



Alabama Department of Environmental Management
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MAR 28 2019

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MR MICHAEL DOYLE
MANAGER
FLORENCE WATER/WASTEWATER DEPARTMENT
POST OFFICE BOX 1023
FLORENCE AL 35631-1023

Re: DRAFT LOCAL LIMITS
FLORENCE WATER/WASTEWATER DEPARTMENT
FLORENCE CYPRESS CREEK WWTP
NPDES PERMIT NO. AL0023884

Dear Mr. Doyle:

The Alabama Department of Environmental Management (ADEM) is required by Administrative Rule 335-6-5-.03 to develop local limits for Publicly Owned Treatment Works (POTWs) receiving wastewater from significant industrial users which could adversely impact the operation or performance of the treatment works. These limits should prevent pass through of pollutants that could cause violations of water quality standards in the POTW's receiving stream, interfere with the POTW collection/treatment system or cause sludge disposal concerns. Because many POTWs have modernized or expanded their treatment plants since the last issuance of local limits, ADEM is currently in the process of updating these requirements.

In this regard, ADEM has developed an updated draft local limits document for the Florence Cypress Creek WWTP. A copy of this draft along with supporting information is attached for your review and comment. ADEM is requesting that your comments be received no later than 60 days from the date of this letter.

It should be noted that this draft is based on assumed levels of treatment, assumed levels of pollutants in domestic wastewater and stream conditions that may not reflect actual conditions at your facility. For this reason the Department encourages you to become involved with the local limits development process. Specifically, we are encouraging you to establish a sampling program to collect data that may be used to determine more site specific requirements. Requirements based on site specific information should ensure the protection of your plant's operation and could prevent the unnecessary reduction in permit limits for industrial sources and/or limit capacity for future growth.

If you are interested in establishing a program to collect this data prior to the final development of local limits, you should contact Theo Pinson at (334) 274-4202 within 30 days of the date of this letter to indicate your interest and to obtain specific guidance on proper sampling protocol. In addition a general guidance document for developing a sampling program is attached for your consideration. Should you choose to collect this data no further action will be taken on the attached draft until adequate time has been allowed for the submittal of sampling results.

ADEM rules also provide the opportunity for POTWs to reserve a portion of their hydraulic or treatment capacity for any pollutant. This initial draft assumed a reserved capacity of 10%. Please inform the Department if this assumption is consistent with current plans for future development. In addition we would

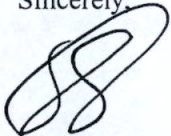


appreciate your input on local issues such as other pollutants of concern that may be impacting your operation and that need to be addressed in the local limits program.

Following evaluation of any additional information provided, revised draft local limits will be developed. If your facility has no comments and does not wish to establish a sampling program, ADEM will proceed with the development of final local limits based on the attached draft. After consideration of any comments received during the public notice period, a final determination on the local limits will be made. All permits issued to industrial users must comply with adopted local limits.

Should you have any questions about this process, please contact Theo Pinson by email at tpinson@adem.alabama.gov or by phone at (334) 274-4202.

Sincerely,



Scott Ramsey, Chief
Industrial Section
Industrial/Municipal Branch
Water Division

Attachments: Draft Local Limits
Rationale for Local Limits
Local Limits/Pass Through Calculations
List of Significant Industrial Users
Sampling for Local Limit Development

CC: Alternate Number Five Inc
Gemstone Foods LLC
Kaiser Aluminum Fabricated Products
Monarch Ceramic Tile Inc
Nicholas Lowe
Theo Pinson

LOCAL LIMITS

PUBLICLY OWNED TREATMENT WORKS: FLORENCE CYPRESS CREEK WWTP

LOCATION: FLORENCE, ALABAMA
LAUDERDALE COUNTY

PERMIT NUMBER: AL0023884

GENERAL PRETREATMENT PROHIBITIONS

No discharge to the Publicly Owned Treatment Works (POTW) shall exceed or otherwise violate the General Pretreatment Standards described in ADEM Administrative Code 335-6-5. Specifically the POTW shall ensure that discharges to their system comply with the following prohibitions to ensure protection of the treatment and collections systems and to ensure worker safety:

Pollutants which create a fire or explosion hazard including but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit;

Pollutants which will cause corrosive structural damage to the treatment works but in no case discharges with a pH lower than 5.0 S.U. unless the treatment works are specifically designed to accommodate such discharges;

Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers or other interference with the operation of the treatment works;

Any pollutant, including oxygen demanding pollutants released in a discharge of such volume or strength as to cause interference in the treatment works;

Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference, but in no case in such quantities that the temperature of the effluent at the treatment plant exceeds 104 degrees Fahrenheit unless the treatment plant is designed to accommodate such heat;

Pollutants which will result in the presence of toxic gases, vapors or fumes within the treatment works in a quantity that may cause acute worker health and safety problems;

Any trucked or hauled pollutants except at discharge points designated by the treatment works; and

Petroleum oil, nonbiodegradable cutting oil, or products of mineral origin in such amounts that will cause interference or pass through.

