	100
Phenols	0.013	4.0	4.0 ← ? basis
Silver		.004	0.004 0.005
Toxic Organics			
Benzene			1.36 0.13
Tetrachloroethylene			0.36 0.53
Trichloroethylene			3.67 0.71
Toluene			1.18 1.36
Vinyl Chloride			0.003 0.004
Phenol			4.0
Zinc	0.145	1.00	1.50
BOD_5		2520	975.00
TSS		520	290.00
Total Dissolved Solids	400	None	1,405.00
Total Nitrogen		80	40.00

SUMMARY OF PROPOSED PRETREATMENT LIMITS AUBURNDALE WASTEWATER TREATMENT PLANTS						
		4 Consecutive Sample Average		Daily Maximum		
POLLUTANT	BACKGROUND CONCENTRATION (mg/l)	PAST LIMIT	PROPOSED LIMIT	PAST LIMIT	PROPOSED LIMIT	UNITS
Antimony	0.025	None		None	ω 40.00	mg/l
Arsenic	0.0005	0.01	S 0.27	0.01	ω 0.49	mg/l
Beryllium	0	None		None	ω 0.0025	mg/l
Boron	0.34	None	S 4.44	None	S 16.94	mg/l
Cadmium	0.0005	0.03		0.05	ω 0.018	mg/l
Chromium - Total	0.02	1.00		2.00	ω 0.20	mg/l
Cobalt		None	S 0.48	None		mg/l
Copper	0.08	1.00		2.00	I 0.280	mg/l
Cyanide	0.005	0.018		0.036	ω 0.073	mg/l
Fluoride	0.405	None	S 7.25	None		mg/l
Lead	0.0105	1.00		2.00	0.011	mg/l
Manganese		None	S 3.00	None		mg/l
Mercury	0.0001	0.007		0.014	ω 0.0001	mg/l
Nickel	0.01	0.30		0.60	ω 1.75	mg/l
Oils & Grease		100.00		100.00	100.00	mg/l
Phenols	0.013	2.00		4.00		mg/l
Silver	0.0001	0.004		0.008	ω 0.005	mg/l
Total Toxic Organics (EPA Method 624/625)					4.000	mg/l
Zinc	0.145	0.50		1.00	ω 1.500	mg/l
BOD_5		1575		2520	975.00	mg/l
TSS		290		520	290.00	mg/l
Total Dissolved Solids	400	None		None	S 1,405.00	mg/l
Total Nitrogen		40		80	40.00	mg/l
Soil Adsorption Ratio		None	≤10	None	≤10	

(1) Short-term / long term limits

(2) Use of TTO / combined parameter not recommended.

(3) Soil Adsorbtion Ratio or Sodium Adsorbtion Ratio -why not limit Na, etc. → in Specif.s

Local Limit Project Summary Report

Project No: 21

Saturday, November 16, 1996

PROGRAM NAME: Auburndale, City of

WWF NAME: Auburndale STP

Representative total WWF flow =	Qt:	1.4	MGD
Industrial user flow contribution =	Qi:	0.14	MGD
Calculated nonindustrial flow =	Qni:	1.26	MGD
Residuals disposal flow =	Qs:	0.00783156	MGD
Percent solids in disposal residuals =	%:	4.00%	

	Total Allowable Headworks Loading Criteria							
	Passthrough	Interference	Residuals	Limiting	Representative Nonindustrial	Safety Factor	Allowable Industrial	Uniform Local
POLLUTANT NAME	TAHL (lb./d)	TAHL (lb./d)	TAHL (lb./d)	TAHL (lb./d)	Load (lb./d)	(lb./d)	Load (lb./d)	Limit (mg/L)
PHENOLS	244.1345	46.7040		46.7040	0.1366	0.0000	46.5674	39.88300
	Basis: interference based on NITRIFICATION and EPA Local Limit Guidance (EPA 833/B-87-202)-phenol							
PHENOLS, CHLORINATED	0.0531	0.0000		0.0531	0.0000	0.0000	0.0531	0.04545
	Basis: pass through based on SURFACE WATER, C-III FRESH and Rule 62-302,530, F.A.C. (C-III Fresh)							

Local Limit Pass Through Calculations

Project No: 21

Saturday, November 16, 1996

PROGRAM NAME: Auburndale, City of

WWF NAME: Auburndale STP

Representative total WWF flow = **Qt:** 1.4 **MGD**

Industrial user flow contribution = **Qi:** 0.14 **MGD**

Calculated nonindustrial flow = **Qni:** 1.26 **MGD**

POLLUTANT / DISPOSAL METHOD	Discharge Limit (mg/L)	WWF Percent Removal Prior to Disposal	Total Allowable Headworks Load (lb./d)	Safety Factor (lb./d)	Calculated Nonindustrial Load (lb./d)	Total Allowable Industrial Load (lb./d)	Uniform Local Limit (mg/L)
PHENOLS	4.6	78	244.13455	0.00000	0.13661	243.99794	208.9739
SURFACE WATER, C-III FRESH (Disposal Q = 1.40E+00 MGD)				Discharge Limit Ref: Rule 62-302,530, F.A.C. (C-III Fresh) for PHENOL			
PHENOLS, CHLORINATED	0.001	78	0.05307	0.00000	0.00000	0.05307	0.0455
SURFACE WATER, C-III FRESH (Disposal Q = 1.40E+00 MGD)				Discharge Limit Ref: Rule 62-302,530, F.A.C. (C-III Fresh)			

Local Limit Interference Calculations

Project No: 21

Saturday, November 16, 1996

PROGRAM NAME: Auburndale, City of

WWF NAME: Auburndale STP

Representative total WWF flow = **Qt:** 1.4 **MGD**

Industrial user flow contribution = **Qi:** 0.14 **MGD**

Calculated nonindustrial flow = **Qni:** 1.26 **MGD**

POLLUTANT / PROCESS	Interference Conc. (mg/L)	Percent Removal Prior to Process	Total Allowable Headworks Load (lb./d)	Safety Factor (lb./d)	Calculated Nonindustrial Load (lb./d)	Total Allowable Industrial Load (lb./d)	Uniform Local Limit (mg/L)
PHENOLS	4	0	46.70400	0.00000	0.13661	46.56739	39.8830
NITRIFICATION	(Process Q = 1.40E+00 MGD)			Interference Concentration Ref: EPA Local Limit Guidance (EPA 833/B-87-202)-phenol			
PHENOLS	50	0	583.80000	0.00000	0.13661	583.66339	499.8830
ACTIVATED SLUDGE	(Process Q = 1.40E+00 MGD)			Interference Concentration Ref: EPA Local Limit Guidance (EPA 833/B-87-202)			

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Reply to: Lakeland
(941) 646-1402
FAX (941) 647-3366

October 22, 1996

Mr. Robert Heilmann, P.E.
Pretreatment Coordinator
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: City of Auburndale Pretreatment Program
Permit Number FL0021486
CSI File No. 1880.01

Dear Mr. Heilmann:

We have discussed the comments of your staff on our latest revisions submitted on July 29, 1996 to referenced permit and believe the attached enclosures will clarify any remaining issues relative to the permit. Specifically, the enclosures provide for the following modifications.

- Enclosure one is a summary of the proposed pre-treatment limits, confined to daily maximum limits, justification and calculations to substantiate the proposed limits.

- Enclosure two provides a copy of portions of Auburndale's pretreatment ordinance with modifications entered directly in the text. The only significant revisions are on page 1290, 1291, and 1292 of the ordinance.

Influent analysis should be accomplished for all the toxic organic compounds for which limits have been specified. If any of these compounds are identified in the influent, additional testing may be necessary.

Should any outstanding issues be noted or any additional information be needed, please contact me at your convenience.

Sincerely,

CHASTAIN-SKILLMAN, INC.

R. Jerry Murphy, P.E., PhD.
Senior Engineering Consultant

PAB:mc

xc: John Dickson, City of Auburndale
Bobby Tillman, City of Auburndale
Al Herndon, P.E., USEPA Region IV
Ed Snipes, P.E., DEP - Tampa

Enclosure One

Summary of Proposed Pretreatment Limits

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Summary of Proposed Pretreatments Limits Auburndale Wastewater Treatment Plants			
		Daily Maximum	
Pollutant	**Background Concentration (mg/l)**	**Past Limit (mg/l)**	**Proposed Limit (mg/l)**
Antimony	0.025	None	40.00
Arsenic	0.0005	0.01	0.49
Beryllium	0	None	0.0025
Boron	0.34	None	16.94
Cadmium	0.0005	0.05	0.018
Chromium - Total	0.02	2.00	0.20
Cobalt		None	0.48
Copper	0.08	2.00	0.280
Cyanide	0.005	0.036	0.073
Fluoride	0.405	None	7.25
Lead	0.0105	2.00	0.011
Manganese		None	3.0
Mercury	0.0001	0.014	0.0001
Nickel	0.01	0.6	1.75
Oils & Grease		100	100
Phenols	0.013	4.0	4.0
Silver		.004	0.004
Toxic Organics			
Benzene			1.36
Tetrachloroethylene			0.36
Trichloroethylene			3.67
Toluene			1.18
Vinyl Chloride			0.003
Phenol			4.0
Zinc	0.145	1.00	1.50
BOD_5		2520	975.00
TSS		520	290.00
Total Dissolved Solids	400	None	1,405.00
Total Nitrogen		80	40.00

TOXIC ORGANICS: Specific toxic organic compounds have been designated to limit the discharge of substances that have the following characteristics:

1. Common in even small industrial or commercial operations in a municipality;

2. Constitute a potential occupational hazard to wastewater operations or maintenance personnel due to the such substances' toxicity; or

3. May significantly adversely inhibit the wastewater treatment processes.

Benzene, tetrachloroethlyene, trichloroethylene, toluene and vinyl chloride are occupational hazards and should be screened at concentration levels delineated in the EPA Manual Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors (June 1992). The inhibition of activated sludge treatment processes is significant for the substance phenol. Limits for phenol concentration to mitigate inhibition are reported as 4 mg/l in EPA Guidance Manual on the Development and Implementation of Local Discharge Limitation Under the Pretreatment Program (Dec. 1987). Process removal efficiencies for all of these organic compounds, reported as median values in the cited EPA Guidance Document (Dec. 1987) for secondary activated sludge treatment, are 80 to 93%. This plant's performance evaluations conducted in 1989 and 1995 reported removal of phenol in the plant as 78 and 90%, respectively. The lower value, 78% removal efficiency, was used in calculating the allowable loading of all the designated organic compounds. Also, during the 1989 performance evaluation, background concentrations for phenol were reported as 0.12 mg/l. This value or 50% of the analytical method detection level was used as the background level in the calculations of pretreatment limits for each of the toxic organics compounds.

Enclosure Two

Revision Pretreatment Ordinance Text

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five (5) percent nor any single reading over ten (10) percent of the lower explosive limit (LEL) of the meter. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols (other than ethanol or methanol), ketones, adlehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides and any other substance which Auburndale, the State of Florida or the EPA has notified the user is a fire hazard or a hazard to the system.

(2) Solid or viscous substances in quantities or of such size as may be cause obstructions to the flow in a sewer or other interference with the operation of the wastewater treatment facilities, such as, but not limited to: Grease, garbage with particles greater than one-half (1/2) inch in any dimension, animal guts or tissues, paunch, manure, bones, hair, hides, or fleshings, entrails, whole blood, feathers, ashes, cinders, sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rages, spent grains, spent hops, wastepaper, wood, plastics, gas, tar, asphalt residues, residues from refining, or processing of fuel or lubricating oil, mud or glass-grinding or polishing wastes.

(3) Any wastewater having pH less than 5.0 or greater than 9,5, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment and/or personnel of the POTW.

(4) Any wastewater containing toxic pollutants in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the POTW or to exceed the limitations set forth in a categorical pretreatment standard. A "toxic pollutant" shall include, but not be limited to, any pollutant identified pursuant to Section 307(a) of the act.

(5) Any noxious or malodorous liquids, gases or solids which, either singly or by interaction with other wastes, are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for maintenance and repair.

(6) Any substance which may cause the POTW's effluent or any other product of the POTW, such as residues, sludges or scums, to be unsuitable of reclamation and reuse or to interfere with the reclamation process. In no case shall a substance discharged to the POTW cause the POTW to be in noncompliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the act; any criteria, guidelines or regulations affecting sludge use or disposal developed pursuant to the Solid Waste disposal Act, the Clean Air Act, the Toxic Substances Control Act or state criteria applicable to the sludge management method being used.

(7) Any substance which will cause the POTW to violate its NPDES and/or state disposal system permit or the receiving-water-quality standards.

(8) Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.

(9) Any wasetwater having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference but in no case wastewater with a temperature at the introduction into the POTW which exceeds 40 degrees C (104 degrees F), unless the POTW treatment plant is designed to accommodate such temperature.

(10) Any pollutants, including oxygen-demanding pollutants (BOD, COD, etc.), released at a flow rate and/or pollutant concentration which a user knows or has reason to know will cause interference to the POTW. In no case shall a slug load have flow rate or contain concentration or qualities or pollutants that exceed, for any time period longer than fifteen (15) minutes, more than five (5) times the average twenty-four-hour concentration, quantities, or flow during normal operation.

(11) Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the director in compliance with applicable state or federal regulations.

(12) Any water or waste containing fats, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between thirty-two (32) degrees and one hundred fifty (15) degrees Fahrenheit (zero (0) and sixty five (65) degrees Celsius).

(13) Any garbage that has not been properly shredded.

(14) Any waters or wastes containing strong acid-iron pickling wastes or concentrated plating solutions, whether neutralized or not.

(15) Materials which exert or cause:

a. Unusual concentrations of inert suspended solids (such as, but not limited to, fuller's earth, lime slurries and lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).
b. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).
c. Unusual BOD, chemical oxygen demand or chlorine requirements in such quantities as to constitute a significant load on the POTW.
d. Unusual volume of flow or concentration of wastes constituting "slugs" as defined herein.
e. Unusual total phosphorous or total nitrogen concentrations in such quantities as to constitute a significant load on the POTW.
f. Alternation of a soils' assimulative properties, particularlyits' hydraulic conductivity, that my inhibit application of reclaimed water to such soil (i.e., a discharge with a sodium adsorption ratio (SAR) $\geq$ 10).

(16) Any wastewater which causes a hazard to human life or creates a public nuisance.

When the director determines that a user(s) is contributing to the POTW any of the above-enumerated substances in such amounts as to interfere with the operation of the POTW, the director shall:

a. Advise the user(s) of the impact of the contribution on the POTW; and
b. Develop effluent limitation(s) for such user to correct the interference with the POTW.

(b)(1) In order to protect the treatment plant from substances that may interfere with its operation, contaminate the sludge or cause a violation of its discharge permit, the following target limits are to be met at the influent to the treatment plant(s):

	Substance	*mg/l*
(a)	Cadium	0.0005
(b)	Chromium (total)	1.0
(c)	Chromium (hexavalent)	0.2
(d)	Copper	0.24
(e)	Cyanide	0.01
(f)	Lead	0.008
(g)	Mercury	0.000024
(h)	Nickel	0.25
(i)	Zinc	0.29
(j)	BOD_5	300.0
(k)	TSS	250.0
(l)	TN	40.0
(m)	TP	40.0
(n)	Silver	0.0006

(2) The limits set out above may be used as a guide in design and plant control.

(3) In order to ensure compliance with the target limits established in paragraph (b)(1) above, set standards to be met by each industrial user are established as follows:

Parameter	*Daily Maximum (mg/l)*
Antimony	40
Arsenic	0.49
Berylium	0.0025
Boron	16.94
Cadmium	0.018
Chromium	0.20
Cobalt	0.48
Copper	0.28
Cyanide	0.073
Fluoride	7.3
Lead	0.01
Manganese	2.94
Mercury	0.0001
Nickel	1.75
Oils and Grease	100
Phenols	4.0
Silver	0.004

Parameter	*Daily Maximum (mg/l)*
Toxic Organics	
Benzene	0.14
Tetrachloroethylene	0.53
Trichloroethylene	0.71
Toluene	0.003
Vinyl Chloride	0.0003
Phenol	4.0
Zinc	1.5
$CBOD_5$	975
TSS	290
Total Nitrogen	40
Total Phosphorus	24
TICH	6.0
Total Dissolved Solids	1405

c. Any user discharging or anticipating a discharge of substances in his wastes within ten (10) percent or in excess of the concentrations identified in subsection 23-22(b)(3) may be classified as a significant industrial user and subject to the wastewater discharge permitting requirements of this article.

Significant industrial users applying for wastewater contribution permits may request a variance from the values identified in section 23-22(b)(3). The evaluation of requests for variances will be based on such factors as quantities of subject wastes and flows in relation to the total POTW influent flows and waste concentrations, the flow volume and velocities in sewer line, the material utilized in the construction of the wastewater collection system, the nature of the sewage treatment process, the capacity of the POTW, the degree of treatability of wastes in the treatment plant, the quality of sludge for suitable disposal and water quality requirements of the receiving stream for the sewage treatment plant effluent. Variances, when granted, shall be specifically identified in the industrial user's wastewater contribution permit. Variances will not be granted from national standards.

d. If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in this section, and which, in the judgment of the director, may have a deleterious effect upon the POTW, processes equipment or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the director may:

1. Reject the wastes;

2. Require pretreatment to an acceptable condition for discharge to the public sewers;

3. Require control over the quantities and rates of discharges;

4. Require payment to cover the added cost of handling and treating the wastes not covered by existin taxes or sewer charges;

5. Require payment to cover the added cost of a monitoring program to determine compliance with the requirements of this article.

Auburndale Program

Department of Environmental Protection

TELEPHONE CONTACT:

☒initiated ☐received Date: 9/6/96 Time: 9:00 - 9:55

Person Contacted: Paul Bizier Telephone: (941) 646-1402

Title: Director of Env. Engineering Consultants Chastain-Skillman, Inc. Representing: City of Auburndale

Summary:

I spoke with Paul Bizier about the local limits for Auburndale. We discussed their most recent submission dated 7/29/96. By topic, we discussed:

(1) The use of EPA's "long-term" and "short-term" use recommended limits (see attached Table 19) to develop "average" and "daily" local limits.

- I pointed out to Paul, that EPA defined ~~"short-term"~~ "short-term" in terms of the expected use of the irrigation site (for example, short-term means up to 20 years). Paul agreed that they would go ahead and drop the remainder of the "average" limits and incorporate these into daily maximums.

(2) We discussed the local limit for "Soil Adsorption Ratio". I asked Paul if they intended to say "Sodium Adsorption Ratio" (SAR). Paul said that indeed that was a typo and should be Sodium. Paul said that the city wanted to have something on the ordinance for SAR because of an IU (Mirro) who is a water softener. I asked if it was possible to develop a limit specifically for Na, but, Paul was reluctant to do so and thought that

Follow Up Required:

☐yes ☐no Contact person: _____

Action Required: _____

Copy to File: Major _____ Minor _____

CC: _____

Department of Environmental Protection

TELEPHONE CONTACT:

☐initiated ☐received Date:_____ Time:_____

Person Contacted:_____ Telephone:(___)_____

Title:_____ Representing:_____

Summary:

SAR would better protect the sprayfield from hardpan conditions. After discussing their concern over SAR for several minutes, I suggested that maybe this could be addressed in a specific condition rather than in the table of local limits. Paul liked that idea and said he would work on a specific condition to address SAR.

(3) Use of "Total Toxic Organics" as a local limit parameter. Paul and I discussed some of the difficulties in developing a "combined organics parameter as well as using the "TTO" name. Paul indicated that Auburndale had ~~experienced~~ experienced problems with "dumping" of organics so they really wanted to have some limits. After some more discussion I asked Paul if he'd seen the "Guidance to Protect POTW Workers from Toxic and Reactive Gases and Vapors" document that has levels of pollutants to protect from explosivity and ~~fume~~ fume Toxicity." Paul was not aware of the document and after reviewing some of the concentrations thought they could set some limits using that EPA document for selected organic compounds. Paul said he would make the revisions we'd discussed and send us a revised local limits submission

Follow Up Required:

☒yes ☐no Contact person: John Coates

Action Required: Confer with Bob hold review of local limits for Auburndale until we receive revisions.

Copy to File: Major Auburndale Minor Program

CC: R. Heilman → File

BL

John Coates

EPA/625/R-92/004
September 1992

Manual

Guidelines for Water Reuse

U.S. Environmental Protection Agency

Office of Water
Office of Wastewater Enforcement and Compliance
Washington, DC

Office of Research and Development
Office of Technology Transfer and Regulatory Support
Center for Environmental Research Information
Cincinnati, Ohio

U.S. Agency for International Development
Washington, DC

Table 19. Recommended Limits for Constituents in Reclaimed Water for Irrigation

TRACE HEAVY METALS

Constituent	Long-Term Use (mg/L)	Short-Term Use (mg/L)	Remarks
Aluminum	5.0	20	Can cause nonproductivity in acid soils, but soils at pH 5.5 to 8.0 will precipitate the ion and eliminate toxicity.
Arsenic	0.10	2.0	Toxicity to plants varies widely, ranging from 12 mg/L for Sudan grass to less than 0.05 mg/L for rice.
Beryllium	0.10	0.5	Toxicity to plants varies widely, ranging from 5 mg/L for kale to 0.5 mg/L for bush beans.
Boron	0.75	2.0	Essential to plant growth, with optimum yields for many obtained at a few-tenths mg/L in nutrient solutions. Toxic to many sensitive plants (e.g., citrus) at 1 mg/L. Usually sufficient quantities in reclaimed water to correct soil deficiencies. Most grasses relatively tolerant at 2.0 to 10 mg/L.
Cadmium	0.01	0.05	Toxic to beans, beets, and turnips at concentrations as low as 0.1 mg/L in nutrient solution. Conservative limits recommended.
Chromium	0.1	1.0	Not generally recognized as essential growth element. Conservative limits recommended due to lack of knowledge on toxicity to plants.
Cobalt	0.05	5.0	Toxic to tomato plants at 0.1 mg/L in nutrient solution. Tends to be inactivated by neutral and alkaline soils.
Copper	0.2	5.0	Toxic to a number of plants at 0.1 to 1.0 mg/L in nutrient solution.
Fluoride	1.0	15.0	Inactivated by neutral and alkaline soils.
Iron	5.0	20.0	Not toxic to plants in aerated soils, but can contribute to soil acidification and loss of essential phosphorus and molybdendum.
Lead	5.0	10.0	Can inhibit plant cell growth at very high concentrations.
Lithium	2.5	2.5	Tolerated by most crops at up to 5 mg/L; mobile in soil. Toxic to citrus at low doses - recommended limit is 0.075 mg/L.
Manganese	0.2	10.0	Toxic to a number of crops at a few-tenths to a few mg/L in acid soils.
Molybdenum	0.01	0.05	Nontoxic to plants at normal concentrations in soil and water. Can be toxic to livestock if forage is grown in soils with high levels of available molybdenum.
Nickel	0.2	2.0	Toxic to a number of plants at 0.5 to 1.0 mg/L; reduced toxicity at neutral or alkaline pH.
Selenium	0.02	0.02	Toxic to plants at low concentrations and to livestock if forage is grown in soils with low levels of added selenium.
Tin, Tungsten, & Titanium	—	—	Effectively excluded by plants; specific tolerance levels unknown
Vanadium	0.1	1.0	Toxic to many plants at relatively low concentrations.
Zinc	2.0	10.0	Toxic to many plants at widely varying concentrations; reduced toxicity at increased pH (6 or above) and in fine-textured or organic soils.

OTHER PARAMETERS

Constituent	Recommended Limit	Remarks
pH	6.0	Most effects of pH on plant growth are indirect (e.g., pH effects on heavy metals' toxicity described above).
TDS	500-2,000 mg/L	Below 500 mg/L, no detrimental effects are usually noticed. Between 500 and 1,000 mg/L, TDS in irrigation water can affect sensitive plants. At 1,000 to 2,000 mg/L, TDS levels can affect many crops and careful management practices should be followed. Above 2,000 mg/L, water can be used regularly only for tolerant plants on permeable soils.
Free Chlorine Residual	< 1 mg/L	

Source: Adapted from EPA, 1973.

engineers • scientists • surveyors
chastain skillman

Lakeland
Reply to: 646-1402
FAX 647-3806

July 29, 1996

Mr. Robert Heilman, P.E.
Pretreatment Coordinator
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: City of Auburndale Pretreatment Program
Permit Number FL0021486
CSI File 1880.01

Dear Mr. Heilman:

As the design professional responsible for developing Auburndale's original EPA-approved pretreatment program, Mr. Dickson has asked that I respond to your letter of July 17, 1996 regarding Auburndale's pretreatment program. To simplify our response, we will respond in chronological order to your letter.

We originally designed a two-tier system for Auburndale using monthly and daily limits. The daily limits were designed to protect the treatment process against inhibition and upset. They were also established to ensure no violation of state water quality standards for Lake Lena Run, the receiving water body. The monthly limits, which in most cases are more stringent, are designed to protect the City's effluent spray irrigation grove and to ensure that the City's sludge meets DEP and EPA requirements. As pollutants accumulate over time, we felt that the use of more stringent monthly average standards for pollutants which would adversely impact either the sprayfield or sludge disposal was appropriate.

It is our understanding that at the last review by DEP, the use of monthly average limits was questioned. It is also our understanding, based on discussions with Billy Mills, that the DEP recommended the use of four consecutive sample limits if long-term average limits were to be utilized. This was due to the City's current policy of collecting samples once monthly on several industries. Therefore, we revised the City's ordinance to change from a monthly average to a four consecutive sample average.

A one day exceedance of the long-term average limitations will not necessarily cause an upset or inhibition of treatment. Therefore, we believe it is appropriate to use both short- and long-term limits, depending upon the pollutant and the area of concern.

In calculating the local limits, the use of the 10% value for industrial flow was designed to include an allowance for growth and to provide a safety factor. This was stated in the original EPA pretreatment document and approved/accepted by EPA. Presently, the industrial flow is significantly less than this 10% at approximately 80,000 to 100,000 gallons per day. However, the 10% value does provide a buffer for future growth and also ensures that the limits are conservative.

In response to your last comments, we have gone through each limit and prepared additional documentation, in textual form, which better explains the source and nature of each limit.

Where the inhibition concentrations have not been referenced, these concentrations were derived from EPA guidance documents. Where other data was used, it is from readily available WEF documents. Again, the attached supplemental information outlines the inhibition concentrations and their sources.

The hardness value of 110 mg/L was measured by the City on their treated wastewater. This was in response to DEP's earlier comments on the value of 300 mg/L, which was based on the raw potable water characteristics. If additional documentation of the City's more recent testing is required, please advise.

We appreciate the opportunity to address the issues which you have raised. If you have any questions, or need additional information, please contact me at your convenience.

Sincerely,

CHASTAIN-SKILLMAN, INC.

Paul A. Bizier, P.E., DEE
Director of Environmental Engineering

PAB/mc

Encl.

xc: John Dickson, City of Auburndale
Bobby Tillman, City of Auburndale
Al Herndon, P.E., U.S. EPA Region IV
Ed Snipes, P.E., DEP Tampa

Table D-1

SUMMARY OF PROPOSED PRETREATMENT LIMITS AUBURNDALE WASTEWATER TREATMENT PLANTS						
		4 Consecutive Sample Average		Daily Maximum		
POLLUTANT	BACKGROUND CONCENTRATION (mg/l)	PAST LIMIT	PROPOSED LIMIT	PAST LIMIT	PROPOSED LIMIT	UNITS
Antimony	0.025	None		None	40.00	mg/l
Arsenic	0.0005	0.01	0.27	0.01	0.49	mg/l
Beryllium	0	None		None	0.0025	mg/l
Boron	0.34	None	4.44	None	16.94	mg/l
Cadmium	0.0005	0.03		0.05	0.018	mg/l
Chromium - Total	0.02	1.00		2.00	0.20	mg/l
Cobalt		None	0.48	None		mg/l
Copper	0.08	1.00		2.00	0.280	mg/l
Cyanide	0.005	0.018		0.036	0.073	mg/l
Fluoride	0.405	None	7.25	None		mg/l
Lead	0.0105	1.00		2.00	0.011	mg/l
Manganese		None	3.00	None		mg/l
Mercury	0.0001	0.007		0.014	0.0001	mg/l
Nickel	0.01	0.30		0.60	1.75	mg/l
Oils & Grease		100.00		100.00	100.00	mg/l
Phenols	0.013	2.00		4.00		mg/l
Silver	0.0001	0.004		0.008	0.005	mg/l
Total Toxic Organics (EPA Method 624/625)					4.000	mg/l
Zinc	0.145	0.50		1.00	1.500	mg/l
BOD_5		1575		2520	975.00	mg/l
TSS		290		520	290.00	mg/l
Total Dissolved Solids	400	None		None	1,405.00	mg/l
Total Nitrogen		40		80	40.00	mg/l
Soil Adsorption Ratio		None	≤10	None	≤10	

Antimony (40 mg/L max.) Background testing was performed by the City in 1989 at two different locations where there was no identifiable industrial contribution. At that time, antimony was not detected. Therefore, the background concentration was established at one-half the detection limit, or 0.025 mg/L.

Antimony is not known to inhibit activated sludge or nitrification. There is no defined limitation on Antimony loadings in effluent reuse situations. There is no defined limitation on Antimony loadings for sludge disposal/reuse. Therefore, the only limitation is based on Class III Water Quality Criteria. In the 1989 development of the Pretreatment Program, no antimony was detected in the plant influent. Therefore, it is impossible to calculate a plant-specific value for removal efficiency. As no data is available, it is assumed that no Antimony is removed in the treatment plant, which represents a worst case scenario.

Based on the Water Quality Criteria, and on a background concentration of 0.025 mg/L, the program limit is 42.7 mg/L. To simplify, this has been rounded to 40 mg/L. Because there are no long-term limitations on Antimony, there is no long-term limit.

Pollutant:	Antimony				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Antimony			
	Avg. Background Conc.:	0.025	mg/l	(detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.26271	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Antimony			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	4.3	mg/l		
	Maximum Effluent Conc.	4.3	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	4.3	mg/l		
	Influent Mass Loading	50.2068	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%	From Plant Testing		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards	50.2068	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	50.2068	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	50.2068	lbs. per day		
	Loading Attributable to Domestic Sources	0.26271	lbs. per day		
	Mass Loading Available for Industrial Loading	49.94409	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	42.775	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.025	mg/l		
	Program Limit	42.775	mg/l		
	Type of Limit	Daily Max.			

Arsenic (0.27 mg/L average, 0.49 mg/L max.) Background testing was performed by the City in 1989 at two different locations where there was no identifiable industrial contribution. At that time, arsenic was not detected. Therefore, the background concentration was established at one-half the detection limit, or 0.0005 mg/L.

Arsenic is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 0.05 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). In addition, there is a limiting water quality concentration of 0.05 mg/L for Class III surface waters. In the 1989 development of the Pretreatment Program, the influent to the wastewater plant was tested for arsenic, with none detected. Therefore, it was impossible to calculate a plant-specific arsenic removal efficiency. It has been assumed, lacking specific test data, that the removal of arsenic in the POTW will be equivalent to 33%, as identified in the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual.* To meet 503 and 17-640 regulations, there are limitations on arsenic in sludge. Finally, to protect the effluent sprayfield, the effluent concentration of arsenic must be less than 2 mg/L on a short-term basis, and less than 0.1 mg/L on a long-term basis.

On a short-term basis, meeting Class III surface water standards will govern, with a resulting maximum allowable value of 0.496 mg/L. For simplicity, this has been rounded to a daily maximum of 0.49 mg/L. On a long-term basis, meeting sludge disposal requirements governs. This results in a maximum allowable value of 0.274 mg/L, which has been rounded to the 4 consecutive sample limit of 0.27 mg/L.

Pollutant:	Arsenic						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Arsenic					
	Avg. Background Conc.:	0.0005	mg/l	(1/2 detection limit)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0.0052542	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Arsenic					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	0.05	mg/l				
	Influent Limiting Concentration:	0.05	mg/l				
	Influent Limiting Mass Loading:	0.5838	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	0.05	mg/l				
	Maximum Effluent Conc.	0.05	mg/l				
	Reduction of Pollutant in POTW	33%	based on CERCLA Manual				
	Maximum Influent Conc.	0.0746269	mg/l				
	Influent Mass Loading	0.8713433	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.1	mg/l		2	mg/l	
	Reduction of Pollutant in POTW	33%	based on CERCLA Man.		33%		
	Maximum Influent Conc.	0.1492537	mg/l		2.985075	mg/l	
	Influent Mass Loading	1.7426866	pounds per day		34.85373	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	41	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	48613.6255	mg/day				
		0.1072	lbs. per day				
	Removal of Pollutant in POTW	33%	CERCLA Site Discharges Treatability Manual				
	Allowable Influent Mass Loading	0.3248	lbs. per day				
5	Determination of Limiting Factor	Long-term			Short-term		
	Inhibition of Activated Sludge	0.5838	lbs. per day		0.5838	lbs. per day	
	Class III Water Quality Standards	0.8713	lbs. per day		0.8713	lbs. per day	
	Protection of Effluent Sprayfield	1.7427	lbs. per day		34.8537	lbs. per day	
	Protection of Sludge Disposal	0.3248	lbs. per day			lbs. per day	
	Limiting Amount	0.3248	lbs. per day		0.5838	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.3248	lbs. per day		0.5838	lbs. per day	
	Loading Attributable to Domestic Sources	0.0053	lbs. per day		0.0053	lbs. per day	
	Mass Loading Available for Industrial Loading	0.3195	lbs. per day		0.5785	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.2737	mg/l		0.4955	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0005	mg/l		0.0005	mg/l	
	Program Limit	0.274	mg/l		0.496	mg/l	

Beryllium (0.0025 mg/L maximum) No background testing has been performed by the City for beryllium. Therefore, the background concentration was assumed to be equal to 1/2 the instrument detection limit as outlined in Table 3111:1 of the 1992 Edition of *Standard Methods for the Examination of Water and Wastewater.*

Beryllium is not known to inhibit activated sludge or nitrification. There are limitations on beryllium loadings in effluent reuse situations, with short-term concentrations limited to 0.5 mg/L and long-term concentrations limited to 0.1 mg/L (See EPA *Guidelines for Water Reuse*). There is no defined limitation on beryllium loadings for sludge disposal/reuse. Therefore, the limitation is based on Class III Water Quality Criteria, with a discharge limit of 0.00013 mg/L. As no data is available, it is assumed that no beryllium is removed in the treatment plant, which represents a worst case scenario.

Based on the Water Quality Criteria, and on a background concentration of 0.0025 mg/L, the treatment plant has no capacity for beryllium. Therefore, the pretreatment limit has been set at 1/2 the detection limit.

Pollutant:	Beryllium						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Beryllium					
	Avg. Background Conc.:	0.0025	mg/l	1/2 Det. Limit			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0.026271	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Beryllium					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	0.00013	mg/l				
	Maximum Effluent Conc.	0.00013	mg/l				
	Reduction of Pollutant in POTW	0%	(Assumed)				
	Maximum Influent Conc.	0.00013	mg/l				
	Influent Mass Loading	0.0015179	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.1	mg/l		0.5	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.1	mg/l		0.5	mg/l	
	Influent Mass Loading	1.1676	pounds per day		5.838	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards	0.0015179	lbs. per day		0.001518	lbs. per day	
	Protection of Effluent Sprayfield	1.1676	lbs. per day		5.838	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	0.0015179	lbs. per day		0.001518	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.0015179	lbs. per day		0.001518	lbs. per day	
	Loading Attributable to Domestic Sources	0.026271	lbs. per day		0.026271	lbs. per day	
	Mass Loading Available for Industrial Loading	-0.0247531	lbs. per day		-0.02475	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	-0.0212	mg/l		-0.0212	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0025	mg/l		0.0025	mg/l	
	Program Limit	0.0025	mg/l		0.0025	mg/l	
		Daily Max.			Daily Max.		

Boron (4.44 mg/L avg., 16.94 mg/L daily maximum) Background testing was performed by the City in 1994. Therefore, the background concentration was based on this testing, which resulted in a value of 0.34 mg/L.

Boron is not listed by the EPA as having an inhibitory effect on activated sludge. There is no limiting water quality concentration for boron in Class III surface waters. However, to protect the effluent sprayfield, the effluent concentration of boron must be less than 2 mg/L on a short-term basis, and less than 0.75 mg/L on a long-term basis (See EPA *Guidelines for Water Reuse*). The testing In 1994 did not indicate a significant reduction in boron across the City's wastewater treatment plant. Therefore, no reduction in boron was assumed.

On a short-term basis, meeting sprayfield requirements will result in a maximum allowable value of 16.94 mg/L. On a long-term basis, the maximum allowable value is 4.44 mg/L.

Pollutant:	Boron						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Boron					
	Avg. Background Conc.:	0.34	mg/l	(1994 testing)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	0.9	MGD				
	Domestic Portion	0.81	MGD				
	Total Domestic Loading of Pollutant:	2.296836	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Boron					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	#VALUE!	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.75	mg/l		2	mg/l	
	Reduction of Pollutant in POTW	0%			0		
	Maximum Influent Conc.	0.75	mg/l		2	mg/l	
	Influent Mass Loading	5.6295	pounds per day		15.012	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	5.6295	lbs. per day		15.012	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	5.6295	lbs. per day		15.012	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	5.6295	lbs. per day		15.012	lbs. per day	
	Loading Attributable to Domestic Sources	2.296836	lbs. per day		2.296836	lbs. per day	
	Mass Loading Available for Industrial Loading	3.332664	lbs. per day		12.71516	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	4.44	mg/l		16.94	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.34	mg/l		0.34	mg/l	
	Program Limit	4.44	mg/l		16.94	mg/l	
		Monthly Avg.			Daily Max.		

BOD BOD limits were based on the original design criteria for the facility and on background testing performed by the City. The purpose of this limitation is to ensure that the existing aeration system is not overloaded.

Pollutant:	BOD				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	BOD			
	Avg. Background Conc.:	225	mg/l	(routine testing)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	0.9	MGD		
	Domestic Portion	0.81	MGD		
	Total Domestic Loading of Pollutant:	1519.965	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	BOD			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	300	mg/l		
	Influent Limiting Concentration:	300	mg/l		
	Influent Limiting Mass Loading:	2251.8	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	2251.8	lbs. per day		
	Class III Water Quality Standards	#VALUE!	lbs. per day		
	Protection of Effluent Sprayfield	#VALUE!	lbs. per day		
	Protection of Sludge Disposal	#VALUE!	lbs. per day		
	Limiting Amount	2251.8	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	2251.8	lbs. per day		
	Loading Attributable to Domestic Sources	1519.965	lbs. per day		
	Mass Loading Available for Industrial Loading	731.835	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	975	mg/l		
	Max. Allowable Conc. based on Background Conc.	225	mg/l		
	Program Limit	975	mg/l		

Cadmium (0.0175 mg/L maximum) In previous background testing, both in 1989 and in 1995, cadmium was not detected at the detection limit. Therefore, the background concentration was established at one-half the detection limit, or 0.0005 mg/L.

Cadmium is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 1.0 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). In addition, there is a limiting water quality concentration of 0.012 mg/L for Class III surface waters. In both the 1989 and 1995 testing, cadmium was not detected in the plant influent. Therefore, it is impossible to calculate a plant specific removal efficiency for cadmium. It has been assumed, lacking specific test data, that the removal of cadmium in the POTW will be equivalent to 45%, as identified in the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual.* To meet 503 and 17-640 regulations, there are limitations on cadmium in sludge. Finally, to protect the effluent sprayfield, the effluent concentration of cadmium must be less than 0.01 mg/L.

Meeting Class III surface water standards governs, with a resulting maximum allowable value of 0.0175 mg/L. For simplicity, this has been rounded to a daily maximum of 0.018 mg/L.

Pollutant:	Cadmium				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Cadmium			
	Avg. Background Conc.:	0.0005	mg/l	(½ detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.0052542	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Cadmium			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	1	mg/l		
	Influent Limiting Concentration:	1	mg/l		
	Influent Limiting Mass Loading:	11.676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.21E-03	mg/l		
	Maximum Effluent Conc.	0.00121	mg/l		
	Reduction of Pollutant in POTW	45%	based on CERCLA Manual		
	Maximum Influent Conc.	0.0022	mg/l		
	Influent Mass Loading	0.0257	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.01	mg/l		
	Reduction of Pollutant in POTW	45%	based on CERCLA Manual		
	Maximum Influent Conc.	0.0182	mg/l		
	Influent Mass Loading	0.2123	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	39	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day		
	Mass Loading to Sludge	46242.23	mg/day		
		0.1019	lbs. per day		
	Removal of Pollutant in POTW	45%			
	Allowable Influent Mass Loading	0.2265	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	11.6760	lbs. per day		
	Class III Water Quality Standards	0.0257	lbs. per day		
	Protection of Effluent Sprayfield	0.2123	lbs. per day		
	Protection of Sludge Disposal	0.2265	lbs. per day		
	Limiting Amount	0.0257	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.0257	lbs. per day		
	Loading Attributable to Domestic Sources	0.0053	lbs. per day		
	Mass Loading Available for Industrial Loading	0.0204	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.0175	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0005	mg/l		
	Program Limit	0.0175	mg/l		

Chromium (0.20 mg/L maximum) In the 1989 background testing, chromium was not detected at the detection limit. Therefore, the background concentration was established at one-half the detection limit, or 0.02 mg/L.

Chromium (hexavalent) is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 1.0 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). WEF, in *Pretreatment of Industrial Wastes, Manual of Practice FD*-3, lists an inhibitory concentration for total chromium of 1 mg/L for activated sludge and 0.25 mg/L for nitrification. In addition, there is a limiting water quality concentration of 0.011 mg/L for Class III surface waters. During the 1989 testing, chromium was not detected in the plant influent. It has been assumed, lacking specific test data, that the removal of chromium in the POTW will be equivalent to 71%, as identified in the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual*. To protect the effluent sprayfield, the effluent concentration of chromium must be less than 0.1 mg/L.

Meeting Class III surface water standards governs, with a resulting maximum allowable value of 0.1993 mg/L. For simplicity, this has been rounded to a daily maximum of 0.20 mg/L.

Pollutant:	Chromium				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Chromium			
	Avg. Background Conc.:	0.02	mg/l	(½ detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.210168	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Chromium			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	1	mg/l		
	Influent Limiting Concentration:	1	mg/l		
	Influent Limiting Mass Loading:	11.676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.10E-02	mg/l		
	Maximum Effluent Conc.	0.011	mg/l		
	Reduction of Pollutant in POTW	71%	based on CERCLA manual		
	Maximum Influent Conc.	0.0379	mg/l		
	Influent Mass Loading	0.4429	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.1	mg/l		
	Reduction of Pollutant in POTW	71%	based on CERCLA manual		
	Maximum Influent Conc.	0.3448	mg/l		
	Influent Mass Loading	4.0262	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration		mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day		
	Mass Loading to Sludge	0	mg/day		
		0	lbs. per day		
	Removal of Pollutant in POTW	71%			
	Allowable Influent Mass Loading		lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	11.6760	lbs. per day		
	Class III Water Quality Standards	0.4429	lbs. per day		
	Protection of Effluent Sprayfield	4.0262	lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.4429	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.4429	lbs. per day		
	Loading Attributable to Domestic Sources	0.2102	lbs. per day		
	Mass Loading Available for Industrial Loading	0.2327	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.1993	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0200	mg/l		
	Program Limit	0.1993	mg/l		

Cobalt (0.48 mg/L average) No background testing has been performed for cobalt. Therefore, the background concentration has been assumed to be equivalent to 1/2 the detection limit for cobalt.

Cobalt is not known to inhibit activated sludge or nitrification. There are limitations on cobalt loadings in effluent reuse situations, with short-term concentrations limited to 5 mg/L and long-term concentrations limited to 0.05 mg/L (See EPA *Guidelines for Water Reuse*). There is no defined limitation on cobalt loadings for sludge disposal/reuse. Therefore, the limitation is based on protection of the effluent sprayfield. As no data is available, it is assumed that no cobalt is removed in the treatment plant, which represents a worst case scenario.

Based on protecting the effluent sprayfield, the short-term limit would be 50 mg/L. Based on input from DEP, this limit has been dropped, and the more stringent long-term limit of 0.4775 mg/L has been retained. This results in the 0.48 mg/L average specified in the ordinance.

Pollutant:	Cobalt						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Cobalt					
	Avg. Background Conc.:	0.0025	mg/l	(½ detection limit)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0.026271	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Cobalt					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	N.A.	mg/l				
	Reduction of Pollutant in POTW	0%					
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
					Short-term		
	Maximum Effluent Concentration	0.05	mg/l		5	mg/l	
	Reduction of Pollutant in POTW	0%			0		
	Maximum Influent Conc.	0.05	mg/l		5	mg/l	
	Influent Mass Loading	0.5838	pounds per day		58.38	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	0.5838	lbs. per day		58.38	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	0.5838	lbs. per day		58.38	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.5838	lbs. per day		58.38	lbs. per day	
	Loading Attributable to Domestic Sources	0.0263	lbs. per day		0.026271	lbs. per day	
	Mass Loading Available for Industrial Loading	0.5575	lbs. per day		58.35373	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.4775	mg/l		49.9775	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0025	mg/l		0.0025	mg/l	
	Program Limit	0.4775	mg/l		49.9775	mg/l	
		Monthly Avg.			Daily Max.		

Copper (0.28 mg/L maximum) Background testing was performed in both 1989 and in 1995 on copper. The copper concentration in 1989 averaged 0.08 mg/L, while the copper concentration in 1995 averaged 0.095 mg/L. The spreadsheet is based on the 1989 values.

Copper is documented as inhibiting both normal activated sludge and nitrification. Copper is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 1.0 mg/L, and on nitrification at 0.1 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). WEF, in *Pretreatment of Industrial Wastes, Manual of Practice FD-3*, lists an inhibitory concentration for copper of 1 mg/L for activated sludge and 0.05 to 0.48 mg/L for nitrification. In previous versions of the spreadsheet, the mid-point of the range provided by WEF was used to establish the copper limit. However, in the attached spreadsheets, based on DEP input, the inhibition concentration has been reduced to 0.1 mg/L. In addition, there is a limiting water quality concentration of 0.01272 mg/L for Class III surface waters. During the 1995 testing, the removal efficiency of copper was measured, and calculated to be 95%, based on an influent concentration of 0.10 mg/L, and an effluent concentration below detection limits. To protect the effluent sprayfield, the effluent concentration of copper must be less than 0.2 mg/L.

Based on the lower value of 0.1 mg/L for inhibition of nitrification, the pretreatment limit has been revised to 0.28 mg/L maximum. It should be noted, however, that even in 1995, with a measured influent copper concentration of 0.1 mg/L, the facility was meeting all effluent limitations and was achieving excellent nitrogen removal.

Pollutant:	Copper			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Copper		
	Avg. Background Conc.:	0.08	mg/l	Avg. of conc. in collection system
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Pollutant:	0.840672	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Copper		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.1	mg/l	Based on Appendix L, and inhibition of nitrification.
	Influent Limiting Concentration:	0.1	mg/l	
	Influent Limiting Mass Loading:	1.1676	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	1.27E-02	mg/l	
	Maximum Effluent Conc.	0.01272	mg/l	
	Reduction of Pollutant in POTW	.95%	based on Plant Analyses	
	Maximum Influent Conc.	0.2544	mg/l	
	Influent Mass Loading	2.9704	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
		Long-term		
	Maximum Effluent Concentration	0.2	mg/l	
	Reduction of Pollutant in POTW	95%	based on Plant Analyses	
	Maximum Influent Conc.	4	mg/l	
	Influent Mass Loading	46.704	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	1500	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.455	L/day	
		29642.455	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day	
	Mass Loading to Sludge	1778547.3	mg/day	
		3.9210	lbs. per day	
	Removal of Pollutant in POTW	95%		
	Allowable Influent Mass Loading	4.1274	lbs. per day	
5	Determination of Limiting Factor	Long-term		
	Inhibition of Activated Sludge	1.1676	lbs. per day	
	Class III Water Quality Standards	2.9704	lbs. per day	
	Protection of Effluent Sprayfield	46.704	lbs. per day	
	Protection of Sludge Disposal	4.1274	lbs. per day	
	Limiting Amount	1.1676	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	1.1676	lbs. per day	
	Loading Attributable to Domestic Sources	0.8407	lbs. per day	
	Mass Loading Available for Industrial Loading	0.3269	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.28	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.08	mg/l	
	Program Limit	0.28	mg/l	

Cyanide (0.073 mg/L maximum) Background testing in 1989 was inconclusive, as one test indicated a background concentration of 0.015 mg/L, and the other test indicated no cyanide present at concentrations above the detection limit. Therefore, a value of one half the detection limit has been utilized for the background concentration.