GENERAL PRETREATMENT STANDARDS AND LOCAL LIMITS

POLLUTANTS:

The total average daily loading of the substances from all sources shall not exceed the indicated mass listed below.

<u>Parameter</u>	<u>Allowable Average Daily Pollutant Load at Headworks of POTW</u> (lbs/day)
Arsenic, Trivalent	6.484
Cadmium, Total Recoverable	6.048
Chromium, Total Recoverable	1460
Copper, Total Recoverable	231.0
Cyanide, Free	29.19
Lead, Total Recoverable	37.98
Mercury, Total Recoverable	1.869
Nickel, Total Recoverable	42.87
Silver, Total Recoverable	72.98
Zinc, Total Recoverable	291.9

HYDRAULIC LOADING:

The hydraulic loading limit on an average basis is the design capacity of the treatment plant which is 35.0 million gallons per day.

ORGANIC LOADING:

The organic loading limit (CBOD₅) is the design capacity of the treatment plant which is 48,747 pounds per day.

SOLIDS LOADING

The Total Suspended Solids loading limit (TSS) is the design capacity of the treatment plant which is 58,380 pounds per day.

EFFECTIVE DATE:

ISSUANCE DATE:

DRAFT

Alabama Department of Environmental Management

Rationale for Local Limits

Florence Cypress Creek WWTP (AL0023884)
15.0 MGD Activated sludge/ 20 MGD Aerated lagoon
Florence/Lauderdale County

Reissuance
Prepared Date: 1/11/2019
Prepared By: Ed Hughes

Nonconventional Pollutants:

Pass Through:

Allowable pollutant loadings were based on state water quality standards applicable to streams with a use designation of Fish & Wildlife. Local limits calculations were performed using a receiving stream 7Q10 of 6870 cfs, 1Q10 of 5150 cfs, an annual average flow of 50,400 cfs and a stream hardness of 69 mg/l as CaCO₃. The treatment plant removal rates and untreated domestic sewage pollutant concentrations were based on Best Professional Judgment using literature values and EPA recommended levels as the basis unless site specific data was available. Calculations estimate the allowable quantity of heavy metals (measured as Total Recoverable) and Free Cyanide that can be discharged into the POTW to ensure that state water quality standards for aquatic toxicity and human health criteria are met in the receiving stream during critical flow conditions. Because only the portion of heavy metals present in dissolved form is 'bioavailable' to aquatic life, the calculations which evaluate aquatic toxicity take into account the relationship between "dissolved" metals and metals measured using the Total Recoverable test procedure.

The Sheffield and Tuscumbia WWTPs are located in the same stream segment as the Florence plant. For the purpose of developing local limits for these three sites the available water quality pollutant allocation was divided between the three plants based on their design flows. The Florence WWTP design flow of 35 MGD represents 86.4% of the total wastewater flow; therefore, 13.6% was withheld and allocated to the other two sites.

According to the POTW's most recent NPDES permit application, the ratio of effluent flow is approximately the same as the ratio of design capacity of the two treatment units (activated sludge (15 MGD) 42%, aerated lagoon (20 MGD) 58%). The two types of treatment have different removal rates for the pollutants of concern. To address this, the pollutant removal rates were calculated based on the ratio of effluent flows.

The allowable pollutant loadings based on pass through concerns are located in column 11 of the Local Limits-Pass Through (LL-PT) spreadsheet.

Interference:

The Department evaluated the potential for processes at the POTW to be inhibited as result of the pollutant loading entering the treatment works. Inhibition values were based on Best Professional Judgment using literature values and EPA recommended levels as the basis unless site specific information was provided by the POTW. The allowable pollutant loadings based on inhibition concerns are located in column 13 of the LL-PT spreadsheet.

Sludge Disposal:

The POTW disposes of sludge using land application. The most recent NPDES permit application reports 14,000 pounds of sludge were generated and disposed on a daily basis. This sludge was generated by the activated sludge portion of the treatment process which had an average effluent flow of 7.91 MGD during this period. This equates to 26,550 pounds or 13.27 tons per day at design capacity for the activated sludge plant. This value was used in the development of local limits for this site. For POTWs that use land application as a means of disposal the LL-PT spreadsheet calculates the allowable pollutant loading to ensure that metal concentrations in the sludge comply with EPA 503 regulations for land application of biosolids. The results of these calculations are located in column 14 of the spreadsheet.

Column 15 of the LL-PT spreadsheet indicates the most stringent of the above three criteria. These loadings are considered the POTW's total headworks capacity for the pollutants of concern.

The LL-PT spreadsheet also lists the current loading of the pollutants of concern from domestic/commercial and industrial sources and determines the remaining capacity currently available. Domestic/commercial loadings are indicated in Columns 16 and current industrial loadings are shown in column 17 (a listing of each significant industrial user and their permit limits and average reported discharge level for pollutants without permit limits is shown on the attached Significant Industrial Users sheet). Column 18 of that spreadsheet shows the remaining capacity after subtracting the current loadings.

It should be noted that the available pollutant loadings shown in column 18 have been reduced by 10%, which is the percent of total capacity reserved for future growth.