Cyanide is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 0.1 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). In addition, there is a limiting water quality concentration of 0.0052 mg/L for Class III surface waters. During the 1989 testing, cyanide was not detected in the plant influent. It has been assumed, lacking specific test data, that the removal of cyanide in the POTW will be equivalent to 56%, as identified in the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual.*

Meeting Class III surface water standards governs, with a resulting maximum allowable value of 0.0732 mg/L.

Pollutant:	Cyanide				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Cyanide			
	Avg. Background Conc.:	0.005	mg/l	(½ detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.052542	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Cyanide			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.1	mg/l		
	Influent Limiting Concentration:	0.1	mg/l		
	Influent Limiting Mass Loading:	1.1676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	5.20E-03	mg/l		
	Maximum Effluent Conc.	0.0052	mg/l		
	Reduction of Pollutant in POTW	56%	based on CERCLA manual		
	Maximum Influent Conc.	0.0118	mg/l		
	Influent Mass Loading	0.1380	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	56%	based on CERCLA manual		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	56%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	1.1676	lbs. per day		
	Class III Water Quality Standards	0.1380	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.1380	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.1380	lbs. per day		
	Loading Attributable to Domestic Sources	0.0525	lbs. per day		
	Mass Loading Available for Industrial Loading	0.0854	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.0732	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0050	mg/l		
	Program Limit	0.0732	mg/l		

Fluoride (7.25 mg/L average) Background testing was performed in 1994 prior to accepting a new industrial customer. The background concentration in 1994 was 0.405 mg/L.

Fluoride is listed as a water quality parameter for Class III surface waters, with a limiting effluent concentration of 10 mg/L for Class III surface waters. During the 1994 testing, the removal efficiency of fluoride was measured, and calculated to be 9%. To protect the effluent sprayfield, the effluent concentration of fluoride must be less than 1 mg/L on a long-term basis, and less than 15 mg/L on a short-term basis. As the long-term effluent sprayfield loading governs, the limit has been established as an average limitation.

Pollutant:	Fluoride						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Fluoride					
	Avg. Background Conc.:	0.405	mg/l	1994 testing			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	4.255902	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Fluoride					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	1.00E+01	mg/l				
	Maximum Effluent Conc.	10	mg/l				
	Reduction of Pollutant in POTW	9%	based on Plant Analyses				
	Maximum Influent Conc.	10.9409	mg/l				
	Influent Mass Loading	127.7462	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	1	mg/l		15	mg/l	
	Reduction of Pollutant in POTW	9%	based on Plant Analyses		9%		
	Maximum Influent Conc.	1.0941	mg/l		16.4835	mg/l	
	Influent Mass Loading	12.7746	pounds per day		192.4615	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	9%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards	127.7462	lbs. per day		127.7462	lbs. per day	
	Protection of Effluent Sprayfield	12.7746	lbs. per day		192.4615	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	12.7746	lbs. per day		127.7462	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	12.7746	lbs. per day		127.7462	lbs. per day	
	Loading Attributable to Domestic Sources	4.2559	lbs. per day		4.2559	lbs. per day	
	Mass Loading Available for Industrial Loading	8.5187	lbs. per day		123.4903	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	7.2959	mg/l		105.7642	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.4050	mg/l		0.4050	mg/l	
	Program Limit	7.2959	mg/l		105.7642	mg/l	
		Monthly Avg.			Daily Max.		

Lead (0.011 mg/L maximum) Background testing was performed in 1989 for lead, with a resultant background concentration of 0.0105 mg/L.

Lead is documented as inhibiting both normal activated sludge and nitrification. Copper is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 0.1 mg/L, and on nitrification at 0.5 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). In addition, there is a limiting water quality concentration of 0.00355 mg/L for Class III surface waters. During the 1989 testing, the removal efficiency of lead was measured, and calculated to be 57%. To protect the effluent sprayfield, the effluent concentration of ~~copper~~ lead must be less than 5 mg/L. Finally, it is necessary to limit the concentration of lead in sludge to 300 mg/kg to protect the sludge disposal.

The limiting factor is the Class III water quality standard, which would indicate that the City has no capacity for additional discharges of lead. Therefore, the program limit has been established at a level equal to the background concentration in the system, or 0.011 mg/L maximum.

Pollutant:	Lead				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Lead			
	Avg. Background Conc.:	0.0105	mg/l	Previous Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.1103382	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Lead			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.1	mg/l		
	Influent Limiting Concentration:	0.1	mg/l		
	Influent Limiting Mass Loading:	1.1676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	3.55E-03	mg/l		
	Maximum Effluent Conc.	0.00355	mg/l		
	Reduction of Pollutant in POTW	57%	based on Plant Analyses		
	Maximum Influent Conc.	0.0083	mg/l		
	Influent Mass Loading	0.0964	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	5	mg/l		
	Reduction of Pollutant in POTW	57%	based on Plant Analyses		
	Maximum Influent Conc.	11.6279	mg/l		
	Influent Mass Loading	135.7674	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	300	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day		
	Mass Loading to Sludge	355709.46	mg/day		
		0.7842	lbs. per day		
	Removal of Pollutant in POTW	57%			
	Allowable Influent Mass Loading	1.3758	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	1.1676	lbs. per day		
	Class III Water Quality Standards	0.0964	lbs. per day		
	Protection of Effluent Sprayfield	135.7674	lbs. per day		
	Protection of Sludge Disposal	1.3758	lbs. per day		
	Limiting Amount	0.0964	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.0964	lbs. per day		
	Loading Attributable to Domestic Sources	0.1103	lbs. per day		
	Mass Loading Available for Industrial Loading	-0.0139	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	-0.0119	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0105	mg/l		
	Program Limit	0.0105	mg/l		

Manganese (3.0 mg/L maximum) No background testing has been performed for manganese. Therefore, the background concentration has been assumed to be equivalent to 1/2 the detection limit for manganese as outlined in Table 3111:1 of the 1992 Edition of *Standard Methods for the Examination of Water and Wastewater*.

Manganese is identified in the EPA document *Guidance Manual for Preventing Interference at POTW's* (September 1987) as inhibitory to activated sludge at concentrations greater than 10 mg/L. There are limitations on manganese loadings in effluent reuse situations, with long-term concentrations limited to 0.2 mg/L (See EPA *Guidelines for Water Reuse*). There is no defined limitation on manganese loadings for sludge disposal/reuse. Therefore, the limitation is based on protection of the effluent sprayfield. As no plant-specific data is available, it is assumed, based on the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual*, that 33% is removed in the treatment plant.

Based on protecting the effluent sprayfield, the long-term limit is 2.94 mg/L. For simplicity sake, this has been rounded up to a long-term limit of 3 mg/L.

Pollutant:	Manganese				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Manganese			
	Avg. Background Conc.:	0.005	mg/l	(Assumed)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.052542	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Manganese			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	10	mg/l		
	Influent Limiting Concentration:	10	mg/l		
	Influent Limiting Mass Loading:	116.76	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	33%	Based on CERCLA Manual		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
		Long-term			
	Maximum Effluent Concentration	0.2	mg/l		
	Reduction of Pollutant in POTW	33%	Based on CERCLA Manual		
	Maximum Influent Conc.	0.2985	mg/l		
	Influent Mass Loading	3.4854	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	33%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor	Long-term			
	Inhibition of Activated Sludge	116.76	lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield	3.4854	lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	3.4854	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	3.4854	lbs. per day		
	Loading Attributable to Domestic Sources	0.0525	lbs. per day		
	Mass Loading Available for Industrial Loading	3.4328	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	2.9401	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0050	mg/l		
	Program Limit	2.9401	mg/l		

Mercury (0.0001 mg/L maximum) In previous background testing, both in 1989 and in 1995, mercury was not detected at the detection limit. In the 1989 testing, the detection limit was 0.0001 mg/L, while in the 1995 testing, the detection limit was 0.0002 mg/L due to differences in labs. The background concentration was established at one-half the higher detection limit, or 0.0001 mg/L.

Mercury is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 0.1 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). In addition, there is a limiting water quality effluent concentration of 1.20×10^{-5} mg/L for Class III surface waters. In both the 1989 and 1995 testing, mercury was not detected in the plant influent. Therefore, it is impossible to calculate a plant specific removal efficiency for mercury. It has been assumed, lacking specific test data, that the removal of mercury in the POTW will be equivalent to 53%, as identified in the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual*. To meet 503 and 17-640 regulations, there are also limitations on mercury in sludge.

Meeting Class III surface water standards governs. However, the data would indicate that the system has no capacity for additional mercury. Therefore, the program limit has been set at 1/2 the detection limit (which equals the assumed background concentration) or 0.0001 mg/L.

Pollutant:	Mercury					
A.	BACKGROUND INFORMATION					
	Pollutant of Concern	Mercury				
	Avg. Background Conc.:	0.0001	mg/l	Assumed @ 1/2 of D.L.		
	Industrial Contribution:	10%				
	Plant Design Capacity:	1.4	MGD			
	Domestic Portion	1.26	MGD			
	Total Domestic Loading of Pollutant:	0.0010508	pounds per day			
B.	CALCULATION OF HEADWORKS					
	LOADING FOR:	Mercury				
1	Inhibition of Activated Sludge Process					
	Inhibiting Concentration:	0.1	mg/l			
	Influent Limiting Concentration:	0.1	mg/l			
	Influent Limiting Mass Loading:	1.1676	pounds per day			
2	Max. Allowable Mass Loading to Meet Class III Water Quality					
	$_7Q_{10}$ of Lake Lena Run	0	mgd			
	Max. Q of Effluent	0.65	mgd			
	Dilution Factor	1				
	Limiting WQ Concentration	1.20E-05	mg/l			
	Maximum Effluent Conc.	0.000012	mg/l			
	Reduction of Pollutant in POTW	53%	based on CERCLA Manual			
	Maximum Influent Conc.	2.553E-05	mg/l			
	Influent Mass Loading	0.0002981	pounds per day			
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield					
	Maximum Effluent Concentration	N.A.	mg/l			
	Reduction of Pollutant in POTW	53%	based on CERCLA Manual			
	Maximum Influent Conc.	#VALUE!	mg/l			
	Influent Mass Loading	#VALUE!	pounds per day			
4	Max. Allowable Mass Loading to Meet Sludge Criteria					
	Limiting Concentration	17	mg/kg	dry solids		
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)		
		7831.56	gpd			
		29642.455	L/day			
		29642.455	kg/day			
	Final solids concentration	4%				
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day			
	Mass Loading to Sludge	20156.87	mg/day			
		0.0444	lbs. per day			
	Removal of Pollutant in POTW	53%				
	Allowable Influent Mass Loading	0.083845	lbs. per day			
5	Determination of Limiting Factor					
	Inhibition of Activated Sludge	1.1676	lbs. per day			
	Class III Water Quality Standards	0.0002981	lbs. per day			
	Protection of Effluent Sprayfield		lbs. per day			
	Protection of Sludge Disposal	0.083845	lbs. per day			
	Limiting Amount	0.0002981	lbs. per day			
C.	ALLOCATION TO INDUSTRIES					
	Total Allowable Influent Loading	0.0002981	lbs. per day			
	Loading Attributable to Domestic Sources	0.0010508	lbs. per day			
	Mass Loading Available for Industrial Loading	-0.0007527	lbs. per day			
	Max. Allowable Conc. based on Mass Loading	-0.0006447	mg/l			
	Max. Allowable Conc. based on Background Conc.	0.0001	mg/l			
	Program Limit	0.0001	mg/l			

Molybdenum - Molybdenum was originally established as a pollutant of concern because of the EPA 503 regulations governing sludge disposal. Because the City has not experienced any problems with molybdenum concentrations in the sludge, and because EPA has revised the rules governing molybdenum, it is recommended that this contaminant be dropped, at least for the present time, from the City's pretreatment standards.

Nickel (1.75 mg/L maximum) In previous background testing in 1989 nickel was not detected at the detection limit. In the 1989 testing, the detection limit was 0.02 mg/L. The background concentration was established at one-half the detection limit, or 0.01 mg/L.

Nickel is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 1.0 mg/L and on nitrification at 0.5 mg/L(see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). WEF, in *Pretreatment of Industrial Wastes, Manual of Practice FD*-3, lists an inhibitory concentration for nickel of 1 mg/L for activated sludge and 0.25 mg/L for nitrification. In addition, there is a limiting water quality effluent concentration of 0.1696 mg/L for Class III surface waters. In both the 1989 and 1994 testing, nickel was not detected in the plant influent. Therefore, it is impossible to calculate a plant specific removal efficiency for nickel. It has been assumed, lacking specific test data, that the removal of nickel in the POTW will be equivalent to 8%, as identified for non-chlorinated compounds in the EPA publication *CERCLA Site Discharges to POTWS Treatability Manual.* To meet 503 and 17-640 regulations, there are also limitations on nickel in sludge. Finally, the effluent sprayfield can be impacted by effluent concentrations greater than 0.2 mg/L.

Meeting Class III surface water standards governs. Based on the estimated removal rate, the influent limitation would be 1.75 mg/L.

Pollutant:	Nickel				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Nickel			
	Avg. Background Conc.:	0.01	mg/l	1994 Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.105084	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Nickel			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.25	mg/l		
	Influent Limiting Concentration:	0.25	mg/l		
	Influent Limiting Mass Loading:	2.919	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.70E-01	mg/l		
	Maximum Effluent Conc.	0.1696	mg/l		
	Reduction of Pollutant in POTW	8%	based on Plant Analyses		
	Maximum Influent Conc.	0.1843	mg/l		
	Influent Mass Loading	2.1524	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.2	mg/l		
	Reduction of Pollutant in POTW	8%	based on Plant Analyses		
	Maximum Influent Conc.	0.2174	mg/l		
	Influent Mass Loading	2.5383	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	420	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day		
	Mass Loading to Sludge	497993.24	mg/day		
		1.0979	lbs. per day		
	Removal of Pollutant in POTW	8%			
	Allowable Influent Mass Loading	13.723449	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	2.919	lbs. per day		
	Class III Water Quality Standards	2.1524	lbs. per day		
	Protection of Effluent Sprayfield	2.5383	lbs. per day		
	Protection of Sludge Disposal	13.7234	lbs. per day		
	Limiting Amount	2.1524	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	2.1524	lbs. per day		
	Loading Attributable to Domestic Sources	0.1051	lbs. per day		
	Mass Loading Available for Industrial Loading	2.0474	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	1.7535	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0100	mg/l		
	Program Limit	1.7535	mg/l		

Selenium: There is insufficient data to validate the pretreatment limit for selenium. In addition, there has been no indication that selenium is a pollutant of concern for the City. Therefore, it is recommended that the pretreatment limit be dropped, at this time, and that the City test the facility's influent and effluent, as well as two background samples, for selenium concentrations.

Silver (0.005 mg/L maximum) Background testing was performed in both 1989 and in 1995 on silver. The silver concentration in 1989 was below detection limits on both samples. The detection limit in 1989 was 0.01 mg/L. In 1995 the silver concentration was again below detection limits, with one sample having a detection limit of 0.0002 mg/L and the other having a detection limit of 0.0001 mg/L. Because no silver has been detected, the average background concentration has been established at 1/2 the minimum detection limit.

Silver is documented as inhibiting normal activated sludge at concentrations of 0.25 mg/L in *Pretreatment of Industrial Wastes, Manual of Practice FD-3*. In addition, there is a limiting water quality effluent concentration of $7x10^{-5}$ mg/L for Class III surface waters. During both the 1989 and the 1995 testing, silver was not detected at the plant influent. Therefore, the removal of silver can not be determined on a plant specific basis. DEP had previously provided a removal efficiency for silver of 88%. This value has been utilized in the spreadsheets.

With the surface water quality criteria limiting, the effluent limitation for silver is 0.00538 mg/L.

Pollutant:	Silver				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Silver			
	Avg. Background Conc.:	0.00005	mg/l	½ detection limit	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.0005254	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Silver			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.25	mg/l		
	Influent Limiting Concentration:	0.25	mg/l		
	Influent Limiting Mass Loading:	2.919	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	7.00E-05	mg/l		
	Maximum Effluent Conc.	0.00007	mg/l		
	Reduction of Pollutant in POTW	88%	DEP-Provided Nos.		
	Maximum Influent Conc.	0.0005833	mg/l		
	Influent Mass Loading	0.006811	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	88%			
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	88%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	2.919	lbs. per day		
	Class III Water Quality Standards	0.006811	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.006811	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.00681	lbs. per day		
	Loading Attributable to Domestic Sources	0.00053	lbs. per day		
	Mass Loading Available for Industrial Loading	0.00629	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.00538	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.00005	mg/l		
	Program Limit	0.00538	mg/l		

Total Toxic Organics (4 mg/L maximum): The limitation on total toxic organics, as measured by the combination of EPA methods 624 and 625, is an expansion of the original phenols limitation, and is based on that original limitation. Some limited testing was performed in 1995, which indicated a total toxic organics concentration in the background samples of approximately 12 ug/L. This is consistent with the 1989 testing, which indicated background total phenols concentrations of 13 ug/L.

The various toxic organic substances have differing inhibitory concentrations for activated sludge. However, the most stringent case is phenol, which inhibits nitrification at concentrations of 4 mg/L (*Pretreatment of Industrial Wastes, Manual of Practice FD-3*). In addition, there is a limiting water quality effluent concentration for Class III surface waters. During the 1989 testing, a plant specific removal efficiency for phenols of 78% was calculated. Again, this correlates well with 1995 data, which indicates a removal of over 90%. The lower value has been used in the spreadsheets.

Based on the data, the surface water quality criteria governs and results in a limiting concentration of 4.375 mg/L. For simplicity, this has been rounded to 4 mg/L.

Pollutant:	Total Toxic Organics					
A.	BACKGROUND INFORMATION					
	Pollutant of Concern	Total Toxic Organics (624/625)				
	Avg. Background Conc.:	0.012	mg/l	1995 testing		
	Industrial Contribution:	10%				
	Plant Design Capacity:	1.4	MGD			
	Domestic Portion	1.26	MGD			
	Total Domestic Loading of Pollutant:	0.1261008	pounds per day			
B.	CALCULATION OF HEADWORKS					
	LOADING FOR:	Total Toxic Organics				
1	Inhibition of Activated Sludge Process					
	Inhibiting Concentration:	4	mg/l	(based on Phenols -		
	Influent Limiting Concentration:	4	mg/l	see WEF Manual)		
	Influent Limiting Mass Loading:	46.704	pounds per day			
2	Max. Allowable Mass Loading to Meet Class III Water Quality					
	$_7Q_{10}$ of Lake Lena Run	0	mgd			
	Max. Q of Effluent	0.65	mgd			
	Dilution Factor	1				
	Limiting WQ Concentration	1.00E-01	mg/l			
	Maximum Effluent Conc.	0.1	mg/l			
	Reduction of Pollutant in POTW	78%	based on Plant Analyses for Phenols			
	Maximum Influent Conc.	0.4545	mg/l			
	Influent Mass Loading	5.3073	pounds per day			
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield					
	Maximum Effluent Concentration	N.A.	mg/l			
	Reduction of Pollutant in POTW	78%	based on Plant Analyses			
	Maximum Influent Conc.	#VALUE!	mg/l			
	Influent Mass Loading	#VALUE!	pounds per day			
4	Max. Allowable Mass Loading to Meet Sludge Criteria					
	Limiting Concentration	N.A.	mg/kg	dry solids		
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)		
		7831.56	gpd			
		29642.455	L/day			
		29642.455	kg/day			
	Final solids concentration	4%				
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day			
	Mass Loading to Sludge	#VALUE!	mg/day			
		#VALUE!	lbs. per day			
	Removal of Pollutant in POTW	78%				
	Allowable Influent Mass Loading	#VALUE!	lbs. per day			
5	Determination of Limiting Factor					
	Inhibition of Activated Sludge	46.704	lbs. per day			
	Class III Water Quality Standards	5.3073	lbs. per day			
	Protection of Effluent Sprayfield		lbs. per day			
	Protection of Sludge Disposal		lbs. per day			
	Limiting Amount	5.3073	lbs. per day			
C.	ALLOCATION TO INDUSTRIES					
	Total Allowable Influent Loading	5.3073	lbs. per day			
	Loading Attributable to Domestic Sources	0.1261	lbs. per day			
	Mass Loading Available for Industrial Loading	5.1812	lbs. per day			
	Max. Allowable Conc. based on Mass Loading	4.4375	mg/l			
	Max. Allowable Conc. based on Background Conc.	0.012	mg/l			
	Program Limit	4.4375	mg/l			

Vanadium: There is insufficient data to validate the pretreatment limit for vanadium. In addition, there has been no indication that vanadium is a pollutant of concern for the City. Therefore, it is recommended that the pretreatment limit be dropped, at this time, and that the City test the facility's influent and effluent, as well as two background samples, for vanadium concentrations.

Zinc (1.5 mg/L maximum) Background testing was performed in both 1989 and in 1995 on zinc. The zinc concentration in 1989 averaged 0.165 mg/L, while the zinc concentration in 1995 averaged 0.145 mg/L. The spreadsheet is based on the 1995 values.

Zinc is documented as inhibiting both normal activated sludge and nitrification. Zinc is listed by the EPA as having an inhibitory effect on activated sludge at concentrations of 1.0 mg/L, and on nitrification at 0.1 mg/L (see Appendix L, *Guidance Manual for POTW Pretreatment Program Development*). WEF, in *Pretreatment of Industrial Wastes, Manual of Practice FD*-3, lists an inhibitory concentration for zinc of 0.3 mg/L for activated sludge and 0.08 mg/L for nitrification. However, this would indicate that the system is presently inhibited, despite its continued compliance with effluent limitations. Therefore, the inhibition concentration has been set at the mid-point of the range reported by WEF, or 0.29 mg/L. In addition, there is a limiting water quality effluent concentration of 0.114 mg/L for Class III surface waters. During the 1989 testing, the removal efficiency of zinc was measured, and calculated to be 83%, based on an influent concentration of 0.03 mg/L, and an effluent concentration below detection limits. To protect the effluent sprayfield, the effluent concentration of zinc must be less than 2 mg/L. Finally, to protect sludge disposal, the sludge solids can not have a zinc concentration greater than 2800 mg/kg.

Based on the value of 0.29 mg/L for inhibition of nitrification, the pretreatment limit has been established at 1.595 mg/L maximum. For convenience, this has been rounded to 1.5 mg/L

Pollutant:	Zinc						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Zinc					
	Avg. Background Conc.:	0.145	mg/l	Past Testing			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	1.5237	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Zinc					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	0.29	mg/l	(WEF reports values of 0.08 to 0.5 mg/l)			
	Influent Limiting Concentration:	0.29	mg/l				
	Influent Limiting Mass Loading:	3.3860	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	1.14E-01	mg/l				
	Maximum Effluent Conc.	0.114	mg/l				
	Reduction of Pollutant in POTW	83%	based on Plant Analyses				
	Maximum Influent Conc.	0.6706	mg/l				
	Influent Mass Loading	7.8298	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
	Maximum Effluent Concentration	2	mg/l				
	Reduction of Pollutant in POTW	83%	based on Plant Analyses				
	Maximum Influent Conc.	11.7647	mg/l				
	Influent Mass Loading	137.3647	pounds per day				
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	2800	mg/kg	dry solids	(DEP LIMIT)		
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.70	kg/day				
	Mass Loading to Sludge	3319954.9	mg/day				
		7.3192	lbs. per day				
	Removal of Pollutant in POTW	83%					
	Allowable Influent Mass Loading	8.8183	lbs. per day				
5	Determination of Limiting Factor						
	Inhibition of Activated Sludge	3.3860	lbs. per day				
	Class III Water Quality Standards	7.8298	lbs. per day				
	Protection of Effluent Sprayfield	137.3647	lbs. per day				
	Protection of Sludge Disposal	8.8183	lbs. per day				
	Limiting Amount	3.3860	lbs. per day				
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	3.3860	lbs. per day				
	Loading Attributable to Domestic Sources	1.5237	lbs. per day				
	Mass Loading Available for Industrial Loading	1.8623	lbs. per day				
	Max. Allowable Conc. based on Mass Loading	1.595	mg/l				
	Max. Allowable Conc. based on Background Conc.	0.145	mg/l				
	Program Limit	1.595	mg/l				

Total Dissolved Solids (1,405 mg/L maximum). This value for total dissolved solids was developed in 1994, as part of the review of the Mitco connection. It is based on background testing which indicated a present TDS level of 400 mg/L.

The only concern with total dissolved solids is long-term protection of the spray-field. Long-term TDS concentrations greater than 500 mg/L can cause damage to citrus crops (See EPA *Guidelines for Water Reuse*). Based on this, the pretreatment limit was established at 1405 mg/L.

Pollutant:	Total Dissolved Solids				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Total Dissolved Solids			
	Avg. Background Conc.:	400	mg/l	1994 Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	4203.36	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Total Dissolved Solids			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	500	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	500.50	mg/l		
	Influent Mass Loading	5843.84	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.455	L/day		
		29642.455	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield	5843.84	lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	5843.84	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	5843.84	lbs. per day		
	Loading Attributable to Domestic Sources	4203.36	lbs. per day		
	Mass Loading Available for Industrial Loading	1640.48	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	1405.01	mg/l		
	Max. Allowable Conc. based on Background Conc.	400	mg/l		
	Program Limit	1405.01	mg/l		

Total Suspended Solids: These values were developed from the original design criteria for the wastewater treatment plant.

Total Nitrogen: These values were developed from the original design criteria for the wastewater treatment plant.

Soil Adsorption Ratio (10 maximum). This value was developed in 1994, as part of the review of the Mitco connection. SAR is a non-conservative parameter, so it was established at the maximum allowable value for spray irrigation of citrus crops (See EPA *Guidelines for Water Reuse*).

Total Identifiable Hydrocarbons: This has been supplanted by the total toxic organics limitation and can be deleted.

- Auburndale
- Program

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

July 17, 1996

Mr. John Dickson
Wastewater Superintendent
City of Auburndale
P.O. Box 186
Auburndale, Florida 33823

Re: Pretreatment Program Proposed Local Limits
Permit Number FL0021466

Dear Mr. Dickson:

The Department has reviewed your submission of revised local limits dated June 4. The review indicates that a number of comments from our January 24 letter on your previous submission have been addressed. However, as discussed during a telephone conversation between yourself and John Coates on July 15, the following additional requirements must also be addressed before the submission will fully comply with the requirements of Rule 62-625.500(2)(c), F.A.C.:

- The implementation of a four consecutive sample average limit must be technically justified by the control authority. Otherwise, it is recommended that the control authority implement only daily maximum local limits meeting the requirements of Rule 62-625.500(2)(c), F.A.C.

- Several sources of information have been used in the development of Auburndale's local limits; however, many of these are not well documented. The following information and their references must be clearly documented:

  1. The proposed local limits do not include a safety factor. Auburndale must provide the basis for not including a safety factor in its calculations or indicate whether other factors have been adjusted to provide uncertainty or growth allowances.

  2. The local limits do not contain any supporting information regarding the total industrial flow. The source used to determine that the industrial flow is 10% of the wastewater facility design flow (i.e., 140,000 gallons per day) should be indicated. If the value of 140,000 gallons per day includes an allowance for growth, then this should also be stated.

3. The local limit calculations do not indicate the source for the background loading concentration data. The source for these values must be documented. Some of these values appear to be analytical detection limits. It is suggested that any data below analytical detection limits be used as one half the detection limit's value.

4. All of the inhibition concentrations selected for the local limit calculations do not have references. Auburndale should identify all references used for the selection of inhibition values.

5. A value of 300 mg/L as $CaCO_3$ was used to determine the hardness dependent water quality standards (WQS) for the local limits submitted on November 5, 1995. It now appears that the hardness value has been changed to approximately 110 mg/L for some parameters (e.g., copper). The source for the hardness value must be documented. Since the WQS are based on end-of-pipe conditions, the hardness value should represent the characteristics of Auburndale's wastewater discharge.

Once revisions are made to the draft local limits in response to the comments above, you should resubmit the revisions to the Department for preliminary approval. In addition to the local limit revisions, Auburndale should submit any other revised sections of its ordinance for preliminary approval (e.g., the section addressing hauled wastes). Upon preliminary approval of your revised local limits, you should schedule the revisions to the ordinance for formal adoption by the City of Auburndale. Following final adoption of these revisions by the city, the local limits and ordinance can be formally approved by the Department and become effective.

Your June 4 letter also transmitted minor changes to your approved enforcement response plan (ERP). The changes satisfactorily address the comment from the Department's January 4 letter following the December 6, 1995 pretreatment compliance inspection. The minor changes to your ERP only clarify your existing program requirements; therefore, these do not need to be submitted as a program modification.

If you have any questions on this correspondence or need clarification on local limit requirements, please contact John Coates or myself at the letterhead address or at (904) 488-4524.

Sincerely,

Robert E. Heilman

Robert E. Heilman, P.E.
Pretreatment Coordinator

cc: Ed Snipes, P.E., DEP Tampa
Al Herndon, P.E., USEPA Region IV
Bobby M. Tillman, City of Auburndale

City of Auburndale

AUBURNDALE, FLORIDA 33823

Office of the Director of Public Utilities

P.O. Box 186
1300 Recker Hwy.
PHONE (813) 965-5549

June 4, 1996

Department of Environmental Protection
Attention: Robert E. Heilman, P.E.
Pretreatment Coordinator
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee Fl 32399-2400

RE: Pretreatment Program Proposed Local Limits
Permit Number FL0021466

Dear Mr. Heilman:

The City of Auburndale is requesting some revisions to its industrial pretreatment ordinance.

Attached is a copy of the proposed local limits and the backup spread sheets from Chastain-Skillman Engineering. At your request, we have added a Haul Waste Section to the ordinance and made some revisions to our enforcement response plan.

If you have any questions, please call me at (941) 965-5549.

Sincerely,

John Dickson
Wastewater Superintendent

Enclosure

(b) (1) In order to protect the treatment plant from substances that may interfere with its operation, contaminate the sludge or cause a violation of its discharge permit, the following target limits are to be met at the influent to the treatment plant(s):

SUBSTANCE	MG/1	SUBSTANCE	MG/1
a. Cadmium	0.0005	h. Nickel	0.25
b. Chromium (total)	1.0	i. Zinc	0.29
c. Chromium(hexavalent)	0.20	j. BOD5	300.0
d. Copper	0.24	k. TSS	250.0
e. Cyanide	0.01	l. TN	40.0
f. Lead	0.008	m. TP	40.0
g. Mercury (ug/l)	0.024	n. Silver	0.0006

(2) The limits set out above may be used as a guide in design and plant control.

(3) In order to ensure compliance with the target limits established in paragraph (b)(1) above, set standards to be met by each industrial user are established as follows:

PARAMETER	FOUR CONSECUTIVE SAMPLE AVERAGE(mg/l)	DAILY MAXIMUM(mg/l)
Antimony	20	40
Arsenic	0.27	0.27
Beryllium		0.0013
Boron	4.44	16.94
Cadmium	0.009	0.018
Chromium	0.10	0.20
Cobalt	0.48	
Copper	0.85	1.7
Cynaide	0.036	0.073
Fluoride	7.25	
Lead	0.005	0.01
Manganese	3	
Mercury	0.0001	0.0001
Molybdenum	0.10	0.20
Nickel	1.15	2.3
Oils and grease	100	100
Selenium	0.025	0.05
Silver	0.004	.005
Total Toxic Organics	2.0	4.0
Vanadium	0.1	0.2

AUBURNDALE CODE

PARAMETER	FOUR CONSECUTIVE SAMPLE AVERAGE(mg/l)	DAILY MAXIMUM(mg/l)
Zinc	.75	1.5
CBOD5	975	1500
TSS	290	520
Total Nitrogen	40	80
Total Identifiable Hydrocarbons	3.0	6.0
Total dissolved solids	1405	1405
Soil adsorption ratio	Less than 10	Less than 10

(c) Any user discharging or anticipating a discharge of substances in his wastes within ten (10) percent or in excess of the concentrations identified in subsection 23-22(b)(3) may be classified as a significant industrial user and subject to the wastewater discharge permitting requirements of this article.

Significant industrial users applying for wastewater contribution permits may request a variance from the values identified in section 23-22(b)(3). The evaluation of requests for variances will be based on such factors as quantities of subject wastes and flows in relation to the total POTW influent flows and waste concentrations, the flow volume and velocities in sewer line, the materials utilized in the construction of the wastewater collection system, the nature of the sewage treatment process, the capacity of the POTW, the degree of treatability of wastes in the treatment plant, the quality of sludge for suitable disposal and water quality requirements of the receiving stream for the sewage treatment plant effluent. Variances, when granted, shall be specifically identified in the industrial user's wastewater contribution permit. Variances will not be granted from national standards.

Calculation of Limits for Antimony

Pollutant:	Antimony				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Antimony			
	Avg. Background Conc.:	0.1	mg/l	(detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	1.05084	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Antimony			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	4.3	mg/l		
	Maximum Effluent Conc.	4.3	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	4.3	mg/l		
	Influent Mass Loading	50.2068	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%	From Plant Testing		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards	50.2068	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	50.2068	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	50.2068	lbs. per day		
	Loading Attributable to Domestic Sources	1.05084	lbs. per day		
	Mass Loading Available for Industrial Loading	49.15596	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	42.1	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.1	mg/l		
	Program Limit	42.1	mg/l		
	Type of Limit	Daily Max.			

Calculation of Pretreatment Limits for Aluminum

Pollutant:	Aluminum						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Aluminum					
	Avg. Background Conc.:	0.1	mg/l	(Assumed)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	1.05084	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Aluminum					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	#VALUE!	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	5	mg/l		20	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	5	mg/l		20	mg/l	
	Influent Mass Loading	58.38	pounds per day		233.52	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.4546	L/day				
		29642.4546	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor	Long-term			Short-term		
	Inhibition of Activated Sludge		lbs. per day		#VALUE!	lbs. per day	
	Class III Water Quality Standards		lbs. per day		#VALUE!	lbs. per day	
	Protection of Effluent Sprayfield	58.38	lbs. per day		233.52	lbs. per day	
	Protection of Sludge Disposal		lbs. per day		#VALUE!	lbs. per day	
	Limiting Amount	58.38	lbs. per day		150.12	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	58.38	lbs. per day		150.12	lbs. per day	
	Loading Attributable to Domestic Sources	1.05084	lbs. per day		1.05084	lbs. per day	
	Mass Loading Available for Industrial Loading	57.32916	lbs. per day		149.0692	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	49.1	mg/l		127.6714	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.1	mg/l		0.1	mg/l	
	Program Limit	49.1	mg/l		127.6714	mg/l	
	Type of Limit	Monthly Avg.			Daily Max.		

Calculation of Pretreatment Limits for Arsenic

Pollutant:	Arsenic						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Arsenic					
	Avg. Background Conc.:	0.001	mg/l	(detection limit)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0.0105084	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Arsenic					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	0.1	mg/l				
	Influent Limiting Concentration:	0.1	mg/l				
	Influent Limiting Mass Loading:	1.1676	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	0.05	mg/l				
	Maximum Effluent Conc.	0.05	mg/l				
	Reduction of Pollutant in POTW	33%	based on CERCLA Manual				
	Maximum Influent Conc.	0.07462687	mg/l				
	Influent Mass Loading	0.87134328	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.1	mg/l		2	mg/l	
	Reduction of Pollutant in POTW	33%	based on CERCLA Man.		33%		
	Maximum Influent Conc.	0.14925373	mg/l		2.985075	mg/l	
	Influent Mass Loading	1.74268657	pounds per day		34.85373	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	41	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.4546	L/day				
		29642.4546	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	48613.6255	mg/day				
		0.1072	lbs. per day				
	Removal of Pollutant in POTW	33%	CERCLA Site Discharges Treatability Manual				
	Allowable Influent Mass Loading	0.3248	lbs. per day				
5	Determination of Limiting Factor	Long-term			Short-term		
	Inhibition of Activated Sludge	1.1676	lbs. per day		1.1676	lbs. per day	
	Class III Water Quality Standards	0.8713	lbs. per day		0.8713	lbs. per day	
	Protection of Effluent Sprayfield	1.7427	lbs. per day		34.8537	lbs. per day	
	Protection of Sludge Disposal	0.3248	lbs. per day		0.3248	lbs. per day	
	Limiting Amount	0.3248	lbs. per day		0.3248	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.3248	lbs. per day		0.3248	lbs. per day	
	Loading Attributable to Domestic Sources	0.0105	lbs. per day		0.0105	lbs. per day	
	Mass Loading Available for Industrial Loading	0.3143	lbs. per day		0.3143	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.2692	mg/l		0.2692	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.001	mg/l		0.001	mg/l	
	Program Limit	0.269	mg/l		0.269	mg/l	
		Daily Max.					

Pollutant:	Beryllium						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Beryllium					
	Avg. Background Conc.:	0	mg/l	(assumed)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Beryllium					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	0.00013	mg/l				
	Maximum Effluent Conc.	0.00013	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	0.00013	mg/l				
	Influent Mass Loading	0.00151788	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.1	mg/l		0.5	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.1	mg/l		0.5	mg/l	
	Influent Mass Loading	1.1676	pounds per day		5.838	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.4546	L/day				
		29642.4546	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards	0.00151788	lbs. per day		0.001518	lbs. per day	
	Protection of Effluent Sprayfield	1.1676	lbs. per day		5.838	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	0.00151788	lbs. per day		0.001518	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.00151788	lbs. per day		0.001518	lbs. per day	
	Loading Attributable to Domestic Sources	0	lbs. per day		0	lbs. per day	
	Mass Loading Available for Industrial Loading	0.00151788	lbs. per day		0.001518	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.0013	mg/l		0.0013	mg/l	
	Max. Allowable Conc. based on Background Conc.	0	mg/l		0	mg/l	
	Program Limit	0.0013	mg/l		0.0013	mg/l	
		Daily Max.			Daily Max.		

Calculation of Pretreatment Limits for Boron

Pollutant:	Boron						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Boron					
	Avg. Background Conc.:	0.34	mg/l	(1994 testing)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	0.9	MGD				
	Domestic Portion	0.81	MGD				
	Total Domestic Loading of Pollutant:	2.296836	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Boron					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	#VALUE!	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.75	mg/l		2	mg/l	
	Reduction of Pollutant in POTW	0%			0		
	Maximum Influent Conc.	0.75	mg/l		2	mg/l	
	Influent Mass Loading	5.6295	pounds per day		15.012	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.4546	L/day				
		29642.4546	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	5.6295	lbs. per day		15.012	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	5.6295	lbs. per day		15.012	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	5.6295	lbs. per day		15.012	lbs. per day	
	Loading Attributable to Domestic Sources	2.296836	lbs. per day		2.296836	lbs. per day	
	Mass Loading Available for Industrial Loading	3.332664	lbs. per day		12.71516	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	4.44	mg/l		16.94	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.34	mg/l		0.34	mg/l	
	Program Limit	4.44	mg/l		16.94	mg/l	
		Monthly Avg.			Daily Max.		

Calculation of Pretreatment Limits for BOD

Pollutant:	BOD				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	BOD			
	Avg. Background Conc.:	225	mg/l	(routine testing)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	0.9	MGD		
	Domestic Portion	0.81	MGD		
	Total Domestic Loading of Pollutant:	1519.965	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	BOD			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	300	mg/l		
	Influent Limiting Concentration:	300	mg/l		
	Influent Limiting Mass Loading:	2251.8	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_{7}Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	2251.8	lbs. per day		
	Class III Water Quality Standards	#VALUE!	lbs. per day		
	Protection of Effluent Sprayfield	#VALUE!	lbs. per day		
	Protection of Sludge Disposal	#VALUE!	lbs. per day		
	Limiting Amount	2251.8	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	2251.8	lbs. per day		
	Loading Attributable to Domestic Sources	1519.965	lbs. per day		
	Mass Loading Available for Industrial Loading	731.835	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	975	mg/l		
	Max. Allowable Conc. based on Background Conc.	225	mg/l		
	Program Limit	975	mg/l		

Pollutant:	Cadmium				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Cadmium			
	Avg. Background Conc.:	0.0005	mg/l	(½ detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.0052542	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Cadmium			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.5	mg/l		
	Influent Limiting Concentration:	0.5	mg/l		
	Influent Limiting Mass Loading:	5.838	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.21E-03	mg/l		
	Maximum Effluent Conc.	0.00121	mg/l		
	Reduction of Pollutant in POTW	45%	Plant Analyses		
	Maximum Influent Conc.	0.0022	mg/l		
	Influent Mass Loading	0.0256872	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.01	mg/l		
	Reduction of Pollutant in POTW	45%	based on Plant Analyses		
	Maximum Influent Conc.	0.01818182	mg/l		
	Influent Mass Loading	0.21229091	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	39	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	46242.2292	mg/day		
		0.10194562	lbs. per day		
	Removal of Pollutant in POTW	45%			
	Allowable Influent Mass Loading	0.22654582	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	5.8380	lbs. per day		
	Class III Water Quality Standards	0.0257	lbs. per day		
	Protection of Effluent Sprayfield	0.2123	lbs. per day		
	Protection of Sludge Disposal	0.2265	lbs. per day		
	Limiting Amount	0.0257	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.0257	lbs. per day		
	Loading Attributable to Domestic Sources	0.0053	lbs. per day		
	Mass Loading Available for Industrial Loading	0.0204	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.0175	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0005	mg/l		
	Program Limit	0.0175	mg/l		

Calculation of Pretreatment Limits for Chromium

Pollutant:	Chromium				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Chromium			
	Avg. Background Conc.:	0.02	mg/l	(½ detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.210168	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Chromium			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	1	mg/l		
	Influent Limiting Concentration:	1	mg/l		
	Influent Limiting Mass Loading:	11.676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.10E-02	mg/l		
	Maximum Effluent Conc.	0.011	mg/l		
	Reduction of Pollutant in POTW	71%	based on Plant Analyses		
	Maximum Influent Conc.	0.03793103	mg/l		
	Influent Mass Loading	0.44288276	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.1	mg/l		
	Reduction of Pollutant in POTW	71%	based on Plant Analyses		
	Maximum Influent Conc.	0.34482759	mg/l		
	Influent Mass Loading	4.0262069	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration		mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	0	mg/day		
		0	lbs. per day		
	Removal of Pollutant in POTW	71%			
	Allowable Influent Mass Loading		lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	11.6760	lbs. per day		
	Class III Water Quality Standards	0.4429	lbs. per day		
	Protection of Effluent Sprayfield	4.0262	lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.4429	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.4429	lbs. per day		
	Loading Attributable to Domestic Sources	0.2102	lbs. per day		
	Mass Loading Available for Industrial Loading	0.2327	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.1993	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0200	mg/l		
	Program Limit	0.1993	mg/l		

Calculation of Pretreatment Limits for Cobalt

Pollutant:	Cobalt						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Cobalt					
	Avg. Background Conc.:	0.0025	mg/l	(½ detection limit)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Polutant:	0.026271	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Cobalt					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	N.A.	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
					Short-term		
	Maximum Effluent Concentration	0.05	mg/l		5	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.05	mg/l		5	mg/l	
	Influent Mass Loading	0.5838	pounds per day		58.38	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.4546	L/day				
		29642.4546	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	0.5838	lbs. per day		58.38	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	0.5838	lbs. per day		58.38	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.5838	lbs. per day		58.38	lbs. per day	
	Loading Attributable to Domestic Sources	0.0263	lbs. per day		0.026271	lbs. per day	
	Mass Loading Available for Industrial Loading	0.5575	lbs. per day		58.35373	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.4775	mg/l		49.9775	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0025	mg/l		0.0025	mg/l	
	Program Limit	0.4775	mg/l		49.9775	mg/l	
		Monthly Avg.			Daily Max.		

Pollutant:	Copper			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Copper		
	Avg. Background Conc.:	0.08	mg/l	Avg. of conc. in collection system
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.840672	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Copper		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.24	mg/l	(WEF reports inhibition of AS @ 1 mg/l and inhibition of Nit. @ 0.05 to 0.48 mg/l)
	Influent Limiting Concentration:	0.24	mg/l	
	Influent Limiting Mass Loading:	2.80224	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	1.27E-02	mg/l	
	Maximum Effluent Conc.	0.01272	mg/l	
	Reduction of Pollutant in POTW	95%	based on Plant Analyses	
	Maximum Influent Conc.	0.2544	mg/l	
	Influent Mass Loading	2.9703744	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
		Long-term		
	Maximum Effluent Concentration	0.2	mg/l	
	Reduction of Pollutant in POTW	95%	based on Plant Analyses	
	Maximum Influent Conc.	4	mg/l	
	Influent Mass Loading	46.704	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	1500	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	1778547.28	mg/day	
		3.92098532	lbs. per day	
	Removal of Pollutant in POTW	95%		
	Allowable Influent Mass Loading	4.12735297	lbs. per day	
5	Determination of Limiting Factor	Long-term		
	Inhibition of Activated Sludge	2.80224	lbs. per day	
	Class III Water Quality Standards	2.9703744	lbs. per day	
	Protection of Effluent Sprayfield	46.704	lbs. per day	
	Protection of Sludge Disposal	4.12735297	lbs. per day	
	Limiting Amount	2.80224	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	2.80224	lbs. per day	
	Loading Attributable to Domestic Sources	0.840672	lbs. per day	
	Mass Loading Available for Industrial Loading	1.961568	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	1.68	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.08	mg/l	
	Program Limit	1.68	mg/l	

Pollutant:	Cyanide				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Cyanide			
	Avg. Background Conc.:	0.005	mg/l	(½ detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.052542	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Cyanide			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.1	mg/l		
	Influent Limiting Concentration:	0.1	mg/l		
	Influent Limiting Mass Loading:	1.1676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	5.20E-03	mg/l		
	Maximum Effluent Conc.	0.0052	mg/l		
	Reduction of Pollutant in POTW	56%	based on Plant Analyses		
	Maximum Influent Conc.	0.01181818	mg/l		
	Influent Mass Loading	0.13798909	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	56%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	56%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	1.1676	lbs. per day		
	Class III Water Quality Standards	0.1380	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.1380	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.1380	lbs. per day		
	Loading Attributable to Domestic Sources	0.0525	lbs. per day		
	Mass Loading Available for Industrial Loading	0.0854	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.0732	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0050	mg/l		
	Program Limit	0.0732	mg/l		

Calculation of Pretreatment Limits for Fluoride

Pollutant:	Fluoride						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Fluoride					
	Avg. Background Conc.:	0.405	mg/l	1994 testing			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Polutant:	4.255902	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Fluoride					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	1.00E+01	mg/l				
	Maximum Effluent Conc.	10	mg/l				
	Reduction of Pollutant in POTW	9%	based on Plant Analyses				
	Maximum Influent Conc.	10.940919	mg/l				
	Influent Mass Loading	127.746171	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	1	mg/l		15	mg/l	
	Reduction of Pollutant in POTW	9%	based on Plant Analyses		9%		
	Maximum Influent Conc.	1.0940919	mg/l		16.48352	mg/l	
	Influent Mass Loading	12.7746171	pounds per day		192.4615	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.4546	L/day				
		29642.4546	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	9%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards	127.7462	lbs. per day		127.7462	lbs. per day	
	Protection of Effluent Sprayfield	12.7746	lbs. per day		192.4615	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	12.7746	lbs. per day		127.7462	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	12.7746	lbs. per day		127.7462	lbs. per day	
	Loading Attributable to Domestic Sources	4.2559	lbs. per day		4.2559	lbs. per day	
	Mass Loading Available for Industrial Loading	8.5187	lbs. per day		123.4903	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	7.2959	mg/l		105.7642	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.4050	mg/l		0.4050	mg/l	
	Program Limit	7.2959	mg/l		105.7642	mg/l	
		Monthly Avg.			Daily Max.		