Conventional Pollutants

Temperature:

The Department is not aware of any specific circumstances related to this POTW which require a temperature limitation more stringent than general standards and prohibitions contained in ADEM Administrative code 335-6-5-.03(2)(e).

pH:

The Department is not aware of any specific circumstances related to this POTW which require a minimum pH limitation more stringent than general standards and prohibitions contained in ADEM Administrative code 335-6-5-.03(2)(b).

Hydraulic loading:

The hydraulic loading limit is the design capacity of the treatment plant as indicated by the POTW, 35.0 MGD.

Organic loading:

The organic loading limit (CBOD₅) is the design capacity of the treatment plant. This loading was calculated using the design flow of the POTW and an influent CBOD₅ concentration of 167 mg/l.

Total Suspended Solids loading

The Total Suspended Solids (TSS) loading was calculated using the design flow of the POTW and an influent TSS concentration of 200 mg/l.

While ADEM develops local limits and reviews compliance, POTWs are responsible for ensuring proper management of Significant Industrial Users and other sources to meet their NPDES limits and to prevent pass through and interference problems and to ensure compliance with the prohibitions contained in ADEM Administrative Code 335-6-5.03 for protection of the treatment works, collection system and worker safety. The POTWs' responsibilities include establishing any additional limitations via local ordinances, etc. to protect the POTW and comply with their permit.

LOCAL LIMIT/ PASS THROUGH CALCULATIONS

POTW NAME: Florence Cypress Creek WWTP
 NPDES PERMIT NUMBER: AL0023884

DATE PREPARED: 1/11/2019
 PREPARED BY: Ed Hughes

STREAM DATA AND POTW FLOW DATA					
RECEIVING STREAM CLASSIFICATION	=	F & W	0	RECEIVING STREAM TIDALLY INFLUENCED =	No
POTW DESIGN FLOW	=		35 MGD		
FLOW FROM OTHER CONTRIBUTORS	=		5.52 MGD		
DOMESTIC FLOW	=		34.85285 MGD		
7Q10	=		6870 CFS	OR	4438.02 MGD
1Q10	=		5150.00 CFS	OR	3326.90 MGD
7Q2	=		CFS	OR	0.00 MGD
ANNUAL AVG FLOW	=		50400 CFS	OR	32558.40 MGD
STREAM HARDNESS (DEFAULT VALUE 100)	=		69 MG/L AS CaCO3		

ALLOWABLE LOADING TO STREAM BASED ON WATER QUALITY AND HH STANDARDS										
PARAMETER	1) CHRONIC	SW CHRONIC	2) MAX W Q	3) ACUTE	SW ACUTE	4) MAX W Q	5) HUMAN	6) MAX W Q	7) WQ / HH	PARAMETER
	TOXICITY (MG/L)	TOXICITY (MG/L)	INSTREAM (LBS/D)	TOXICITY (MG/L)	TOXICITY (MG/L)	INSTREAM (LBS/D)	HEALTH (MG/L)	INSTREAM (LBS/D)	BASED DISC LEVEL (LBS/D)	
ANTIMONY, TOTAL RECOVERABLE	----	----	----	----	----	----	0.3733333	101499.997	101499.997	ANTIMONY, TR
ARSENIC, TRIVALENT	0.1500	----	9760.720	0.3400	----	16635.289	0.00030	82.386	82.386	ARSENIC, TRI
CADMIUM, TOT RECOVERABLE	0.0002	----	30.080	0.0014	----	167.036	----	----	30.080	CADMIUM, TR
CHROMIUM, TOT RECOVERABLE	0.0547	----	9727.560	0.4204	----	56228.442	----	----	9727.560	CHROMIUM, TR
CHROMIUM, HEXVALENT	0.0110	----	410.861	0.0160	----	449.349	----	----	410.861	CHROMIUM, HEX
COPPER, TOTAL RECOVERABLE	0.0065	----	627.869	0.0095	----	684.380	----	----	627.869	COPPER, TR
CYANIDE, FREE	0.0052	----	194.225	0.0220	----	617.854	9.3333	348609.55	194.225	CYANIDE, FREE
LEAD, TOT RECOVERABLE	0.0017	----	303.968	0.0430	----	5865.077	----	----	303.968	LEAD, TR
MERCURY, TOT RECOVERABLE	0.000012	----	1.484	0.0024	----	223.186	0.0000424	1.585	1.48415	MERCURY, TR
MOLYBDENUM	----	----	----	----	----	----	----	----	----	MOLYBDENUM
NICKEL, TOT RECOVERABLE	0.0380	----	2810.188	0.3421	----	19024.046	0.9929078	37086.123	2810.188	NICKEL, TR
SELENIUM, TOTAL RECOVERABLE	0.0005	----	18.676	0.0020	----	56.169	2.4305556	90783.738	18.676	SELENIUM, TR
SILVER, TOT RECOVERABLE	----	----	----	0.0017	----	47.720	----	----	47.720	SILVER, TR
ZINC, TOT RECOVERABLE	0.0863	----	9764.244	0.0856	----	7282.180	14.8936170	556291.84	7282.180	ZINC, TR