Calculation of Pretreatment Limits for Lead

Pollutant:	Lead				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Lead			
	Avg. Background Conc.:	0.0105	mg/l	Previous Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Pollutant:	0.1103382	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Lead			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.5	mg/l		
	Influent Limiting Concentration:	0.5	mg/l		
	Influent Limiting Mass Loading:	5.838	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	3.55E-03	mg/l		
	Maximum Effluent Conc.	0.00355	mg/l		
	Reduction of Pollutant in POTW	57%	based on Plant Analyses		
	Maximum Influent Conc.	0.00825581	mg/l		
	Influent Mass Loading	0.09639488	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	5	mg/l		
	Reduction of Pollutant in POTW	57%	based on Plant Analyses		
	Maximum Influent Conc.	11.627907	mg/l		
	Influent Mass Loading	135.767442	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	300	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4548	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	355709.455	mg/day		
		0.78419706	lbs. per day		
	Removal of Pollutant in POTW	57%			
	Allowable Influent Mass Loading	1.37578432	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	5.838	lbs. per day		
	Class III Water Quality Standards	0.09639488	lbs. per day		
	Protection of Effluent Sprayfield	135.767442	lbs. per day		
	Protection of Sludge Disposal	1.37578432	lbs. per day		
	Limiting Amount	0.09639488	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.0964	lbs. per day		
	Loading Attributable to Domestic Sources	0.1103	lbs. per day		
	Mass Loading Available for Industrial Loading	-0.0139	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	-0.0119	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0105	mg/l		
	Program Limit	0.0105	mg/l		

Calculation of Pretreatment Limits for Manganese

Pollutant:	Manganese			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Manganese		
	Avg. Background Conc.:	0	mg/l	(Assumed)
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Pollutant:	0	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Manganese		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	10	mg/l	
	Influent Limiting Concentration:	10	mg/l	
	Influent Limiting Mass Loading:	116.76	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	N.A.	mg/l	
	Maximum Effluent Conc.	#VALUE!	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
		Long-term		
	Maximum Effluent Concentration	0.2	mg/l	
	Reduction of Pollutant in POTW	33%		
	Maximum Influent Conc.	0.29850746	mg/l	
	Influent Mass Loading	3.48537313	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	N.A.	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	#VALUE!	mg/day	
		#VALUE!	lbs. per day	
	Removal of Pollutant in POTW	0%		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day	
5	Determination of Limiting Factor	Long-term		
	Inhibition of Activated Sludge	116.76	lbs. per day	
	Class III Water Quality Standards		lbs. per day	
	Protection of Effluent Sprayfield	3.48537313	lbs. per day	
	Protection of Sludge Disposal		lbs. per day	
	Limiting Amount	3.4854	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	3.4854	lbs. per day	
	Loading Attributable to Domestic Sources	0.0000	lbs. per day	
	Mass Loading Available for Industrial Loading	3.4854	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	2.9851	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0000	mg/l	
	Program Limit	2.9851	mg/l	

Pollutant:	Mercury					
A.	BACKGROUND INFORMATION					
	Pollutant of Concern	Mercury				
	Avg. Background Conc.:	0.0001	mg/l	Assumed @ 1/2 of D.L.		
	Industrial Contribution:	10%				
	Plant Design Capacity:	1.4	MGD			
	Domestic Portion	1.26	MGD			
	Total Domestic Loading of Polutant:	0.00105084	pounds per day			
B.	CALCULATION OF HEADWORKS					
	LOADING FOR:	Mercury				
1	Inhibition of Activated Sludge Process					
	Inhibiting Concentration:	0.1	mg/l			
	Influent Limiting Concentration:	0.1	mg/l			
	Influent Limiting Mass Loading:	1.1676	pounds per day			
2	Max. Allowable Mass Loading to Meet Class III Water Quality					
	$_7Q_{10}$ of Lake Lena Run	0	mgd			
	Max. Q of Effluent	0.65	mgd			
	Dilution Factor	1				
	Limiting WQ Concentration	1.20E-05	mg/l			
	Maximum Effluent Conc.	0.000012	mg/l			
	Reduction of Pollutant in POTW	51%	based on Plant Analyses			
	Maximum Influent Conc.	2.449E-05	mg/l			
	Influent Mass Loading	0.00028594	pounds per day			
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield					
	Maximum Effluent Concentration	N.A.	mg/l			
	Reduction of Pollutant in POTW	51%	based on Plant Analyses			
	Maximum Influent Conc.	#VALUE!	mg/l			
	Influent Mass Loading	#VALUE!	pounds per day			
4	Max. Allowable Mass Loading to Meet Sludge Criteria					
	Limiting Concentration	17	mg/kg	dry solids		
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)		
		7831.56	gpd			
		29642.4546	L/day			
		29642.4546	kg/day			
	Final solids concentration	4%				
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day			
	Mass Loading to Sludge	20156.8691	mg/day			
		0.04443783	lbs. per day			
	Removal of Pollutant in POTW	51%				
	Allowable Influent Mass Loading	0.08713301	lbs. per day			
5	Determination of Limiting Factor					
	Inhibition of Activated Sludge	1.1676	lbs. per day			
	Class III Water Quality Standards	0.00028594	lbs. per day			
	Protection of Effluent Sprayfield		lbs. per day			
	Protection of Sludge Disposal	0.08713301	lbs. per day			
	Limiting Amount	0.00028594	lbs. per day			
C.	ALLOCATION TO INDUSTRIES					
	Total Allowable Influent Loading	0.00028594	lbs. per day			
	Loading Attributable to Domestic Sources	0.00105084	lbs. per day			
	Mass Loading Available for Industrial Loading	-0.0007649	lbs. per day			
	Max. Allowable Conc. based on Mass Loading	-0.0006551	mg/l			
	Max. Allowable Conc. based on Background Conc.	0.0001	mg/l			
	Program Limit	0.0001	mg/l			

Calculation of Pretreatment Limits for Molybdenum

Pollutant:	Molybdenum				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Molybdenum			
	Avg. Background Conc.:	0	mg/l	(Assumed)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Molybdenum			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	50%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.01	mg/l		
	Reduction of Pollutant in POTW	50%	based on Plant Analyses		
	Maximum Influent Conc.	0.02	mg/l		
	Influent Mass Loading	0.23352	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	75	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	88927.3638	mg/day		
		0.19604927	lbs. per day		
	Removal of Pollutant in POTW	50%			
	Allowable Influent Mass Loading	0.39209853	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield	0.23352	lbs. per day		
	Protection of Sludge Disposal	0.39209853	lbs. per day		
	Limiting Amount	0.23352	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.23352	lbs. per day		
	Loading Attributable to Domestic Sources	0	lbs. per day		
	Mass Loading Available for Industrial Loading	0.2335	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.2000	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0000	mg/l		
	Program Limit	0.2000	mg/l		

Calculations of Pretreatment Limits for Nickel

Pollutant:	Nickel				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Nickel			
	Avg. Background Conc.:	0.02	mg/l	1994 Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.210168	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Nickel			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.5	mg/l		
	Influent Limiting Concentration:	0.5	mg/l		
	Influent Limiting Mass Loading:	5.838	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.70E-01	mg/l		
	Maximum Effluent Conc.	0.1696	mg/l		
	Reduction of Pollutant in POTW	32%	based on Plant Analyses		
	Maximum Influent Conc.	0.24941176	mg/l		
	Influent Mass Loading	2.91213176	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.2	mg/l		
	Reduction of Pollutant in POTW	32%	based on Plant Analyses		
	Maximum Influent Conc.	0.29411765	mg/l		
	Influent Mass Loading	3.43411765	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	420	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	497993.237	mg/day		
		1.09787589	lbs. per day		
	Removal of Pollutant in POTW	32%			
	Allowable Influent Mass Loading	3.43086216	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	5.838	lbs. per day		
	Class III Water Quality Standards	2.9121	lbs. per day		
	Protection of Effluent Sprayfield	3.4341	lbs. per day		
	Protection of Sludge Disposal	3.4309	lbs. per day		
	Limiting Amount	2.9121	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	2.9121	lbs. per day		
	Loading Attributable to Domestic Sources	0.2102	lbs. per day		
	Mass Loading Available for Industrial Loading	2.7020	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	2.3141	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.0200	mg/l		
	Program Limit	2.3141	mg/l		

Calculation of Pretreatment Limits for Selenium

Pollutant:	Selenium			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Selenium		
	Avg. Background Conc.:	0	mg/l	(Assumed)
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Selenium		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	N.A.	mg/l	
	Influent Limiting Concentration:	N.A.	mg/l	
	Influent Limiting Mass Loading:	#VALUE!	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	5.00E-03	mg/l	
	Maximum Effluent Conc.	0.005	mg/l	
	Reduction of Pollutant in POTW	0%		
	Maximum Influent Conc.	0.00500501	mg/l	
	Influent Mass Loading	0.0584	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	0.02	mg/l	
	Reduction of Pollutant in POTW	0%		
	Maximum Influent Conc.	0.02002002	mg/l	
	Influent Mass Loading	0.23375375	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	100	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	118569.818	mg/day	
		0.26140	lbs. per day	
	Removal of Pollutant in POTW	0%		
	Allowable Influent Mass Loading	261.3990	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge		lbs. per day	
	Class III Water Quality Standards	0.0584	lbs. per day	
	Protection of Effluent Sprayfield	0.2338	lbs. per day	
	Protection of Sludge Disposal	261.3990	lbs. per day	
	Limiting Amount	0.05843844	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	0.0584	lbs. per day	
	Loading Attributable to Domestic Sources	0.0000	lbs. per day	
	Mass Loading Available for Industrial Loading	0.0584	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.0501	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0000	mg/l	
	Program Limit	0.0501	mg/l	

Calculation of Pretreatment Limits for Silver

Pollutant:	Silver				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Silver			
	Avg. Background Conc.:	0.00005	mg/l	½ detection limit	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.00052542	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Silver			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.25	mg/l		
	Influent Limiting Concentration:	0.25	mg/l		
	Influent Limiting Mass Loading:	2.919	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	7.00E-05	mg/l		
	Maximum Effluent Conc.	0.00007	mg/l		
	Reduction of Pollutant in POTW	88%	DEP-Provided Nos.		
	Maximum Influent Conc.	0.00058333	mg/l		
	Influent Mass Loading	0.006811	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	88%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	88%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	2.919	lbs. per day		
	Class III Water Quality Standards	0.006811	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.006811	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.006811	lbs. per day		
	Loading Attributable to Domestic Sources	0.00052542	lbs. per day		
	Mass Loading Available for Industrial Loading	0.00628558	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.00538333	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.00005	mg/l		
	Program Limit	0.00538333	mg/l		

Calculation of Pretreatment Limits for TDS

Pollutant:	Total Dissolved Solids				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Total Dissolved Solids			
	Avg. Background Conc.:	400	mg/l	1994 Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	4203.36	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Total Dissolved Solids			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	500	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	500.500501	mg/l		
	Influent Mass Loading	5843.84384	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield	5843.84384	lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	5843.84384	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	5843.84384	lbs. per day		
	Loading Attributable to Domestic Sources	4203.36	lbs. per day		
	Mass Loading Available for Industrial Loading	1640.48384	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	1405.00501	mg/l		
	Max. Allowable Conc. based on Background Conc.	400	mg/l		
	Program Limit	1405.00501	mg/l		

Calculation of Pretreatment Limits for Zinc

Pollutant: Zinc

A. BACKGROUND INFORMATION

Pollutant of Concern	Zinc		
Avg. Background Conc.:	0.145	mg/l	Past Testing
Industrial Contribution:	10%		
Plant Design Capacity:	1.4	MGD	
Domestic Portion	1.26	MGD	
Total Domestic Loading of Polutant:	1.523718	pounds per day	

B. CALCULATION OF HEADWORKS LOADING FOR: Zinc

1 Inhibition of Activated Sludge Process

Inhibiting Concentration:	0.29	mg/l	(WEF reports values of 0.08 to 0.5 mg/l)
Influent Limiting Concentration:	0.29	mg/l	
Influent Limiting Mass Loading:	3.38604	pounds per day	

2 Max. Allowable Mass Loading to Meet Class III Water Quality

$_7Q_{10}$ of Lake Lena Run	0	mgd	
Max. Q of Effluent	0.65	mgd	
Dilution Factor	1		
Limiting WQ Concentration	1.14E-01	mg/l	
Maximum Effluent Conc.	0.114	mg/l	
Reduction of Pollutant in POTW	77%	based on Plant Analyses	
Maximum Influent Conc.	0.49565217	mg/l	
Influent Mass Loading	5.78723478	pounds per day	

3 Max. Allowable Mass Loading to Protect Effluent Sprayfield

Maximum Effluent Concentration	2	mg/l	
Reduction of Pollutant in POTW	77%	based on Plant Analyses	
Maximum Influent Conc.	8.69565217	mg/l	
Influent Mass Loading	101.530435	pounds per day	

4 Max. Allowable Mass Loading to Meet Sludge Criteria

Limiting Concentration	2800	mg/kg	dry solids (DEP LIMIT)
Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
	7831.56	gpd	
	29642.4546	L/day	
	29642.4546	kg/day	
Final solids concentration	4%		
Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
Mass Loading to Sludge	3319954.92	mg/day	
	7.31917261	lbs. per day	
Removal of Pollutant in POTW	77%		
Allowable Influent Mass Loading	9.50541897	lbs. per day	

5 Determination of Limiting Factor

Inhibition of Activated Sludge	3.38604	lbs. per day
Class III Water Quality Standards	5.78723478	lbs. per day
Protection of Effluent Sprayfield	101.530435	lbs. per day
Protection of Sludge Disposal	9.50541897	lbs. per day
Limiting Amount	3.38604	lbs. per day

C. ALLOCATION TO INDUSTRIES

Total Allowable Influent Loading	3.38604	lbs. per day
Loading Attributable to Domestic Sources	1.523718	lbs. per day
Mass Loading Available for Industrial Loading	1.862322	lbs. per day
Max. Allowable Conc. based on Mass Loading	1.595	mg/l
Max. Allowable Conc. based on Background Conc.	0.145	mg/l
Program Limit	1.595	mg/l

HAULED WASTEWATER

A. Septic tank waste may be introduced into the POTW only at locations disignated by the Director, and at such times as are established by the Director. Such waste shall be domestic waste and shall not violate Section 23-22 of this ordinance or any other requirements established by the City of Auburndale. The Director may require septic tank haulers to obtain wastewater permits.

B. The Director shall require haulers of industrial wastewater to obtain wastewater discharge permits. The Director may require generators of hauled waste to obtain wastewater discharge permits. The Director also may prohibit the disposal of hauled waste. The discharge of hauled waste is subject to all other requirements and fees of this ordinance.

C. Industrial waste haulers may discharge loads only at locations designated by the Director. No load may be discharged without prior consent of the Director. The Director may collect samples of each hauled load to ensure compliance with applicable standards. The Director may require the industrial waste hauler to provide a waste analysis of any load prior to discharge.

D. Industrial waste haulers must provide a waste-tracking form for every load. This form shall include, at a minimum, the name and address of the industrial waste hauler, permit number, truck identification, names and addresses of sources of waste, and volume and characteristics of waste. The form shall identify the type industry or business, known or suspected waste constituents, and whether any wastes are RCRA hazardous wastes.

-Aub
-Prog.

Department of Environmental Protection

TELEPHONE CONTACT:

☒initiated ☐received Date: 2/15/96 Time: 11:45

Person Contacted: John Dickson Telephone: (941) 965-5549

Title: Wastewater Superintendent Representing: City of Auburndale

Summary:

I spoke with John Dickson about these local limits calculations. John said that they went over our Jan 22 comments with their consultant. For example Auburndale had originally asked their consultant to go only with daily limits. However, the consultant wanted them to keep some sort of "average" limits. So, the consultant suggested that they try a "four consecutive sample average." John said that he didn't think that there was any basis for the average limits.

John and I discussed a few other minor comments and John seemed to indicate that he didn't have any problems with our recommendations. He thought the consultant had submitted documentation as we'd asked and had addressed the questions we'd raised.

I told John we'd send him our latest comments and that we'd be glad to discuss the comments with himself or the consultant, whichever he preferred.

Follow Up Required:

☒yes ☐no Contact person: John Coates

Action Required: Complete local limits review.

Copy to File: Major Auburndale Minor Program

CC: R. Hetman → File

BJ

- Pretreatment
- Auburndale
- Program Documents

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

January 24, 1996

Mr. Billie Mills
Pretreatment Inspector
City of Auburndale
P.O.Box 186
Auburndale, Florida 33823

Re: Pretreatment Program Proposed Local Limits
Permit Number FL0021466

Dear Mr. Mills:

The Department has reviewed your preliminary submission of revised local limits dated November 5, 1995. A summary of our comments on your submission is enclosed. Please review the enclosed comments and revise your submission accordingly.

Once revisions are made to the local limits, you should resubmit the revisions to the Department for further review. Upon preliminary approval of your revised local limits by the Department, you should schedule the revisions for formal adoption by the City of Auburndale. Following final adoption of the revised local limits by the city, the ordinance can be formally approved by the Department and become effective.

If you have any questions on this correspondence or need clarification on local limit requirements, please contact John Coates or myself at the letterhead address or at (904) 488-4524.

Sincerely,

Robert E. Heilman

Robert E. Heilman, P.E.
Pretreatment Coordinator

enclosures

cc: Ed Snipes, P.E., DEP Tampa
Al Herndon, P.E., USEPA Region IV
Bobby M. Tillman, City of Auburndale

PRELIMINARY - Local Limit Review
Auburndale
December 1, 1995
revised January 22, 1996

The following are comments based on the review of local limits and supporting information submitted by the City of Auburndale on November 2. These comments are designed to support the development of technically defensible local limits in accordance with the requirements of Rule 62-625.500(2)(c), Florida Administrative Code (F.A.C.).

I. General

A. The proposed local limits contain both daily maximum and monthly average local limits. The implementation of both a daily maximum and monthly average limit should be technically justified by the control authority. Otherwise, it is recommended that the control authority implement only daily maximum local limits meeting the requirements of Rule 62-625.500(2)(c), F.A.C.

B. The local limit concentrations for aluminum, fluoride, iron, magnesium, manganese, and iodine (128, 105, 100, 425, 120, 100 mg/L, respectively) seem quite high. The control authority may want to review the technical justification to implement local limits for these pollutants. It appears that none of Auburndale's industrial users are likely to discharge wastewater containing those pollutants near those concentrations.

C. The proposed local limits do not include a safety factor, which is normally used for either uncertainty or growth allowances. Auburndale should provide the basis for not including a safety factor in its calculations. The documentation should indicate whether an allowance for growth is provided elsewhere.

II. Background Information/Nonindustrial Loading

A. The local limits do not contain any supporting information regarding the total industrial flow. The value used for the total industrial flow is 10% of the WWF design flow (i.e., 140,000 gallons per day). The actual industrial user contribution to the WWF should be documented. However, the industrial user flow for allocating the allowable industrial pollutant loadings may include an allowance for growth. If the value of

140,000 gallons per day includes an allowance for growth, then this should be stated.

B. The local limit calculations do not indicate the source of background loading concentrations. The source for these values must be documented. Some of these values appear to be analytical detection limits. It is suggested that any data below analytical detection limits be averaged or used as one half the detection limit's value.

III. Development Criteria

A. The local limit calculations included a water quality standard for cobalt. Cobalt does not have a Class-III freshwater quality standard (WQS); thus, this calculation should be deleted from the local limit submission.

B. The freshwater Class-III WQS for antimony is 4.3 mg/L; however, the Auburndale calculations used a value of 0.2 mg/L. This calculation should be revised assordingly.

C. A value of 300 mg/L as $CaCO_3$ was used to determine the hardness dependent WQS. The source for this value should be documented. Since the WQS are based on end-of-pipe conditions, the hardness value should represent the characteristics of Auburndale's wastewater discharge.

D. Most of the inhibition data used in your local limit development appear to be the minimum inhibition threshold concentrations for activated sludge from EPA's "Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (local limit guidance manual)." However, some of the inhibition data differ from the guidance values. For example:
   - the inhibition value used for lead was 0.5 mg/L; however, the guidance threshold value is 0.1 mg/L, and
   - the inhibition value used for arsenic was 0.05 mg/L; however, the guidance threshold value is 0.1 mg/L.

   Auburndale should identify any references used for the selection of inhibition values.

E. Auburndale should revise the local limit calculations to incorporate the current pollutant concentrations specified on Tables 1 and 3 at 40 CFR 503.13, which apply to land application and the sale of residuals. A number of the values used in the calculations have been recently revised, for example:

- The monthly average for selenium has been revised from 36 to 100 mg/kg,
- The residuals limits for chromium has been deleted,
- The molybdenum monthly average of 18 mg/kg has been deleted; therefore, the maximum limit of 75 mg/kg should be used.

The 40 CFR 503 monthly average for nickel is 420 mg/kg. However, the local limit calculations for residuals protection used the Department's current nickel limitation of 100 mg/kg. The limits in 40 CFR 503 should be used since the Department is in the process of revising its residuals requirements to match those in 40 CFR 503. A copy of the most recent revisions to 40 CFR 503.13 is enclosed.

IV. Treatment Process Removal Efficiencies

A. The treatment process removal efficiencies appear to be a based on a combination of plant data monitoring data and results from a CERCLA treatability study. The source for the removal efficiencies should be clearly documented. Additionally, in several cases, different removal efficiencies were used for the same pollutant (e.g., arsenic and cadmium). A single removal efficiency should be selected for each pollutant and process combination and used consistently.

V. Pollutant Specific Comments

The following are specific comments on certain pollutants. Please revise the calculations for these pollutants to correct the noted discrepancies or justify the calculated values.

antimony - The calculations use a WQS of 0.2 mg/L; however, the Class-III freshwater WQS is 4.3 mg/L.

arsenic - Auburndale's calculated local limit is 0.27 mg/L; however, the summary of proposed local limits indicates a proposed arsenic value of 0.01 mg/L for both the daily maximum and the monthly average.

cobalt - The guidance values for short-term and long-term discharge limits for the sprayfield differ by two orders of magnitude. Consequently, the calculated monthly average and daily maximum local limits for pass through also differ by an two orders of magnitude. The control authority should evaluate the utility of having both limits if the average

limit is two orders of magnitude more stringent than the daily maximum value.

mercury - The summary of proposed local limits contains a daily maximum of 0.014 mg/L for mercury. However, Auburndale's local limit calculations indicate a mercury local limit of 0.0001 mg/L based on analytical detection limits and limited background sampling data. The basis for the 0.0001 mg/L value is more justifiable since the calculations indicate that there is no allowable industrial loading for mercury. The local limit for mercury must be established at a concentration that provides protection against pass through.

Silver - The local limit for silver was calculated to be **0.00085 mg/L** using the current **0.07 µg/L** freshwater WQS. However, the proposed local limit is 0.008 mg/L. The calculations supporting the 0.00085 mg/L local limit for silver do not appear to contain any mathematical errors; however, a local limit at this concentration may not be achievable by industrial users. The control authority is encouraged to reevaluate and determine if the following assumptions are valid for the local limit calculations and those industrial users who are likely to discharge silver:

- It appears that the silver concentration for the background loading calculation (i.e., 0.0001 mg/L) may be an analytical detection limit. If so, the background pollutant load to the headworks may be calculated using a value of one half the analytical detection limit. Alternatively, the city may wish to examine the feasibility of performing clean sampling techniques capable of achieving lower analytical detection limits.

- The WWF removal efficiency was estimated as 60% for Auburndale's facility based on plant analyses. However, this value seems low and inconsistent since pollutants with similar characteristics are expected to be removed at a similar efficiencies. For example, copper is removed at 95% according to Auburndale's calculations. A copper removal rate of 95% compares well to the 80th percentile removal rate for activated sludge processes (also 95%) found in EPA's *Guidance Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program*, EPA 833/B-87-202 (local limits guidance document). One may expect that silver would also be removed similarly to those wastewater facilities achieving removal efficiencies near the 80th percentile values. The 80th percentile removal rate for silver in activated sludge processes in the local limit guidance document is 88%.

Therefore, one may expect that silver would also be removed at approximately 88% in Auburndale. Auburndale should review the analytical data used to calculate removal efficiencies. At a minimum, the review should consider whether the data are representative of their processes or if some of the data may be influenced by increased analytical imprecision that is inherent at concentrations near practical quantitation limits.

- The local limit calculations assume that the total allowable silver load (e.g., in lb./day) for the wastewater facility should be allocated uniformly among the total industrial user contribution of 140,000 gallons per day. The control authority may wish to perform a more detailed review of the discharge flow rates from possible silver contributing industrial users. The value of 140,000 gallons per day may overestimate the total flow contribution from industrial users in Auburndale that may be likely to discharge silver. For example, if the total industrial contribution from all potential silver dischargers is 50,000 gallons per day, then the total allowable industrial contribution for silver could be allocated over 50,000 instead of 140,000 gallons per day.

Federal Register

Wednesday
October 25, 1995

Part II

Environmental Protection Agency

40 CFR Parts 403 and 503

Standards for the Use or Disposal of Sewage Sludge; Final Rule and Proposed Rule

in this rule. Such provisions, were they included, would be submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C.,3501 *et seq.*

4. Unfunded Mandates

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), P.L. 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, or tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. When such a statement is needed for an EPA rule, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, giving them meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising them on compliance with the regulatory requirements.

EPA has determined that today's amendments to part 403 and part 503 do not contain a Federal mandate that may result in expenditures of $100 million or more for State, local or tribal governments or the private sector in any one year. The changes to the part 503 regulation promulgated today, to the extent they reduce the costs of complying with current requirements, will, in fact, lessen the regulatory burden on State, local, or tribal governments.

The part 503 regulation includes monitoring and recordkeeping requirements for certain POTWs and other treatment works treating domestic sewage when sewage sludge is applied to the land. Because EPA will no longer regulate the amount of chromium applied to the land in sewage sludge, POTWs and other treatment works treating domestic sewage will not need to incur any monitoring and recordkeeping cost for chromium. Consequently, there are either no (or reduced) costs associated with the final rule promulgated today. Thus, today's rule is not subject to the requirements in sections 202 and 205 of the Act.

EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments that may operate publicly owned treatment works (POTWs) generating sewage sludge. The rule would not significantly affect small governments because, as explained above, the amendments would reduce the monitoring and recordkeeping requirements associated with land application. The amendments also would not uniquely affect small governments because deleting the land application pollutant limits for chromium and changing the pollutant concentration limit for selenium will not affect POTWs operated by small governments differently from other sewage sludge users or disposers.

List of Subjects

40 CFR Part 403

Environmental protection, Incineration, Land application, Pollutants, Removal credits, Sewage sludge, and Surface disposal.

40 CFR Part 503

Environmental Protection, Frequency of monitoring, Incineration, Incorporation by reference, Land application, Management practices, Pathogens, Pollutants, Reporting and recordkeeping requirements, Sewage sludge, Surface disposal and Vector attraction reduction.

Dated: October 10, 1995.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40 of the Code of Federal Regulations is amended as set forth below:

PART 403—GENERAL PRETREATMENT REGULATIONS FOR EXISTING AND NEW SOURCES OF POLLUTION

1. The authority citation for 40 CFR part 403 continues to read as follows:

Authority: Sec. 54(c)(2) of the Clean Water Act of 1977, (Pub. L. 95–217) sections 204(b)(1)(C), 208(b)(2)(C)(iii), 301(b)(1)(A)(ii), 301(b)(2)(A)(ii), 301(b)(2)(C), 301(h)(5), 301(i)(2), 304(e), 304(g), 307, 308, 309, 402(b), 405 and 501(a) of the Federal Water Pollution Control Act (Pub. L. 92–500) as amended by the Clean Water Act of 1977 and the Water Quality Act of 1987 (Pub. L. 100–4).

2. Appendix G to part 403 is revised to read as follows:

Appendix G To Part 403—Pollutants Eligible For A Removal Credit

I. Regulated Pollutants in Part 503 Eligible for a Removal Credit

Pollutants	Use or disposal practice		
	LA	SD	I
Arsenic	X	X	X
Beryllium			X
Cadmium	X		X
Chromium		X	X
Copper	X		
Lead	X		X
Mercury	X		X
Molybdenum	X		
Nickel	X	X	X
Selenium	X		
Zinc	X		
Total hydrocarbons.			X[1]

Key:

LA—land application.

SD—surface disposal site without a liner and leachate collection system.

I—firing of sewage sludge in a sewage sludge incinerator.

[1] The following organic pollutants are eligible for a removal credit if the requirements for total hydrocarbons in subpart E in 40 CFR Part 503 are met when sewage sludge is fired in a sewage sludge incinerator: Acrylonitrile, Aldrin/Dieldrin(total), Benzene, Benzidine, Benzo(a)pyrene, Bis(2-chloroethyl)ether, Bis(2-ethylhexyl)phthalate, Bromodichloromethane, Bromoethane, Bromoform, Carbon tetrachloride, Chlordane, Chloroform, Chloromethane, DDD,DDE,DDT, Dibromochloromethane, Dibutyl phthalate, 1,2-dichloroethane, 1,1-dichloroethylene, 2,4-dichlorophenol, 1,3-dichloropropene, Diethyl phthalate, 2,4-dinitrophenol, 1,2-diphenylhydrazine, Di-n-butyl phthalate, Endosulfan, Endrin, Ethylbenzene, Heptachlor, Heptachlor epoxide, Hexachlorobutadiene, Alpha-hexachlorocyclohexane, Beta-hexachlorocyclohexane, Hexachlorocyclopentadiene, Hexachloroethane, Hydrogen cyanide, Isophorone, Lindane, Methylene chloride, Nitrobenzene, N-Nitrosodimethylamine, N-Nitrosodi-n-propylamine, Pentachlorophenol, Phenol, Polychlorinated biphenyls, 2,3,7,8-tetrachlorodibenzo-p-dioxin, 1,1,2,2,-tetrachloroethane, Tetrachloroethylene, Toluene, Toxaphene, Trichloroethylene, 1,2,4–Trichlorobenzene, 1,1,1–Trichloroethane, 1,1,2–Trichloroethane, and 2,4,6–Trichlorophenol.

II. ADDITIONAL POLLUTANTS ELIGIBLE FOR A REMOVAL CREDIT

[milligrams per kilogram—dry weight basis]

Pollutant	Use or disposal practice			
	LA	SD	I	
			Unlined[1]	Lined[2]
Arsenic	.....	.....	[3]100	.....
Aldrin/Dieldrin (Total)	2.7	.....	.....	.....
Benzene	[3]16	140	3400	.....
Benzo(a)pyrene	15	[3]100	[3]100	.....
Bis(2-ethylhexyl)phthalate	.....	[3]100	[3]100	.....
Cadmium	.....	[3]100	[3]100	.....
Chlordane	86	[3]100	[3]100	.....
Chromium	[4]	.....	[3]100	.....
Copper	.....	[3]46	[3]100	1400
DDD, DDE, DDT (Total)	1.2	2000	2000	.....
2,4 Dichlorophenoxy-acetic acid	.....	7	7	.....
Fluoride	730	.....	.....	.....
Heptachlor	7.4	.....	.....	.....
Hexachlorobenzene	29	.....	.....	.....
Hexachlorobutadiene	600	.....	.....	.....
Iron	[3]78	.....	.....	.....
Lead	.....	[3]100	[3]100	.....
Lindane	84	[3]28	[3]28	.....
Malathion	.....	0.63	0.63	.....
Mercury	.....	[3]100	[3]100	.....
Molybdenum	.....	40	40	.....
Nickel	.....	.....	[3]100	.....
N-Nitrosodimethylamine	2.1	0.088	0.088	.....
Pentachlorophenol	30	.....	.....	.....
Phenol	.....	82	82	.....
Polychlorinated biphenyls	4.6	<50	<50	.....
Selenium	.....	4.8	4.8	4.8
Toxaphene	10	[3]26	[3]26	.....
Trichloroethylene	[3]10	9500	[3]10	.....
Zinc	.....	4500	4500	4500

Key: LA—land application.
SD—surface disposal.
I—incineration.
[1] Sewage sludge unit without a liner and leachate collection system.
[2] Sewage sludge unit with a liner and leachate collection system.
[3] Value expressed in grams per kilogram—dry weight basis.
[4] Value to be determined on a case-by-case basis.

PART 503—STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE

1. The authority citation for part 503 continues to read as follows:

Authority: Sections 405(d) and (e) of the Clean Water Act, as amended by Pub. L. 95–217, Sec. 54(d), 91 Stat. 1591 (33 U.S.C. 1345 (d) and (e)); and Pub. L. 100–4, Title IV, Sec. 406 (a), (b), 101 Stat., 71, 72 (33 U.S.C. 1251 et seq.).

2. § 503.13(b) is revised to read as follows:

§ 503.13 Pollutant limits.

* * * * *

(b) Pollutant concentrations and loading rates—sewage sludge.

(1) Ceiling concentrations.

TABLE 1 OF § 503.13.—CEILING CONCENTRATIONS

Pollutant	Ceiling concentration (milligrams per kilogram)[1]
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

[1] Dry weight basis.

(2) Cumulative pollutant loading rates.

TABLE 2 OF § 503.13.—CUMULATIVE POLLUTANT LOADING RATES

Pollutant	Cumulative pollutant loading rate (kilograms per hectare)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

(3) Pollutant concentrations.

TABLE 3 OF § 503.13.—POLLUTANT CONCENTRATIONS

Pollutant	Monthly average concentration (milligrams per kilogram)[1]
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

[1] Dry weight basis.

(4) Annual pollutant loading rates.

TABLE 4 OF § 503.13.—ANNUAL POLLUTANT LOADING RATES

Pollutant	Annual pollutant loading rate (kilograms per hectare per 365 day period)
Arsenic	2.0
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85
Nickel	21

TABLE 4 OF § 503.13.—ANNUAL POLLUTANT LOADING RATES—Continued

Pollutant	Annual pollutant loading rate (kilograms per hectare per 365 day period)
Selenium	5.0
Zinc	140

* * * * *

[FR Doc. 95–25740 Filed 10–24–95; 8:45 am]

BILLING CODE 6560–50–P

Auburndale

Department of Environmental Protection

TELEPHONE CONTACT:

☐initiated ☐received Date: 1/22/96 Time: 4:15

Person Contacted: Billie Mills Telephone:( ) on File

Title: P. C Representing: Auburndale

Summary:

Spoke w/ Billie regarding their local limits about the following:

(1) Billie has already discussed the use of monthly average local limits in addition to the standard daily max values with the wastewater superintendent. Auburndale would like to follow the Department's recommendation following this conversation with Bob that they not use the monthly limits

(2) Billie also indicated that he also had questioned the need for some of the local limits for those parameters which are not likely to be exceeded (e.g. Magnesium w/a proposed local limit of 425 mg/L). Billie said that he would discuss some of these w/ his supervisor when he gets back from lunch.

(3) We also discussed some of documentation needs for their submittal. Billie said that he would review our comments and work with the consultants who did the work to provide the needed references.

Follow Up Required:

☐yes ☒no Contact person: John Costa

Action Required:

Copy to File: Major Auburndale Minor Program

CC: R. Hallman → File

RL

Pret.
Auburndale
Prog Doc.

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NOV 6 1995

Dept. of Environmental Regulation
Domestic Waste Section

City of Auburndale
AUBURNDALE, FLORIDA 33823

Office of Director of Public Utilities

P.O. Box 186
1300 Recker Hwy
(813) 965-5549

November 02, 1995

Attention: Robert Heilman
Department of Environmental Protection
Domestic Wastewater Section
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Heilman:

On February 06, 1995, the City Commission of the City of Auburndale adopted new pretreatment standards as part of the City's Pretreatment Program. After background sampling and reviewing the limits, we feel some changes need to be made.

Attached is a list of the parameters we would like to change and a copy of the calculations on limitations from the engineers. We are asking for your approval before we present this issue to the City Commission.

If you have any questions, please call me.

Sincerely,

Bobby M. Tillman

Bobby Tillman
Director of Public Utilities

vbj

Enclosure

cc: Al Herndon; Region IV Enforcement Section, U.S. EPA

Pret.
Auburndale
Prog. Doc.

engineers • scientists • surveyors
chastain skillman

Lakeland
Reply to: 646-1402
FAX 647-3806

October 27, 1995

Mr. Billie Mills, Pretreatment Coordinator
City of Auburndale
P.O. Box 186
Auburndale, Florida 33823

RE: Revisions to Pretreatment Limits
CSI File 1880.01

Dear Billie:

As requested, we have re-examined the required pretreatment limits for the Auburndale wastewater treatment plants. This re-examination was based on additional test data from the City, as well as a review of several site specific criteria. We have attached a revised copy of Table D-1, as well as the backup calculation sheets. The changed values are as listed below:

Aluminum - The daily maximum value for aluminum was reduced from 199 mg/l to 128 mg/l. This was done to reflect the City's request that the pretreatment calculations reflect a plant design loading of 1.4 mgd, rather than 0.9 mgd.

Cadmium - This monthly average value for cadmium was restored to the original (pre-1994) value of 0.03 mg/l, and the maximum daily value was restored to the 0.05 mg/l value. This was based on the additional background testing which the City performed recently.

Copper - The monthly average value for copper was raised to 0.84 mg/l, while the maximum daily value was raised to 1.68 mg/l. This was based on the additional background testing which the City performed recently.

Manganese - The monthly average value was increased to 3.5 mg/l, while the maximum daily value was raised to 120 mg/l. This was based on supplemental data on potential removals in secondary wastewater treatment plants.

Mercury - We have restored both the monthly average and daily maximum values to the original limitations. While the new test data provided by the City was insufficient to justify any modification, we are concerned that there is no feasible way to demonstrate compliance with surface water quality standards for mercury.

As we have discussed, the DEP's limitation for mercury is currently set at 0.012 ug/l. However, the latest edition of *Standard Methods* (18th ed., 1992) lists a minimum detectable concentration of 2 ug/l. Therefore, there is no "standard" laboratory method which would allow us to routinely monitor mercury compliance. We believe, especially as there are no suspected sources of mercury in the City's POTW system, that this justifies restoring the original values.

Molybdenum - The daily maximum value for molybdenum was reduced from 0.125 mg/l to 0.08 mg/l. This was done to reflect the City's request that the pretreatment calculations reflect a plant design loading of 1.4 mgd, rather than 0.9 mgd.

Nickel - The daily maximum value for nickel was reduced from 0.90 mg/l to 0.60 mg/l. This was done to reflect the City's request that the pretreatment calculations reflect a plant design loading of 1.4 mgd, rather than 0.9 mgd. It should be noted that the new values are the same as those which were originally in the pretreatment regulations.

Phenols - After several discussions with O.E. Albertson, a noted environmental engineer, and with faculty at Georgia Tech, we are recommending that this limit be deleted. In its place, we are recommending a limit on Total Toxic Organics.

Silver - We have restored both the monthly average and daily maximum values to the original limitations. While the new test data provided by the City was insufficient to justify any modification, we are concerned that there is no feasible way to demonstrate compliance with surface water quality standards for silver.

As we have discussed, the DEP's limitation for silver is currently set at 0.07 ug/l. However, the latest edition of *Standard Methods* (18th ed., 1992) lists a minimum detectable concentration of 0.2 ug/l (Method 3113). Therefore, there is no "standard" laboratory method which would allow us to routinely monitor silver compliance. We believe, especially as there are no suspected sources of silver in the City's POTW system, that this justifies restoring the original values.

Total Toxic Organics - This is a replacement parameter for phenols. The parameter is analyzed utilizing EPA Methods 624 and 625, and examines the presence of toxic priority pollutants in the wastewater. Based on plant data, the limit for this parameter has been set at the old limit for phenols.

Zinc - The monthly average concentration has been raised to 0.5 mg/l, and the daily maximum has been raised to 1.0 mg/l. This is based on the additional testing which the City has conducted in the sewer system.

Total Identifiable Hydrocarbons - It is recommended that this parameter be replaced with the total toxic organics parameter.

We hope this information is sufficient for your use. If you have any further questions, or need additional assistance, please contact me at your convenience.

Sincerely,

CHASTAIN-SKILLMAN, INC.

Paul A. Bizier, P.E.
Director of Environmental Engineering

PAB/mc

Cc: Bobby Tillman, Director Public Utilities
Robert R. Green, City Manager

Enclosures

Table D-1

SUMMARY OF PROPOSED PRETREATMENT LIMITS AUBURNDALE WASTEWATER TREATMENT PLANTS						
		Monthly Average		Daily Maximum		
POLLUTANT	BACKGROUND CONCENTRATION (mg/l)	CURRENT LIMIT	PROPOSED LIMIT	CURRENT LIMIT	PROPOSED LIMIT	UNITS
Antimony	0.1	None	0.55	None	1.10	mg/l
Aluminum	0.1	None	49.10	None	128	mg/l
Arsenic	0.001	0.01	0.01	0.01	0.01	mg/l
Beryllium	0	None	0.0007	None	0.0013	mg/l
Boron	0.34	None	4.44	None	16.94	mg/l
Cadmium	0.001	0.03	0.030	0.05	0.050	mg/l
Chromium - Total	0.04	1.00	0.70	2.00	1.36	mg/l
Cobalt	0	None	0.46	None	50	mg/l
Copper	0.08	1.00	0.840	2.00	1.680	mg/l
Cyanide	0.01	0.018	0.014	0.036	0.028	mg/l
Fluoride	0.405	None	7.25	None	105	mg/l
Iron	1.2	None	50	None	100	mg/l
Lead	0.0105	1.00	0.10	2.00	0.205	mg/l
Magnesium	7.93	None	225	None	425	mg/l
Manganese	0	None	3.50	None	? 120	mg/l
Mercury	0.0001	0.007	0.0070	0.014	0.0140	mg/l
Molybdenum	0	None	0.04	None	0.080	mg/l
Nickel	0.02	0.30	0.30	0.60	0.60	mg/l
Oils & Grease		100.00	100.00	100.00	100.00	mg/l
Phenols	0.013	2.00		4.00		mg/l
Selenium	0	None	0.025	None	0.05	mg/l
Silver	0.0001	0.004	0.004	0.008	0.008	mg/l
Total Toxic Organics (EPA Method 624/625)			2.000		4.000	mg/l
Vanadium		None	0.10	None	0.20	mg/l
Zinc	0.165	0.50	0.50	1.00	1.000	mg/l
BOD_5		1575	975.00	2520	1,500.00	mg/l
TSS		290	290.00	520	520.00	mg/l
Total Dissolved Solids	400	None	1,405.00	None	1,405.00	mg/l
Total Nitrogen		40	40.00	80	80.00	mg/l
Soil Adsorption Ratio		None	≤10	None	≤10	

Iodine ?

Calculation of Limits for Antimony

Pollutant:	Antimony			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Antimony		
	Avg. Background Conc.:	0.1	mg/l	(detection limit)
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Pollutant:	1.05084	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Antimony		
1	*Inhibition of Activated Sludge Process*			
	Inhibiting Concentration:	N.A.	mg/l	
	Influent Limiting Concentration:	N.A.	mg/l	
	Influent Limiting Mass Loading:	#VALUE!	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	0.2	mg/l	
	Maximum Effluent Conc.	0.2	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses	
	Maximum Influent Conc.	0.2	mg/l	
	Influent Mass Loading	2.3352	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	N.A.	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	N.A.	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.455	L/day	
		29642.455	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day	
	Mass Loading to Sludge	#VALUE!	mg/day	
		#VALUE!	lbs. per day	
	Removal of Pollutant in POTW	40%	CERCLA Site Discharges Treatability Manua	
	Allowable Influent Mass Loading	#VALUE!	lbs. per day	
5	*Determination of Limiting Factor*			
	Inhibition of Activated Sludge		lbs. per day	
	Class III Water Quality Standards	2.3352	lbs. per day	
	Protection of Effluent Sprayfield		lbs. per day	
	Protection of Sludge Disposal		lbs. per day	
	Limiting Amount	2.3352	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	2.3352	lbs. per day	
	Loading Attributable to Domestic Sources	1.05084	lbs. per day	
	Mass Loading Available for Industrial Loading	1.28436	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	1.1	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.1	mg/l	
	Program Limit	1.1	mg/l	
	Type of Limit	Daily Max.		

where is monthly avg.?

Pollutant:	Aluminum						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Aluminum					
	Avg. Background Conc.:	0.1	mg/l	(Assumed)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	1.05084	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Aluminum					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	#VALUE!	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	5	mg/l		20	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	5	mg/l		20	mg/l	
	Influent Mass Loading	58.38	pounds per day		233.52	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor	Long-term			Short-term		
	Inhibition of Activated Sludge		lbs. per day		#VALUE!	lbs. per day	
	Class III Water Quality Standards		lbs. per day		#VALUE!	lbs. per day	
	Protection of Effluent Sprayfield	58.38	lbs. per day		233.52	lbs. per day	
	Protection of Sludge Disposal		lbs. per day		#VALUE!	lbs. per day	
	Limiting Amount	58.38	lbs. per day		150.12	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	58.38	lbs. per day		150.12	lbs. per day	
	Loading Attributable to Domestic Sources	1.05084	lbs. per day		1.05084	lbs. per day	
	Mass Loading Available for Industrial Loading	57.32916	lbs. per day		149.0692	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	49.1	mg/l		127.6714	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.1	mg/l		0.1	mg/l	
	Program Limit	49.1	mg/l		127.6714	mg/l	
	Type of Limit	Monthly Avg.			Daily Max.		

Calculation of Pretreatment Limits for Arsenic

Pollutant:	Arsenic						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Arsenic					
	Avg. Background Conc.:	0.001	mg/l	(detection limit)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0.0105084	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Arsenic					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	0.05	mg/l				
	Influent Limiting Concentration:	0.05	mg/l				
	Influent Limiting Mass Loading:	*0.5838*	*pounds per day*				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	0.05	mg/l				
	Maximum Effluent Conc.	0.05	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	0.05	mg/l				
	Influent Mass Loading	0.5838	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.1	mg/l		2	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.1	mg/l		2	mg/l	
	Influent Mass Loading	1.1676	pounds per day		23.352	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	41	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	48613.626	mg/day				
		0.1071736	lbs. per day				
	Removal of Pollutant in POTW	33%	CERCLA Site Discharges Treatability Manual				
	Allowable Influent Mass Loading	0.3247685	lbs. per day				
5	Determination of Limiting Factor	Long-term			Short-term		
	Inhibition of Activated Sludge	0.5838	lbs. per day		0.5838	lbs. per day	
	Class III Water Quality Standards	0.5838	lbs. per day		0.5838	lbs. per day	
	Protection of Effluent Sprayfield	1.1676	lbs. per day		23.352	lbs. per day	
	Protection of Sludge Disposal	0.3247685	lbs. per day		0.324768	lbs. per day	
	Limiting Amount	0.3247685	lbs. per day		0.324768	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.3247685	lbs. per day		0.324768	lbs. per day	
	Loading Attributable to Domestic Sources	0.0105084	lbs. per day		0.010508	lbs. per day	
	Mass Loading Available for Industrial Loading	0.3142601	lbs. per day		0.31426	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.2691505	mg/l		0.26915	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.001	mg/l		0.001	mg/l	
	Program Limit	0.2691505	mg/l		0.26915	mg/l	
		Daily Max.					