		Antimony	Arsenic	Cadmium	Chromium, To	Chromium, VI	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	
DOMESTIC	DATA VALUE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	LIT VALUE	0.0010	0.0010	0.0030	0.0500	0.0000	0.0600	0.0400	0.0500	0.0000	0.0000	0.0200	
		Selenium	Silver	Zinc									
	DATA VALUE	0.0000	0.0000	0.0000									
	LIT VALUE	0.0000	0.0100	0.1800									

TYPE OF TREATMENT =	2	Act Sludge	SLUDGE DISPOSAL	
TREATMENT INCLUDE NITIFICATION?	No		DOES THE POTW HAVE SECONDARY CLARIFICATION?	Yes
			AVERAGE TONS OF SLUDGE PER DAY (DRY WEIGHT)	13.27
			IS SLUDGE LAND APPLIED?	Yes
GROWTH ALLOCATION				
			% ALLOCATION RESERVED FOR FUTURE GROWTH =	10

PARAMETER	7) MAX WQ INSTREAM (LBS/D)	8) ALLOCATION FROM BACKGROUND (LBS/D)	9) ALLOWABLE DISC FROM POTW (LBS/D)	10) REMOVAL RATE (%)	11) ALLOWABLE DISCHARGE (WQ / HH) (LBS/D)	12) INHIBITION TRESHOLD CONC (MG/L)	13) ALLOWABLE DISCHARGE (INHIBITION) (LBS/D)	14) ALLOWABLE DISCHARGE (SLUDGE) (LBS/D)	15) ALLOWABLE DISCHARGE LOCAL LIMIT (LBS/D)	16) DOMESTIC INFLUENT LOADING (LBS / D)	17) INDUSTRIAL INFLUENT LOADING (LBS/D)	18) AVAILABLE CAPACITY FOR GROWTH (LBS/D)	LIMITING FACTOR
ANTIMONY, TOT RECOVERABLE	101499.9973	0	101499.9973	0	101499.9973				101499.9973	0.2907	0.0000	91349.7360	WATER QUALITY
ARSENIC, TRIVALENT	82.3864	11.20454516	71.1818	31	102.7155	0.100	29.1900	6.483713355	6.4837	0.2907	0.0000	5.5737	SLUDGE
CADMIUM, TOT RECOVERABLE	30.0799	4.09087224	25.9891	37	41.4499	1.000	291.9000	6.047989276	6.0480	0.8720	0.0260	4.6350	SLUDGE
CHROMIUM, TOT RECOVERABLE	9727.5603	1322.948199	8404.6121	51	17013.3848	5.000	1459.5000	-----	1459.5000	14.5336	0.2173	1300.2741	INHIBITION
CHROMIUM, HEXAVALENT	410.8613	55.87713131	354.9841	47	669.7814	1.000	291.9000	-----	291.9000	0.0000	0.0000	262.7100	INHIBITION
COPPER, TOTAL RECOVERABLE	627.8695	85.39024581	542.4792	49	1072.0933	1.000	291.9000	231.0161943	231.0162	17.4404	0.2072	192.0318	SLUDGE
CYANIDE, FREE	194.2253	26.41464389	167.8107	45	305.1103	0.100	29.1900	-----	29.1900	11.6269	0.0959	15.7204	INHIBITION
LEAD, TOT RECOVERABLE	303.9676	41.33959052	262.6280	59	635.9031	1.000	291.9000	37.97887564	37.9789	14.5336	0.0430	21.0620	SLUDGE
MERCURY, TOT RECOVERABLE	1.4841	0.201843942	1.2823	31	1.8692	0.100	29.1900	4.817770701	1.8692	0.0000	0.0000	1.6823	WATER QUALITY
MOLYBDENUM		0						1.9905	1.9905	0.0000	0.0000	-----	SLUDGE
NICKEL, TOT RECOVERABLE	2810.1883	382.1856048	2428.0027	26	3281.0847	1.000	291.9000	42.87230769	42.8723	5.8135	0.2386	33.1382	SLUDGE
SELENIUM	18.6755	0	18.6755	50	37.3510			5.308	5.3080	0.0000	0.0000	4.7772	SLUDGE
SILVER, TOT RECOVERABLE	47.7202	6.489944338	41.2302	44	73.1033	0.250	72.9750	-----	72.9750	2.9067	0.0430	63.0227	INHIBITION
ZINC, TOT RECOVERABLE	7282.1800	990.3764789	6291.8035	49	12409.8689	1.000	291.9000	403.7525355	291.9000	52.3211	0.4439	215.2215	INHIBITION

Comments

Item 1: Allowable concentration instream based on above noted stream conditions and state standard to protect aquatic life from chronic toxicity.

Item 2: Mass of pollutant allowed instream based on above noted stream conditions and chronic criteria calculated as shown below:

Item 2 = stream 7Q10 x 8.34 x Item 1. If stream segment is tidally influenced, the more stringent of freshwater and saltwater criteria is used.

Item 3: Allowable concentration instream based above noted stream conditions and state standard to protect aquatic life from acute toxicity.

Item 4: Mass of pollutant allowed instream based on above noted stream conditions and acute criteria and calculated as shown below:

Item 4 = stream 1Q10 x 8.34 x Item 3. For LWF streams, Item 4 = stream 7Q2 x 8.34 x Item 3.

If stream segment is tidally influenced, the more stringent of freshwater and saltwater criteria is used.

Item 5: Allowable concentration instream based on above noted stream conditions and state human health standard for a stream with this use classification.

Item 6: Mass of pollutant allowed instream based on above noted stream condition, the human health standard and calculated as shown below:

Item 6 = Annual average stream flow x 8.34 x Item 5 (for carcinogens) and 7Q10 x 8.34 x Item 5 (for non-carcinogens).

Item 7: The most stringent of the requirements calculated in Items 2,4 and 6.

Item 8: Amount allocated to other facilities discharging to this stream segment. Based on flow ratios, 13.6% of the total stream allocation is reserved for Sheffield and Tuscumbia WWTPs.

Item 9: Remaining allocation available.

Item 10: Pollutant removal rates based on the treatment process. For Florence, approx 42% of the total flow discharges through the activated sludge system and 58% is discharged through the aerated lagoon. Removal rates were calculated based on the ratio of the two treatments.

Item 11: The calculated allowable discharge into the POTW based on water quality and human health concerns.

Item 12: Concentration of pollutant that could cause inhibition of biological processes utilized at the treatment plant.

Item 13: Allowable discharge into the POTW based on levels to prevent inhibition of biological treatment processes.

Item 14: Allowable discharge into the POTW based on levels to meet EPA 503 standards for land application of sludge, if sludge is land applied.

Item 15: Allowable discharge into the POTW based on the more stringent of Items 11, Item 13 and item 14 requirements. This column contains the Local Limits for this POTW.

Item 16: Domestic influent (lbs/d) based on domestic flow and sampled domestic influent data if available or literature values if not.

Item 17: Industrial influent (lbs/d) based on monthly average permit limits and actual average values for the past 2 to 5 years (depending on availability) for "monitor only" pollutants as shown on SIUs sheet. Values reported as less than detect are not included in average calculation.

Item 18: Available capacity remaining for new sources after subtracting capacity being utilized by industrial sources, domestic sources (including commercial sources and septage disposal) and capacity reserved for future growth.

SIGNIFICANT INDUSTRIAL USERS

PERMITTEE	AVG FLOW (MGD)	DAILY AVG ANTIMONY (MG/L)	DAILY AVG ARSENIC (MG/L)	DAILY AVG CADMIUM (MG/L)	DAILY AVG CHROMIUM (MG/L)	DAILY AVG HEX CHROM (MG/L)	DAILY AVG COPPER (MG/L)	DAILY AVG CYANIDE (MG/L)	DAILY AVG LEAD (MG/L)	DAILY AVG MERCURY (MG/L)	DAILY AVG Molybdenum (mg/l)	DAILY AVG NICKEL (MG/L)	DAILY AVG SELENIUM (MG/L)	DAILY AVG SILVER (MG/L)	DAILY AVG ZINC (MG/L)
Alternate Number Five (IU083900387)	0.0120	0.0000	0.0000	0.2600	1.7100	0.0000	2.0700	0.6500	0.4300	0.0000	0.0000	2.3800	0.0000	0.4300	1.4800
Gemstone Foods (IU083900390)	0.1043	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kaiser Aluminum (IU083900237)	0.0251	0.0000	0.0000	0.0000	0.2193	0.0000	0.0000	0.1476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.7400
Monarch Ceramic (IU083900050)	0.0057	0.0000	0.0000	0.0000	0.0057	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0086	0.0000	0.0000	2.9470
Total Industrial flow	0.1472														

Monthly average permit limits are listed in bold print.

Other values are based on a minimum of 24 months of data if available as reported on DMRs (for parameters with testing requirements in permits).

PERMITTEE	AVG FLOW (MGD)	DAILY AVG ANTIMONY (LBS/D)	DAILY AVG ARSENIC (LBS/D)	DAILY AVG CADMIUM (LBS/D)	DAILY AVG CHROMIUM (LBS/D)	DAILY AVG HEX CHROM (LBS/D)	DAILY AVG COPPER (LBS/D)	DAILY AVG CYANIDE (LBS/D)	DAILY AVG LEAD (LBS/D)	DAILY AVG MERCURY (LBS/D)	DAILY AVG Molybdenum (LBS/D)	DAILY AVG NICKEL (LBS/D)	DAILY AVG SELENIUM (LBS/D)	DAILY AVG SILVER (LBS/D)	DAILY AVG ZINC (LBS/D)
Alternate Number Five (IU083900387)	0.012	0.0000	0.0000	0.0260	0.1711	0.0000	0.2072	0.0651	0.0430	0.0000	0.0000	0.2382	0.0000	0.0430	0.1481
Gemstone Foods (IU083900390)	0.10432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kaiser Aluminum (IU083900237)	0.0251	0.0000	0.0000	0.0000	0.0459	0.0000	0.0000	0.0309	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1549
Monarch Ceramic (IU083900050)	0.00573	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.1408
	0.1472	0.0000	0.0000	0.0260	0.2173	0.0000	0.2072	0.0959	0.0430	0.0000	0.0000	0.2386	0.0000	0.0430	0.4439