Pollutant:	Beryllium						
A.	*BACKGROUND INFORMATION*						
	Pollutant of Concern	Beryllium					
	Avg. Background Conc.:	0	mg/l	(assumed)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Beryllium					
1	*Inhibition of Activated Sludge Process*						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	0.00013	mg/l				
	Maximum Effluent Conc.	0.00013	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	0.00013	mg/l				
	Influent Mass Loading	0.0015179	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.1	mg/l		0.5	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.1	mg/l		0.5	mg/l	
	Influent Mass Loading	1.1676	pounds per day		5.838	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards	0.0015179	lbs. per day		0.001518	lbs. per day	
	Protection of Effluent Sprayfield	1.1676	lbs. per day		5.838	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	0.0015179	lbs. per day		0.001518	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.0015179	lbs. per day		0.001518	lbs. per day	
	Loading Attributable to Domestic Sources	0	lbs. per day		0	lbs. per day	
	Mass Loading Available for Industrial Loading	0.0015179	lbs. per day		0.001518	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.0013	mg/l		0.0013	mg/l	
	Max. Allowable Conc. based on Background Conc.	0	mg/l		0	mg/l	
	Program Limit	0.0013	mg/l		0.0013	mg/l	
		Daily Max.			Daily Max.		

Where is monthly avg ?

Pollutant:	Boron						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Boron					
	Avg. Background Conc.:	0.34	mg/l	(1994 testing)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	0.9	MGD				
	Domestic Portion	0.81	MGD				
	Total Domestic Loading of Pollutant:	2.296836	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Boron					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	#VALUE!	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.75	mg/l		2	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.75	mg/l		2	mg/l	
	Influent Mass Loading	5.6295	pounds per day		15.012	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	5.6295	lbs. per day		15.012	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	5.6295	lbs. per day		15.012	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	5.6295	lbs. per day		15.012	lbs. per day	
	Loading Attributable to Domestic Sources	2.296836	lbs. per day		2.296836	lbs. per day	
	Mass Loading Available for Industrial Loading	3.332664	lbs. per day		12.71516	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	4.44	mg/l		16.94	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.34	mg/l		0.34	mg/l	
	Program Limit	4.44	mg/l		16.94	mg/l	
		Monthly Avg.			Daily Max.		

Calculation of Pretreatment Limits for BOD

Pollutant:	BOD			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	BOD		
	Avg. Background Conc.:	225	mg/l	(routine testing)
	Industrial Contribution:	10%		
	Plant Design Capacity:	0.9	MGD	
	Domestic Portion	0.81	MGD	
	Total Domestic Loading of Pollutant:	1519.965	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	BOD		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	300	mg/l	
	Influent Limiting Concentration:	300	mg/l	
	Influent Limiting Mass Loading:	2251.8	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	N.A.	mg/l	
	Maximum Effluent Conc.	#VALUE!	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	N.A.	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	N.A.	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	#VALUE!	mg/day	
		#VALUE!	lbs. per day	
	Removal of Pollutant in POTW	0%		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	2251.8	lbs. per day	
	Class III Water Quality Standards	#VALUE!	lbs. per day	
	Protection of Effluent Sprayfield	#VALUE!	lbs. per day	
	Protection of Sludge Disposal	#VALUE!	lbs. per day	
	Limiting Amount	2251.8	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	2251.8	lbs. per day	
	Loading Attributable to Domestic Sources	1519.965	lbs. per day	
	Mass Loading Available for Industrial Loading	731.835	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	975	mg/l	
	Max. Allowable Conc. based on Background Conc.	225	mg/l	
	Program Limit	975	mg/l	

Calculation of Pretreatment Limits for Cadmium

Pollutant:	Cadmium			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Cadmium		
	Avg. Background Conc.:	0.001	mg/l	(detection limit)
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.0105084	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Cadmium		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.5	mg/l	
	Influent Limiting Concentration:	0.5	mg/l	
	Influent Limiting Mass Loading:	5.838	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	3.03E-03	mg/l	
	Maximum Effluent Conc.	0.003033	mg/l	
	Reduction of Pollutant in POTW	50%	Plant Analyses	
	Maximum Influent Conc.	0.006066	mg/l	
	Influent Mass Loading	0.07082662	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	0.01	mg/l	
	Reduction of Pollutant in POTW	45%	based on Plant Analyses	
	Maximum Influent Conc.	0.01818182	mg/l	
	Influent Mass Loading	0.21229091	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	39	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	46242.2292	mg/day	
		0.10194562	lbs. per day	
	Removal of Pollutant in POTW	45%		
	Allowable Influent Mass Loading	0.22654582	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	5.838	lbs. per day	
	Class III Water Quality Standards	0.07082662	lbs. per day	
	Protection of Effluent Sprayfield	0.21229091	lbs. per day	
	Protection of Sludge Disposal	0.22654582	lbs. per day	
	Limiting Amount	0.07082662	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	0.07082662	lbs. per day	
	Loading Attributable to Domestic Sources	0.0105084	lbs. per day	
	Mass Loading Available for Industrial Loading	0.06031822	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.05166	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.001	mg/l	
	Program Limit	0.05166	mg/l	

Type of limit Daily Max or monthly avg?

Calculation of Pretreatment Limits for Chromium

Pollutant:	Chromium			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Chromium		
	Avg. Background Conc.:	0.04	mg/l	(detection limit)
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.420336	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Chromium		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	1	mg/l	
	Influent Limiting Concentration:	1	mg/l	
	Influent Limiting Mass Loading:	11.676	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	5.00E-02	mg/l	
	Maximum Effluent Conc.	0.05	mg/l	
	Reduction of Pollutant in POTW	71%	based on Plant Analyses	
	Maximum Influent Conc.	0.17241379	mg/l	
	Influent Mass Loading	2.01310345	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	0.1	mg/l	
	Reduction of Pollutant in POTW	71%	based on Plant Analyses	
	Maximum Influent Conc.	0.34482759	mg/l	
	Influent Mass Loading	4.0262069	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	1200	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	1422837.82	mg/day	
		3.13678826	lbs. per day	
	Removal of Pollutant in POTW	71%		
	Allowable Influent Mass Loading	4.41801163	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	11.676	lbs. per day	
	Class III Water Quality Standards	2.01310345	lbs. per day	
	Protection of Effluent Sprayfield	4.0262069	lbs. per day	
	Protection of Sludge Disposal	4.41801163	lbs. per day	
	Limiting Amount	2.01310345	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	2.01310345	lbs. per day	
	Loading Attributable to Domestic Sources	0.420336	lbs. per day	
	Mass Loading Available for Industrial Loading	1.59276745	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	1.36413793	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.04	mg/l	
	Program Limit	1.36413793	mg/l	

Ditto

Calculation of Pretreatment Limits for Cobalt

Pollutant:	Cobalt						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Cobalt					
	Avg. Background Conc.:	0.005	mg/l	(detection limit)			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Polutant:	0.052542	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Cobalt					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	3.03E-03	mg/l				
	Maximum Effluent Conc.	N.A.	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
					Short-term		
	Maximum Effluent Concentration	0.05	mg/l		5	mg/l	
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		0		
	Maximum Influent Conc.	0.05	mg/l		5	mg/l	
	Influent Mass Loading	0.5838	pounds per day		58.38	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	0.5838	lbs. per day		58.38	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	0.5838	lbs. per day		58.38	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	0.5838	lbs. per day		58.38	lbs. per day	
	Loading Attributable to Domestic Sources	0.052542	lbs. per day		0.052542	lbs. per day	
	Mass Loading Available for Industrial Loading	0.531258	lbs. per day		58.32746	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.455	mg/l		49.955	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.005	mg/l		0.005	mg/l	
	Program Limit	0.455	mg/l		49.955	mg/l	
		Monthly Avg.			Daily Max.		

Pollutant:	Copper			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Copper		
	Avg. Background Conc.:	0.08	mg/l	Avg. of conc. in collection system
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.840672	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Copper		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.24	mg/l	(WEF reports inhibition of AS @ 1 mg/l and inhibition of Nit. @ 0.05 to 0.48 mg/l)
	Influent Limiting Concentration:	0.24	mg/l	
	Influent Limiting Mass Loading:	2.80224	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	3.00E-02	mg/l	
	Maximum Effluent Conc.	0.03	mg/l	
	Reduction of Pollutant in POTW	95%	based on Plant Analyses	
	Maximum Influent Conc.	0.6	mg/l	
	Influent Mass Loading	7.0056	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
		Long-term		
	Maximum Effluent Concentration	0.2	mg/l	
	Reduction of Pollutant in POTW	95%	based on Plant Analyses	
	Maximum Influent Conc.	4	mg/l	
	Influent Mass Loading	46.704	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	1500	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.455	L/day	
		29642.455	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day	
	Mass Loading to Sludge	1778547.3	mg/day	
		3.9209853	lbs. per day	
	Removal of Pollutant in POTW	95%		
	Allowable Influent Mass Loading	4.127353	lbs. per day	
5	Determination of Limiting Factor	Long-term		Monthly avg.
	Inhibition of Activated Sludge	2.80224	lbs. per day	
	Class III Water Quality Standards	7.0056	lbs. per day	
	Protection of Effluent Sprayfield	46.704	lbs. per day	
	Protection of Sludge Disposal	4.127353	lbs. per day	Daily max ?
	Limiting Amount	2.80224	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	2.80224	lbs. per day	
	Loading Attributable to Domestic Sources	0.840672	lbs. per day	
	Mass Loading Available for Industrial Loading	1.961568	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	1.68	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.08	mg/l	
	Program Limit	1.68	mg/l	

Type of limit?

Calculation of Pretreatment Limits for Cyanide

Pollutant:	Cyanide				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Cyanide			
	Avg. Background Conc.:	0.01	mg/l	(detection limit)	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.105084	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Cyanide			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	0.1	mg/l		
	Influent Limiting Concentration:	0.1	mg/l		
	Influent Limiting Mass Loading:	1.1676	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	5.20E-03	mg/l		
	Maximum Effluent Conc.	0.0052	mg/l		
	Reduction of Pollutant in POTW	56%	based on Plant Analyses		
	Maximum Influent Conc.	0.01181818	mg/l		
	Influent Mass Loading	0.13798909	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	56%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	56%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	1.1676	lbs. per day		
	Class III Water Quality Standards	0.13798909	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	0.13798909	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.13798909	lbs. per day		
	Loading Attributable to Domestic Sources	0.105084	lbs. per day		
	Mass Loading Available for Industrial Loading	0.03290509	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.02818182	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.01	mg/l		
	Program Limit	0.02818182	mg/l		

Monthly Avg?

Pollutant:	Fluoride						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Fluoride					
	Avg. Background Conc.:	0.405	mg/l	1994 testing			
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Polutant:	4.255902	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Fluoride					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	N.A.	mg/l				
	Influent Limiting Concentration:	N.A.	mg/l				
	Influent Limiting Mass Loading:	#VALUE!	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	1.00E+01	mg/l				
	Maximum Effluent Conc.	10	mg/l				
	Reduction of Pollutant in POTW	9%	based on Plant Analyses				
	Maximum Influent Conc.	10.940919	mg/l				
	Influent Mass Loading	127.74617	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	1	mg/l		15	mg/l	
	Reduction of Pollutant in POTW	9%	based on Plant Analyses		9%		
	Maximum Influent Conc.	1.0940919	mg/l		16.48352	mg/l	
	Influent Mass Loading	12.774617	pounds per day		192.4615	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	9%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor				Short-term		
	Inhibition of Activated Sludge		lbs. per day			lbs. per day	
	Class III Water Quality Standards	127.74617	lbs. per day		127.7462	lbs. per day	
	Protection of Effluent Sprayfield	12.774617	lbs. per day		192.4615	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	12.774617	lbs. per day		127.7462	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	12.774617	lbs. per day		127.7462	lbs. per day	
	Loading Attributable to Domestic Sources	4.255902	lbs. per day		4.255902	lbs. per day	
	Mass Loading Available for Industrial Loading	8.5187151	lbs. per day		123.4903	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	7.295919	mg/l		105.7642	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.405	mg/l		0.405	mg/l	
	Program Limit	7.295919	mg/l		105.7642	mg/l	
		Monthly Avg.			Daily Max.		

Calculation of Pretreatment Limits for Iron

Pollutant:	Iron			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Iron		
	Avg. Background Conc.:	1.2	mg/l	1994 testing
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	12.61008	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Iron		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	250	mg/l	
	Influent Limiting Concentration:	250	mg/l	
	Influent Limiting Mass Loading:	2919	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	1.00E+00	mg/l	
	Maximum Effluent Conc.	1	mg/l	
	Reduction of Pollutant in POTW	91%	based on Plant Analyses	
	Maximum Influent Conc.	11.1111111	mg/l	
	Influent Mass Loading	129.733333	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	5	mg/l	
	Reduction of Pollutant in POTW	91%	based on Plant Analyses	
	Maximum Influent Conc.	55.5555556	mg/l	
	Influent Mass Loading	648.666667	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	N.A.	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	#VALUE!	mg/day	
		#VALUE!	lbs. per day	
	Removal of Pollutant in POTW	91%		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	2919	lbs. per day	
	Class III Water Quality Standards	129.733333	lbs. per day	
	Protection of Effluent Sprayfield	648.666667	lbs. per day	
	Protection of Sludge Disposal		lbs. per day	
	Limiting Amount	129.733333	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	129.733333	lbs. per day	
	Loading Attributable to Domestic Sources	12.61008	lbs. per day	
	Mass Loading Available for Industrial Loading	117.123253	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	100.311111	mg/l	
	Max. Allowable Conc. based on Background Conc.	1.2	mg/l	
	Program Limit	100.311111	mg/l	

Calculation of Pretreatment Limits for Iodine

Pollutant:	Iodine				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Iodine			
	Avg. Background Conc.:	0	mg/l		
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Iodine			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	10	mg/l		
	Influent Limiting Concentration:	10	mg/l		
	Influent Limiting Mass Loading:	116.76	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	116.76	lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	116.76	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	116.76	lbs. per day		
	Loading Attributable to Domestic Sources	0	lbs. per day		
	Mass Loading Available for Industrial Loading	116.76	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	100	mg/l		
	Max. Allowable Conc. based on Background Conc.	0	mg/l		
	Program Limit	100	mg/l		

Pollutant:	Lead			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Lead		
	Avg. Background Conc.:	0.0105	mg/l	Previous Testing
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.1103382	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Lead		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.5	mg/l	
	Influent Limiting Concentration:	0.5	mg/l	
	Influent Limiting Mass Loading:	5.838	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	1.29E-02	mg/l	
	Maximum Effluent Conc.	0.0129	mg/l	
	Reduction of Pollutant in POTW	57%	based on Plant Analyses	
	Maximum Influent Conc.	0.03	mg/l	
	Influent Mass Loading	0.35028	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	5	mg/l	
	Reduction of Pollutant in POTW	57%	based on Plant Analyses	
	Maximum Influent Conc.	11.627907	mg/l	
	Influent Mass Loading	135.767442	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	300	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	355709.455	mg/day	
		0.78419706	lbs. per day	
	Removal of Pollutant in POTW	57%		
	Allowable Influent Mass Loading	1.37578432	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	5.838	lbs. per day	
	Class III Water Quality Standards	0.35028	lbs. per day	
	Protection of Effluent Sprayfield	135.767442	lbs. per day	
	Protection of Sludge Disposal	1.37578432	lbs. per day	
	Limiting Amount	0.35028	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	0.35028	lbs. per day	
	Loading Attributable to Domestic Sources	0.1103382	lbs. per day	
	Mass Loading Available for Industrial Loading	0.2399418	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.2055	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0105	mg/l	
	Program Limit	0.2055	mg/l	

Monthly Avg.?

Pollutant:	Magnesium				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Magnesium			
	Avg. Background Conc.:	7.93	mg/l	Previous Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	83.331612	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Magnesium			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	50	mg/l		
	Influent Limiting Concentration:	50	mg/l		
	Influent Limiting Mass Loading:	583.8	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	583.8	lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	583.8	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	583.8	lbs. per day		
	Loading Attributable to Domestic Sources	83.331612	lbs. per day		
	Mass Loading Available for Industrial Loading	500.468388	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	428.63	mg/l		
	Max. Allowable Conc. based on Background Conc.	7.93	mg/l		
	Program Limit	428.63	mg/l		

4.25 Monthly avg?

Calculation of Pretreatment Limits for Manganese

Pollutant:	Manganese						
A.	BACKGROUND INFORMATION						
	Pollutant of Concern	Manganese					
	Avg. Background Conc.:	0	mg/l				
	Industrial Contribution:	10%					
	Plant Design Capacity:	1.4	MGD				
	Domestic Portion	1.26	MGD				
	Total Domestic Loading of Pollutant:	0	pounds per day				
B.	CALCULATION OF HEADWORKS						
	LOADING FOR:	Manganese					
1	Inhibition of Activated Sludge Process						
	Inhibiting Concentration:	10	mg/l				
	Influent Limiting Concentration:	10	mg/l				
	Influent Limiting Mass Loading:	116.76	pounds per day				
2	Max. Allowable Mass Loading to Meet Class III Water Quality						
	$_7Q_{10}$ of Lake Lena Run	0	mgd				
	Max. Q of Effluent	0.65	mgd				
	Dilution Factor	1					
	Limiting WQ Concentration	N.A.	mg/l				
	Maximum Effluent Conc.	#VALUE!	mg/l				
	Reduction of Pollutant in POTW	0%	based on Plant Analyses				
	Maximum Influent Conc.	#VALUE!	mg/l				
	Influent Mass Loading	#VALUE!	pounds per day				
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield						
		Long-term			Short-term		
	Maximum Effluent Concentration	0.2	mg/l		10	mg/l	
	Reduction of Pollutant in POTW	33%			33%	CERCLA Treatability Study	
	Maximum Influent Conc.	0.2985075	mg/l		14.92537	mg/l	
	Influent Mass Loading	3.4853731	pounds per day		174.2687	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria						
	Limiting Concentration	N.A.	mg/kg	dry solids			
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)			
		7831.56	gpd				
		29642.455	L/day				
		29642.455	kg/day				
	Final solids concentration	4%					
	Sludge Flow to Disposal (dry basis)	1185.6982	kg/day				
	Mass Loading to Sludge	#VALUE!	mg/day				
		#VALUE!	lbs. per day				
	Removal of Pollutant in POTW	0%					
	Allowable Influent Mass Loading	#VALUE!	lbs. per day				
5	Determination of Limiting Factor	Long-term			Short-term		
	Inhibition of Activated Sludge	116.76	lbs. per day		116.76	lbs. per day	
	Class III Water Quality Standards		lbs. per day			lbs. per day	
	Protection of Effluent Sprayfield	3.4853731	lbs. per day		174.2687	lbs. per day	
	Protection of Sludge Disposal		lbs. per day			lbs. per day	
	Limiting Amount	3.4853731	lbs. per day		116.76	lbs. per day	
C.	ALLOCATION TO INDUSTRIES						
	Total Allowable Influent Loading	3.4853731	lbs. per day		116.76	lbs. per day	
	Loading Attributable to Domestic Sources	0	lbs. per day		0	lbs. per day	
	Mass Loading Available for Industrial Loading	3.4853731	lbs. per day		116.76	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	2.9850746	mg/l		100	mg/l	
	Max. Allowable Conc. based on Background Conc.	0	mg/l		0	mg/l	
	Program Limit	2.9850746	mg/l		100	mg/l	
					Daily Max.		

3.5 120

Calculation of Pretreatment Limits for Mercury

Pollutant:	Mercury			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Mercury		
	Avg. Background Conc.:	0.0001	mg/l	Assumed @ 1/2 of D.L.
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.00105084	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Mercury		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.1	mg/l	
	Influent Limiting Concentration:	0.1	mg/l	
	Influent Limiting Mass Loading:	1.1676	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	1.20E-05	mg/l	
	Maximum Effluent Conc.	0.000012	mg/l	
	Reduction of Pollutant in POTW	51%	based on Plant Analyses	
	Maximum Influent Conc.	2.449E-05	mg/l	
	Influent Mass Loading	0.00028594	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	N.A.	mg/l	
	Reduction of Pollutant in POTW	51%	*based on Plant Analyses*	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	17	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	20156.8691	mg/day	
		0.04443783	lbs. per day	
	Removal of Pollutant in POTW	51%		
	Allowable Influent Mass Loading	0.08713301	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	1.1676	lbs. per day	
	Class III Water Quality Standards	0.00028594	lbs. per day	
	Protection of Effluent Sprayfield		lbs. per day	
	Protection of Sludge Disposal	0.08713301	lbs. per day	
	Limiting Amount	0.00028594	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	0.00028594	lbs. per day	
	Loading Attributable to Domestic Sources	0.00105084	lbs. per day	
	Mass Loading Available for Industrial Loading	-0.0007649	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	-0.0006551	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0001	mg/l	
	Program Limit	0.0001	mg/l	

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Calculation of Pretreatment Limits for Molybdenum

Pollutant:	Molybdenum				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Molybdenum			
	Avg. Background Conc.:	0	mg/l		
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Molybdenum			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	50%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.01	mg/l		
	Reduction of Pollutant in POTW	50%	based on Plant Analyses		
	Maximum Influent Conc.	0.02	mg/l		
	Influent Mass Loading	0.23352	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	18	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	21342.5673	mg/day		
		0.04705182	lbs. per day		
	Removal of Pollutant in POTW	50%			
	Allowable Influent Mass Loading	0.09410365	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield	0.23352	lbs. per day		
	Protection of Sludge Disposal	0.09410365	lbs. per day		
	Limiting Amount	0.09410365	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.09410365	lbs. per day		
	Loading Attributable to Domestic Sources	0	lbs. per day		
	Mass Loading Available for Industrial Loading	0.09410365	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.08059579	mg/l		
	Max. Allowable Conc. based on Background Conc.	0	mg/l		
	Program Limit	0.08059579	mg/l		

Monthly avg ?

Calculations of Pretreatment Limits for Nickel

Pollutant:	Nickel					
A.	BACKGROUND INFORMATION					
	Pollutant of Concern	Nickel				
	Avg. Background Conc.:	0.02	mg/l	1994 Testing		
	Industrial Contribution:	10%				
	Plant Design Capacity:	1.4	MGD			
	Domestic Portion	1.26	MGD			
	Total Domestic Loading of Polutant:	0.210168	pounds per day			
B.	CALCULATION OF HEADWORKS					
	LOADING FOR:	Nickel				
1	Inhibition of Activated Sludge Process					
	Inhibiting Concentration:	0.5	mg/l			
	Influent Limiting Concentration:	0.5	mg/l			
	Influent Limiting Mass Loading:	5.838	pounds per day			
2	Max. Allowable Mass Loading to Meet Class III Water Quality					
	$_7Q_{10}$ of Lake Lena Run	0	mgd			
	Max. Q of Effluent	0.65	mgd			
	Dilution Factor	1				
	Limiting WQ Concentration	3.99E-01	mg/l			
	Maximum Effluent Conc.	0.3994	mg/l			
	Reduction of Pollutant in POTW	32%	based on Plant Analyses			
	Maximum Influent Conc.	0.58735294	mg/l			
	Influent Mass Loading	6.85793294	pounds per day			
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield					
	Maximum Effluent Concentration	0.2	mg/l			
	Reduction of Pollutant in POTW	32%	based on Plant Analyses			
	Maximum Influent Conc.	0.29411765	mg/l			
	Influent Mass Loading	3.43411765	pounds per day			
4	Max. Allowable Mass Loading to Meet Sludge Criteria					
	Limiting Concentration	100	mg/kg	dry solids	(DEP LIMIT)	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)		
		7831.56	gpd			
		29642.4546	L/day			
		29642.4546	kg/day			
	Final solids concentration	4%				
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day			
	Mass Loading to Sludge	118569.818	mg/day			
		0.26139902	lbs. per day			
	Removal of Pollutant in POTW	32%				
	Allowable Influent Mass Loading	0.81687194	lbs. per day			
5	Determination of Limiting Factor					
	Inhibition of Activated Sludge	5.838	lbs. per day			
	Class III Water Quality Standards	6.85793294	lbs. per day			
	Protection of Effluent Sprayfield	3.43411765	lbs. per day			
	Protection of Sludge Disposal	0.81687194	lbs. per day			
	Limiting Amount	0.81687194	lbs. per day			
C.	ALLOCATION TO INDUSTRIES					
	Total Allowable Influent Loading	0.81687194	lbs. per day			
	Loading Attributable to Domestic Sources	0.210168	lbs. per day			
	Mass Loading Available for Industrial Loading	0.60670394	lbs. per day			
	Max. Allowable Conc. based on Mass Loading	0.51961626	mg/l			
	Max. Allowable Conc. based on Background Conc.	0.02	mg/l			
	Program Limit	0.51961626	mg/l			

.60 ? Monthly avg ?