CURRENT PERMITTED INDUSTRIAL LOADING TO POTW (LBS/DAY)

PARAMETER	
ANTIMONY	0.0000
ARSENIC	0.0000
CADMIUM	0.0260
CHROMIUM	0.2173
HEX CHROM	0.0000
COPPER	0.2072
CYANIDE	0.0959
LEAD	0.0430
MERCURY	0.0000
Molybdenum	0.0000
NICKEL	0.2386
SELENIUM	0.0000
SILVER	0.0430
ZINC	0.4439

SAMPLING FOR LOCAL LIMIT DEVELOPMENT

Local limits developed utilizing site specific data will more accurately achieve the following:

- Identify Pollutants of Concern (POCs) that could adversely impact the operation of the treatment works, affect water quality in the receiving stream or limit the sludge disposal method utilized by the POTW.
- Determine the headworks capacity for each POC such that the POTW can make decisions regarding pollutant loadings allocation among industrial sources.
- Allow the POTW to make informed decisions regarding reserving pollutant loading for future growth.

For POTWs that desire to have more involvement with the local limit development process, ADEM encourages the collection of site specific data. This may be of particular importance for sites where calculated loadings will be restrictive on future growth and where the POTW believes assumed values in the ADEM Local Limits/Pass Through (LL-PT) spreadsheet do not correctly reflect the actual conditions at the site. For these cases, samples can be collected and analyzed by the POTW in accordance with a sampling plan developed by the POTW that can include the following items:

SAMPLING SITES

- POTW Influent - Influent sampling provides data to be used in calculating POTW-specific removal efficiencies. The sample should be collected from a location that allows for the collection of untreated wastewater before it is mixed with any waste streams returned to the headworks from operations within the POTW. Without site specific data, assumed values may be utilized.
- POTW Effluent - Sampling the treatment works' effluent is essential to determining the POTW's overall removal efficiency. Samples taken to demonstrate compliance with the POTW's NPDES permit can be used for this purpose.
- Collection System - In order to measure pollutant loadings from unregulated (domestic and commercial) sources, samples from a point within the collection system that isolates these sources would provide data regarding domestic/commercial pollutant loading.
- Receiving Stream – When available, the instream Hardness (measured as CaCO₃) upstream of the discharge is typically used to determine the water quality criteria for some metal pollutants. Stream Hardness affects the loading of these POCs in the POTW's effluent and based on treatment removal rates determines the loading into the POTW headworks. Without site specific instream Hardness data, an assumed value may be utilized.

SAMPLING METHODS

- Sampling should occur on dates that are representative of typical loadings to the POTW and normal treatment works operations.
- 24-hour, flow-proportioned composite samples are the most accurate for generating the data. This sampling technique should be used whenever feasible for all pollutants except those that require grab samples (e.g. Cyanide).

- ADEM suggests 7 to 15 consecutive days of sampling for influent and effluent and 7 consecutive days for collection system data. Fewer sampling days may be appropriate in some cases. This should be discussed with your ADEM Industrial Section area engineer.
- If possible, an effluent sample should be collected at the appropriate time following the collection of the associated influent sample to account for the retention period in the POTW.
- Sampling for instream Hardness should be performed upstream of the discharge point. If possible, sampling should be performed during lower stream flow conditions that typically occur during the late August to early November time period.

ANALYTICAL METHODS

- Approved analytical methods found at 40 CFR Part 136 should be used in the development of local limits. The POTWs should use approved sufficiently sensitive methods (e.g. if there is no detection of the pollutant then a test method with the lowest detection level should be utilized).
- Regarding metals and Cyanide analyses, metals can be analyzed as "Total Recoverable" using EPA Method 200.8. Cyanide can be analyzed using EPA Method 335.4. Other methods may be appropriate if approved by ADEM.

OTHER CONSIDERATIONS

POTWs should not sample during or after periods of heavy rainfall when I&I is also high. Flows at these times may be diluted, and may not be representative of typical residential and commercial flow.

It would be useful to utilize data collected and analyzed over various seasons if available. However, to expedite the development of local limits more rapid data collection and analysis may be appropriate.

LOCAL LIMIT/ PASS THROUGH CALCULATIONS

POTW NAME: Florence Cypress Creek WWTP
 NPDES PERMIT NUMBER: AL0023884

DATE PREPARED: 1/11/2019
 PREPARED BY: Ed Hughes
 REVISED DATE: 5/28/2019

STREAM DATA AND POTW FLOW DATA						
RECEIVING STREAM CLASSIFICATION	=	F & W	0		RECEIVING STREAM TIDALLY INFLUENCED =	No
POTW DESIGN FLOW	=		35 MGD			
FLOW FROM OTHER CONTRIBUTORS	=		5.52 MGD			
DOMESTIC FLOW	=		34.85285 MGD			
7Q10	=		6870 CFS	OR		4438.02 MGD
1Q10	=		5150.00 CFS	OR		3326.90 MGD
7Q2	=		CFS	OR		0.00 MGD
ANNUAL AVG FLOW	=		50400 CFS	OR		32558.40 MGD
STREAM HARDNESS (DEFAULT VALUE 100)	=		69 MG/L AS CaCO3			

ALLOWABLE LOADING TO STREAM BASED ON WATER QUALITY AND HH STANDARDS										
PARAMETER	1) CHRONIC	SW CHRONIC	2) MAX W Q	3) ACUTE	SW ACUTE	4) MAX W Q	5) HUMAN	6) MAX W Q	7) WQ / HH	PARAMETER
	TOXICITY (MG/L)	TOXICITY (MG/L)	INSTREAM (LBS/D)	TOXICITY (MG/L)	TOXICITY (MG/L)	INSTREAM (LBS/D)	HEALTH (MG/L)	INSTREAM (LBS/D)	BASED DISC LEVEL (LBS/D)	
ANTIMONY, TOTAL RECOVERABLE	----	----	----	----	----	----	0.3733333	13944.382	13944.382	ANTIMONY, TR
ARSENIC, TRIVALENT	0.1500	----	9760.720	0.3400	----	16635.289	0.00030	82.386	82.386	ARSENIC, TRI
CADMIUM, TOT RECOVERABLE	0.0002	----	30.080	0.0014	----	167.036	----	----	30.080	CADMIUM, TR
CHROMIUM, TOT RECOVERABLE	0.0547	----	9727.560	0.4204	----	56228.442	----	----	9727.560	CHROMIUM, TR
CHROMIUM, HEXVALENT	0.0110	----	410.861	0.0160	----	449.349	----	----	410.861	CHROMIUM, HEX
COPPER, TOTAL RECOVERABLE	0.0065	----	627.869	0.0095	----	684.380	----	----	627.869	COPPER, TR
CYANIDE, FREE	0.0052	----	194.225	0.0220	----	617.854	9.3333	348609.55	194.225	CYANIDE, FREE
LEAD, TOT RECOVERABLE	0.0017	----	303.968	0.0430	----	5865.077	----	----	303.968	LEAD, TR
MERCURY, TOT RECOVERABLE	0.000012	----	1.484	0.0024	----	223.186	0.0000424	1.585	1.48415	MERCURY, TR
MOLYBDENUM	----	----	----	----	----	----	----	----	----	MOLYBDENUM
NICKEL, TOT RECOVERABLE	0.0380	----	2810.188	0.3421	----	19024.046	0.9929078	37086.123	2810.188	NICKEL, TR
SELENIUM, TOTAL RECOVERABLE	0.0005	----	18.676	0.0020	----	56.169	2.4305556	90783.738	18.676	SELENIUM, TR
SILVER, TOT RECOVERABLE	----	----	----	0.0017	----	47.720	----	----	47.720	SILVER, TR
ZINC, TOT RECOVERABLE	0.0863	----	9764.244	0.0856	----	7282.180	14.8936170	556291.84	7282.180	ZINC, TR

		Antimony	Arsenic	Cadmium	Chromium, To	Chromium, VI	Copper	Cyanide	Lead	Mercury	Molybdenum	Nickel	
DOMESTIC	DATA VALUE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
	LIT VALUE	0.0010	0.0010	0.0030	0.0500	0.0000	0.0600	0.0400	0.0500	0.0000	0.0000	0.0200	
		Selenium	Silver	Zinc									
	DATA VALUE	0.0000	0.0000	0.0000									
	LIT VALUE	0.0000	0.0100	0.1800									

TYPE OF TREATMENT =	2	Act Sludge	SLUDGE DISPOSAL	
TREATMENT INCLUDE NITIFICATION?	No		DOES THE POTW HAVE SECONDARY CLARIFICATION?	Yes
			AVERAGE TONS OF SLUDGE PER DAY (DRY WEIGHT)	13.27
			IS SLUDGE LAND APPLIED?	Yes
GROWTH ALLOCATION				
			% ALLOCATION RESERVED FOR FUTURE GROWTH =	10