Pollutant:	Phenols				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Phenols			
	Avg. Background Conc.:	0.013	mg/l	Previous	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0.1366092	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Phenols			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	4	mg/l		
	Influent Limiting Concentration:	4	mg/l		
	Influent Limiting Mass Loading:	46.704	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	1.00E-01	mg/l		
	Maximum Effluent Conc.	0.1	mg/l		
	Reduction of Pollutant in POTW	78%	based on Plant Analyses		
	Maximum Influent Conc.	0.45454545	mg/l		
	Influent Mass Loading	5.30727273	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	N.A.	mg/l		
	Reduction of Pollutant in POTW	78%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	78%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge	46.704	lbs. per day		
	Class III Water Quality Standards	5.30727273	lbs. per day		
	Protection of Effluent Sprayfield		lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	5.30727273	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	5.30727273	lbs. per day		
	Loading Attributable to Domestic Sources	0.1366092	lbs. per day		
	Mass Loading Available for Industrial Loading	5.17066353	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	4.42845455	mg/l		
	Max. Allowable Conc. based on Background Conc.	0.013	mg/l		
	Program Limit	4.42845455	mg/l		

Pollutant:	Selenium				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Selenium			
	Avg. Background Conc.:	0	mg/l		
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	0	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Selenium			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	5.00E-03	mg/l		
	Maximum Effluent Conc.	0.005	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	0.00500501	mg/l		
	Influent Mass Loading	0.0584	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	0.02	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	0.02002002	mg/l		
	Influent Mass Loading	0.23375375	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	36	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	42685.1346	mg/day		
		0.09410	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	94.1036	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards	0.0584	lbs. per day		
	Protection of Effluent Sprayfield	0.2338	lbs. per day		
	Protection of Sludge Disposal	94.1036	lbs. per day		
	Limiting Amount	0.05843844	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	0.05843844	lbs. per day		
	Loading Attributable to Domestic Sources	0	lbs. per day		
	Mass Loading Available for Industrial Loading	0.05843844	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	0.05005	mg/l		
	Max. Allowable Conc. based on Background Conc.	0	mg/l		
	Program Limit	0.05005	mg/l		

Monthly avg?

Calculation of Pretreatment Limits for Silver

Pollutant:	Silver			
A.	BACKGROUND INFORMATION			
	Pollutant of Concern	Silver		
	Avg. Background Conc.:	0.0001	mg/l	detection limit
	Industrial Contribution:	10%		
	Plant Design Capacity:	1.4	MGD	
	Domestic Portion	1.26	MGD	
	Total Domestic Loading of Polutant:	0.00105084	pounds per day	
B.	CALCULATION OF HEADWORKS			
	LOADING FOR:	Silver		
1	Inhibition of Activated Sludge Process			
	Inhibiting Concentration:	0.25	mg/l	
	Influent Limiting Concentration:	0.25	mg/l	
	Influent Limiting Mass Loading:	2.919	pounds per day	
2	Max. Allowable Mass Loading to Meet Class III Water Quality			
	$_7Q_{10}$ of Lake Lena Run	0	mgd	
	Max. Q of Effluent	0.65	mgd	
	Dilution Factor	1		
	Limiting WQ Concentration	7.00E-05	mg/l	
	Maximum Effluent Conc.	0.00007	mg/l	
	Reduction of Pollutant in POTW	60%	CERCLA Treatability Study	
	Maximum Influent Conc.	0.000175	mg/l	
	Influent Mass Loading	0.0020433	pounds per day	
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield			
	Maximum Effluent Concentration	N.A.	mg/l	
	Reduction of Pollutant in POTW	60%	based on Plant Analyses	
	Maximum Influent Conc.	#VALUE!	mg/l	
	Influent Mass Loading	#VALUE!	pounds per day	
4	Max. Allowable Mass Loading to Meet Sludge Criteria			
	Limiting Concentration	N.A.	mg/kg	dry solids
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
		7831.56	gpd	
		29642.4546	L/day	
		29642.4546	kg/day	
	Final solids concentration	4%		
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
	Mass Loading to Sludge	#VALUE!	mg/day	
		#VALUE!	lbs. per day	
	Removal of Pollutant in POTW	60%		
	Allowable Influent Mass Loading	#VALUE!	lbs. per day	
5	Determination of Limiting Factor			
	Inhibition of Activated Sludge	2.919	lbs. per day	
	Class III Water Quality Standards	0.0020433	lbs. per day	
	Protection of Effluent Sprayfield		lbs. per day	
	Protection of Sludge Disposal		lbs. per day	
	Limiting Amount	0.0020433	lbs. per day	
C.	ALLOCATION TO INDUSTRIES			
	Total Allowable Influent Loading	0.0020433	lbs. per day	
	Loading Attributable to Domestic Sources	0.00105084	lbs. per day	
	Mass Loading Available for Industrial Loading	0.00099246	lbs. per day	
	Max. Allowable Conc. based on Mass Loading	0.00085	mg/l	
	Max. Allowable Conc. based on Background Conc.	0.0001	mg/l	
	Program Limit	0.00085	mg/l	

Calculation of Pretreatment Limits for TDS

Pollutant:	Total Dissolved Solids				
A.	BACKGROUND INFORMATION				
	Pollutant of Concern	Total Dissolved Solids			
	Avg. Background Conc.:	400	mg/l	1994 Testing	
	Industrial Contribution:	10%			
	Plant Design Capacity:	1.4	MGD		
	Domestic Portion	1.26	MGD		
	Total Domestic Loading of Polutant:	4203.36	pounds per day		
B.	CALCULATION OF HEADWORKS				
	LOADING FOR:	Total Dissolved Solids			
1	Inhibition of Activated Sludge Process				
	Inhibiting Concentration:	N.A.	mg/l		
	Influent Limiting Concentration:	N.A.	mg/l		
	Influent Limiting Mass Loading:	#VALUE!	pounds per day		
2	Max. Allowable Mass Loading to Meet Class III Water Quality				
	$_7Q_{10}$ of Lake Lena Run	0	mgd		
	Max. Q of Effluent	0.65	mgd		
	Dilution Factor	1			
	Limiting WQ Concentration	N.A.	mg/l		
	Maximum Effluent Conc.	#VALUE!	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	#VALUE!	mg/l		
	Influent Mass Loading	#VALUE!	pounds per day		
3	Max. Allowable Mass Loading to Protect Effluent Sprayfield				
	Maximum Effluent Concentration	500	mg/l		
	Reduction of Pollutant in POTW	0%	based on Plant Analyses		
	Maximum Influent Conc.	500.500501	mg/l		
	Influent Mass Loading	5843.84384	pounds per day		
4	Max. Allowable Mass Loading to Meet Sludge Criteria				
	Limiting Concentration	N.A.	mg/kg	dry solids	
	Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)	
		7831.56	gpd		
		29642.4546	L/day		
		29642.4546	kg/day		
	Final solids concentration	4%			
	Sludge Flow to Disposal (dry basis)	1185.69818	kg/day		
	Mass Loading to Sludge	#VALUE!	mg/day		
		#VALUE!	lbs. per day		
	Removal of Pollutant in POTW	0%			
	Allowable Influent Mass Loading	#VALUE!	lbs. per day		
5	Determination of Limiting Factor				
	Inhibition of Activated Sludge		lbs. per day		
	Class III Water Quality Standards		lbs. per day		
	Protection of Effluent Sprayfield	5843.84384	lbs. per day		
	Protection of Sludge Disposal		lbs. per day		
	Limiting Amount	5843.84384	lbs. per day		
C.	ALLOCATION TO INDUSTRIES				
	Total Allowable Influent Loading	5843.84384	lbs. per day		
	Loading Attributable to Domestic Sources	4203.36	lbs. per day		
	Mass Loading Available for Industrial Loading	1640.48384	lbs. per day		
	Max. Allowable Conc. based on Mass Loading	1405.00501	mg/l		
	Max. Allowable Conc. based on Background Conc.	400	mg/l		
	Program Limit	1405.00501	mg/l		

Pollutant: Zinc

A. BACKGROUND INFORMATION

Pollutant of Concern	Zinc		
Avg. Background Conc.:	0.145	mg/l	Past Testing
Industrial Contribution:	10%		
Plant Design Capacity:	1.4	MGD	
Domestic Portion	1.26	MGD	
Total Domestic Loading of Polutant:	1.523718	pounds per day	

B. CALCULATION OF HEADWORKS LOADING FOR: Zinc

1 Inhibition of Activated Sludge Process

Inhibiting Concentration:	0.29	mg/l	(WEF reports values of 0.08 to 0.5 mg/l)
Influent Limiting Concentration:	0.29	mg/l	
Influent Limiting Mass Loading:	3.38604	pounds per day	

2 Max. Allowable Mass Loading to Meet Class III Water Quality

$_7Q_{10}$ of Lake Lena Run	0	mgd	
Max. Q of Effluent	0.65	mgd	
Dilution Factor	1		
Limiting WQ Concentration	2.68E-01	mg/l	
Maximum Effluent Conc.	0.268	mg/l	
Reduction of Pollutant in POTW	77%	based on Plant Analyses	
Maximum Influent Conc.	1.16521739	mg/l	
Influent Mass Loading	13.6050783	pounds per day	

3 Max. Allowable Mass Loading to Protect Effluent Sprayfield

Maximum Effluent Concentration	2	mg/l	
Reduction of Pollutant in POTW	77%	based on Plant Analyses	
Maximum Influent Conc.	8.69565217	mg/l	
Influent Mass Loading	101.530435	pounds per day	

4 Max. Allowable Mass Loading to Meet Sludge Criteria

Limiting Concentration	2800	mg/kg	dry solids (DEP LIMIT)
Sludge Flow to Disposal (wet solids):	1047	cf/day	(design)
	7831.56	gpd	
	29642.4546	L/day	
	29642.4546	kg/day	
Final solids concentration	4%		
Sludge Flow to Disposal (dry basis)	1185.69818	kg/day	
Mass Loading to Sludge	3319954.92	mg/day	
	7.31917261	lbs. per day	
Removal of Pollutant in POTW	77%		
Allowable Influent Mass Loading	9.50541897	lbs. per day	

5 Determination of Limiting Factor

Inhibition of Activated Sludge	3.38604	lbs. per day
Class III Water Quality Standards	13.6050783	lbs. per day
Protection of Effluent Sprayfield	101.530435	lbs. per day
Protection of Sludge Disposal	9.50541897	lbs. per day
Limiting Amount	3.38604	lbs. per day

C. ALLOCATION TO INDUSTRIES

Total Allowable Influent Loading	3.38604	lbs. per day
Loading Attributable to Domestic Sources	1.523718	lbs. per day
Mass Loading Available for Industrial Loading	1.862322	lbs. per day
Max. Allowable Conc. based on Mass Loading	1.595	mg/l
Max. Allowable Conc. based on Background Conc.	0.145	mg/l
Program Limit	1.595	mg/l

1.0 monthly avg ?

Prev. Auburndale Prog. docum

Auburndale
10/27 Local Limit Evaluation Summary

I. Pollutant Data:

Parameter	Pass Through	Residuals Protection	Process Interference	Calculated Local Limit	
Antimony	70.7667			70.77	X
Aluminum	49.1000			49.1	~
Arsenic	0.7373	0.2690	0.491	0.27	
Beryllium	0.0013			0.0013	~
Boron	4.4400			4.44	~ pos. mon
Cadmium	0.0516	0.1655	4.991	0.052	~
Chromium	1.3641		9.64	1.36	~
Cobolt	0.4550			0.46	~
Copper	5.2800	2.8132	1.68	1.68	~
Cyanide	0.0282		0.91	0.028	~
Fluoride	7.3440			7.34	~
Iron	100.3111			100	
Iodine			100	100	
Lead	0.2055	1.0832	0.9055	0.21	~
Magnesium			428.63	429	~
Manganese	2.9851			2.99	
Mercury	No IU Allocation	0.0737	0.9991	No IU Allocation	X
Molybdenum	0.2000	0.3367		0.2	
Nickel	2.7612	2.7570	4.82	2.76	~
Phenols (b)	No IU Allocation			No IU Allocation	
Selenium	0.0500	0.2486		0.05	~
Silver	0.0009		2.4991	0.00085	
Vanadium					
Zinc	10.3472	6.8321	1.595	1.6	~
TIH					

Auburndale
10/27 Local Limit Evaluation
Criteria: Pass Through (Surface Water)

I. Plant Data:

Qt =	1.4 MGD		
Qi =	0.14 MGD	Qni =	1.26 MGD

Hardness: 300 mg/L CaCO3

II. Pollutant Data:

Parameter	Safety Factor (%)	Cni	R(%)	WQS Hardness Dependant	Limit (a) mg/L	Limit reference
Antimony	0	0.1	40		4.3	Auburndale(WQS)
Aluminum	0	0.1			5	Auburndale(sprayfield)
Arsenic	0	0.001	33		0.05	Auburndale(WQS)
Beryllium	0	0			0.00013	Auburndale(WQS)
Boron	0	0.34			0.75	Auburndale(sprayfield)
Cadmium	0	0.001	50	0.0027	0.00303	Auburndale(WQS)
Chromium	0	0.04	71		0.05	Auburndale(WQS)
Cobolt	0	0.005			0.05	Auburndale(sprayfield)
Copper	0	0.08	95	0.03	0.03	Auburndale(WQS)
Cyanide	0	0.01	56		0.0052	Auburndale(WQS)
Fluoride	0	0.405	9		1	Auburndale(sprayfield)
Iron	0	1.2	91		1	Auburndale(WQS)
Iodine	0	0				
Lead	0	0.0105	57	**0.0129**	**0.0129**	Auburndale(WQS)
Magnesium	0	7.93				
Manganese	0	0	33		0.2	Auburndale(sprayfield)
Mercury	0	0.0001	51		0.000012	Auburndale(WQS)
Molybdenum	0	0	50		0.01	Auburndale(sprayfield)
Nickel	0	0.02	32	0.40	0.2	Auburndale(sprayfield)
Phenols (b)	0	0.013	78		0.001	Auburndale(WQS)
Selenium	0	0	0		0.005	Auburndale(WQS)
Silver	0	0.0001	60	0.00005	0.00007	Auburndale(WQS)
Vanadium	0	0				
Zinc	0	0.145	77	0.269	0.268	Auburndale(WQS)
TIH	0	0	0			

low!

III. *Industrial Limit (Ci) Based on Prevention of Pass Through :*

Parameter	Lt lb/d	Lni lb/d	S. Factor lb/d	Li lb/d	Ci mg/L
Antimony	83.678	1.051	0	82.627	**70.77**
Aluminum	58.380	1.051	0	57.329	**49.10**
Arsenic	0.871	0.011	0	0.861	**0.74**
Beryllium	0.002	0.000	0	0.002	**0.00130**
Boron	8.757	3.573	0	5.184	**4.44**
Cadmium	0.071	0.011	0	0.060	**0.05**
Chromium	2.013	0.420	0	1.593	**1.36**
Cobolt	0.584	0.053	0	0.531	**0.46**
Copper	7.006	0.841	0	6.165	**5.28**
Cyanide	0.138	0.105	0	0.033	**0.03**
Fluoride	12.831	4.256	0	8.575	**7.34**
Iron	129.733	12.610	0	117.123	**100.31**
Iodine		0.000	0	0.000	
Lead	0.350	0.110	0	0.240	**0.21**
Magnesium		83.332	0	-83.332	
Manganese	3.485	0.000	0	3.485	**2.99**
Mercury	0.00029	1.05E-03	0	-0.001	**No IU Allocation**
Molybdenum	0.234	0.000	0	0.234	**0.20**
Nickel	3.434	0.210	0	3.224	**2.76**
Phenols (b)	0.053	0.137	0	-0.084	**No IU Allocation**
Selenium	0.058	0.000	0	0.058	**0.05**
Silver	0.002	0.001	0	0.001	**0.00085**
Vanadium		0.000	0	0.000	
Zinc	13.605	1.524	0	12.081	**10.35**
TIH		0.000	0	0.000	

Notes:

Qt = The total plant flow.
Qi = The total industrial plant flow.
Qni = The non-industrial plant flow including any contribution from inflow and infiltration.
Cni = Representative concentrations representing non-industrial sources based on values provided by Auburndale.
R = Percent removal assumed for pass through of pollutants.
Lt = Total allowable headworks loading based on evaluation criteria.
Lni = Non-industrial headworks loading based on Cni and the difference between the total average plant flow and total industrial flows.
Li = The headworks loading that can be allocated among industrial sources.
Ci = *The calculated local limit for industrial discharges based on a uniform allocation of the industrial flow.*

Local Limit Evaluation
Criteria: Inhibition of Secondary Treatment

I. Plant Data:

Qt =	1.4 MGD		
Qi =	0.14 MGD	Qni =	1.26 MGD

II. Pollutant Data:

Parameter	Safety Factor (%)	Cni	R(%) (a)	Limit mg/L	Limit reference (b)
Antimony		0.1	0		
Aluminum		0.1	0		
Arsenic	0	0.001	0	0.05	Auburndale
Beryllium		0	0		
Boron		0.34	0		
Cadmium	0	0.001	0	0.5	Prelim
Chromium	0	0.04	0	1.0	Prelim
Cobolt		0.005	0		
Copper	0	0.08	0	0.24	Auburndale
Cyanide	0	0.01	0	0.1	Prelim
Fluoride		0.405	0		
Iron		1.2	0	250.0	Auburndale
Iodine	0	0	0	10	Prelim
Lead	0	0.0105	0	0.1	**Prelim**
Magnesium		7.93	0	50.0	Auburndale
Manganese		0	0	10.0	Auburndale
Mercury	0	0.0001	0	0.1	Prelim
Molybdenum		0	0		
Nickel	0	0.02	0	0.5	Auburndale
Phenols		0.013	0	4.0	Auburndale
Selenium		0	0		
Silver	0	0.0001	0	0.25	Prelim
Vanadium		0	0		
Zinc	0	0.145	0	0.29	WEF/Auburndale
TIH		0	0		

III. Industrial Limits Based On Inhibition of Activated Sludge Process

Parameter	Lt lb/d	Lni lb/d	S. Factor lb/d	Li lb/d	Ci mg/L
Antimony		1.051		-1.051	
Aluminum		1.051			
Arsenic	0.584	0.011	0	0.573	**0.49**
Beryllium		0.000			
Boron		3.573			
Cadmium	5.838	0.011	0	5.827	**4.99**
Chromium	11.676	0.420	0	11.256	**9.64**
Cobolt		0.053			
Copper	2.802	0.841	0	1.962	**1.68**
Cyanide	1.168	0.105	0	1.063	**0.91**
Fluoride		4.256			
Iron		12.610			
Iodine	116.760	0.000	0	116.760	**100.00**
Lead	1.168	0.110	0	1.057	**0.91**
Magnesium	583.800	83.332	0	500.468	**428.63**
Manganese		0.000			
Mercury	1.168	0.001	0	1.167	**1.00**
Molybdenum		0.000			
Nickel	5.838	0.210	0	5.628	**4.82**
Phenols		0.137			
Selenium		0.000			
Silver	2.919	0.001	0	2.918	**2.50**
Vanadium		0.000			
Zinc	3.386	1.524	0	1.862	**1.60**
TIH		0.000			

Notes:

Qt = The total plant flow.
Qi = The total industrial plant flow.
Qni = The non-industrial plant flow including any contribution from inflow and infiltration.
Cni = Representative concentrations representing non-industrial sources based on values provided by Auburndale.
R = Percent removal assumed prior to the activated sludge process.
Lt = Total allowable headworks loading based on evaluation criteria.
Lni = Non-industrial headworks loading based on Cni and the difference between the total average plant flow and total industrial flows.
Li = The headworks loading that can be allocated among industrial sources.
Ci = The calculated local limit for industrial discharges based on a uniform allocation of the industrial flow.

(a) Percent removal prior to the secondary treatment unit (activated sludge) assumed to be zero.
(b) Inhibition levels based on EPA's Prelim guidance document, PRELIM 4.0 User's Guide, May 1991.

Local Limit Evaluation
Criteria: Residuals Quality (Land Applications Standards)

I. Plant Data:

Qt =	1.4 MGD	Qni =	1.26 MGD
Qi =	0.14 MGD	Qs =	0.007832 MGD
fs =	*0.04*	*Site* =	*acre*

S.F. = 0 %

II. Pollutant Data:

Parameter	Cni	R(%)(a)	Limit mg/kg	Limit reference (b)
Antimony	0.1	40		
Aluminum	0.1			
Arsenic	0.001	33	41	40 CFR 503
Beryllium	0			
Boron	0.34			
Cadmium	0.001	50	39	40 CFR 503
Chromium	0.04	71		
Cobolt	0.005			
Copper	0.08	95	1500	40 CFR 503
Cyanide	0.01	56		
Fluoride	0.405	9		
Iron	1.2	91		
Iodine	0			
Lead	0.0105	57	300	40 CFR 503
Magnesium	7.93			
Manganese	0	33		
Mercury	0.0001	51	17	40 CFR 503
Molybdenum	0	50	75	40 CFR 503
Nickel	0.02	32	420	40 CFR 503
Phenols	0.013	78		
Selenium	0	90	100	40 CFR 503
Silver	0.0001	60		
Vanadium	0			
Zinc	0.145	77	2800	40 CFR 503
TIH	0	0		

III. *Industrial Limit (Ci) Based On Protection of Residuals Quality*

Parameter	Lt lb/d	Lni lb/d	S. Factor lb/d	Li lb/d	Ci mg/L
Antimony	0.000	1.051		-1.051	
Aluminum	#DIV/0!	1.051		#DIV/0!	
Arsenic	0.325	0.011	0.00	0.314	0.27
Beryllium	#DIV/0!	0.000		#DIV/0!	
Boron	#DIV/0!	3.573		#DIV/0!	
Cadmium	0.204	0.011	0.00	0.193	0.17
Chromium	0.000	0.420		-0.420	
Cobolt	#DIV/0!	0.053		#DIV/0!	
Copper	4.125	0.841	0.00	3.285	2.81
Cyanide	0.000	0.105		-0.105	
Fluoride	0.000	4.256		-4.256	
Iron	0.000	12.610		-12.610	
Iodine	#DIV/0!	0.000		#DIV/0!	
Lead	1.375	0.110	0.00	1.265	1.08
Magnesium	#DIV/0!	83.332		#DIV/0!	
Manganese	0.000	0.000		0.000	
Mercury	0.087	0.001	0.00	0.086	0.07
Molybdenum	0.392	0.000	0.00	0.392	0.34
Nickel	3.429	0.210	0.00	3.219	2.76
Phenols	0.000	0.137		-0.137	
Selenium	0.290	0.000	0.00	0.290	0.25
Silver	0.000	0.001		-0.001	
Vanadium	#DIV/0!	0.000		#DIV/0!	
Zinc	9.501	1.524	0.00	7.977	6.83
TIH	#DIV/0!	0.000		#DIV/0!	

Notes:

Qt = The total plant flow.
Qi = The total industrial plant flow.
Qni = The non-industrial plant flow including any contribution from inflow and infiltration.
Qs = The total flow of residuals for disposal
fs = The fraction of solids in the residuals for disposal
Cni = Representative concentrations representing non-industrial sources.

R = Percent removal assumed for activated sludge process.
Lt = Total allowable headworks loading based on evaluation criteria.
Lni = Non-industrial headworks loading based on Cni and the difference between the total average plant flow and total industrial flows.
Li = The headworks loading that can be allocated among industrial sources.
Ci = The calculated local limit for industrial discharges based on a uniform allocation of the industrial flow.