PARAMETER	7) MAX WQ INSTREAM (LBS/D)	8) ALLOCATION FROM BACKGROUND (LBS/D)	9) ALLOWABLE DISC FROM POTW (LBS/D)	10) REMOVAL RATE (%)	11) ALLOWABLE DISCHARGE (WQ / HH) (LBS/D)	12) INHIBITION TRESHOLD CONC (MG/L)	13) ALLOWABLE DISCHARGE (INHIBITION) (LBS/D)	14) ALLOWABLE DISCHARGE (SLUDGE) (LBS/D)	15) ALLOWABLE DISCHARGE LOCAL LIMIT (LBS/D)	16) DOMESTIC INFLUENT LOADING (LBS/D)	17) INDUSTRIAL INFLUENT LOADING (LBS/D)	18) AVAILABLE CAPACITY FOR GROWTH (LBS/D)	LIMITING FACTOR
ANTIMONY, TOT RECOVERABLE	13944.3821	0	13944.3821	0	13944.3821			13944.3821	0.2907	0.0000		12549.6823	WATER QUALITY
ARSENIC, TRIVALENT	82.3864	11.20454516	71.1818	31	102.7155	0.100	29.1900	6.483713355	6.4837	0.2907	0.0000	5.5737	SLUDGE
CADMIUM, TOT RECOVERABLE	30.0799	4.09087224	25.9891	37	41.4499	1.000	291.9000	6.047989276	6.0480	0.8720	0.0260	4.6350	SLUDGE
CHROMIUM, TOT RECOVERABLE	9727.5603	1322.948199	8404.6121	51	17013.3848	5.000	1459.5000	-----	1459.5000	14.5336	0.2173	1300.2741	INHIBITION
CHROMIUM, HEXAVALENT	410.8613	55.87713131	354.9841	47	669.7814	1.000	291.9000	-----	291.9000	0.0000	0.0000	262.7100	INHIBITION
COPPER, TOTAL RECOVERABLE	627.8695	85.39024581	542.4792	49	1072.0933	1.000	291.9000	231.0161943	231.0162	17.4404	0.2072	192.0318	SLUDGE
CYANIDE, FREE	194.2253	26.41464389	167.8107	45	305.1103	0.100	29.1900	-----	29.1900	11.6269	0.0959	15.7204	INHIBITION
LEAD, TOT RECOVERABLE	303.9676	41.33959052	262.6280	59	635.9031	1.000	291.9000	37.97887564	37.9789	14.5336	0.0430	21.0620	SLUDGE
MERCURY, TOT RECOVERABLE	1.4841	0.201843942	1.2823	31	1.8692	0.100	29.1900	4.817770701	1.8692	0.0000	0.0000	1.6823	WATER QUALITY
MOLYBDENUM		0						1.9905	1.9905	0.0000	0.0000	-----	SLUDGE
NICKEL, TOT RECOVERABLE	2810.1883	382.1856048	2428.0027	26	3281.0847	1.000	291.9000	42.87230769	42.8723	5.8135	0.2386	33.1382	SLUDGE
SELENIUM	18.6755	0	18.6755	50	37.3510			5.308	5.3080	0.0000	0.0000	4.7772	SLUDGE
SILVER, TOT RECOVERABLE	47.7202	6.489944338	41.2302	44	73.1033	0.250	72.9750	-----	72.9750	2.9067	0.0430	63.0227	INHIBITION
ZINC, TOT RECOVERABLE	7282.1800	990.3764789	6291.8035	49	12409.8689	1.000	291.9000	403.7525355	291.9000	52.3211	0.4439	215.2215	INHIBITION

Comments

Item 1: Allowable concentration instream based on above noted stream conditions and state standard to protect aquatic life from chronic toxicity.

Item 2: Mass of pollutant allowed instream based on above noted stream conditions and chronic criteria calculated as shown below:

Item 2 = stream 7Q10 x 8.34 x Item 1. If stream segment is tidally influenced, the more stringent of freshwater and saltwater criteria is used.

Item 3: Allowable concentration instream based above noted stream conditions and state standard to protect aquatic life from acute toxicity.

Item 4: Mass of pollutant allowed instream based on above noted stream conditions and acute criteria and calculated as shown below:

Item 4 = stream 1Q10 x 8.34 x Item 3. For LWF streams, Item 4 = stream 7Q2 x 8.34 x Item 3.

If stream segment is tidally influenced, the more stringent of freshwater and saltwater criteria is used.

Item 5: Allowable concentration instream based on above noted stream conditions and state human health standard for a stream with this use classification.

Item 6: Mass of pollutant allowed instream based on above noted stream condition, the human health standard and calculated as shown below:

Item 6 = Annual average stream flow x 8.34 x Item 5 (for carcinogens) and 7Q10 x 8.34 x Item 5 (for non-carcinogens).

Item 7: The most stringent of the requirements calculated in Items 2,4 and 6.

Item 8: Amount allocated to other facilities discharging to this stream segment. Based on flow ratios, 13.6% of the total stream allocation is reserved for Sheffield and Tuscumbia WWTPs.

Item 9: Remaining allocation available.

Item 10: Pollutant removal rates based on the treatment process. For Florence, approx 42% of the total flow discharges through the activated sludge system and 58% is discharged through the aerated lagoon. Removal rates were calculated based on the ratio of the two treatments.

Item 11: The calculated allowable discharge into the POTW based on water quality and human health concerns.

Item 12: Concentration of pollutant that could cause inhibition of biological processes utilized at the treatment plant.

Item 13: Allowable discharge into the POTW based on levels to prevent inhibition of biological treatment processes.

Item 14: Allowable discharge into the POTW based on levels to meet EPA 503 standards for land application of sludge, if sludge is land applied.

Item 15: Allowable discharge into the POTW based on the more stringent of Items 11, Item 13 and item 14 requirements. This column contains the Local Limits for this POTW.

Item 16: Domestic influent (lbs/d) based on domestic flow and sampled domestic influent data if available or literature values if not.

Item 17: Industrial influent (lbs/d) based on monthly average permit limits and actual average values for the past 2 to 5 years (depending on availability) for "monitor only" pollutants as shown on SIUs sheet. Values reported as less than detect are not included in average calculation.

Item 18: Available capacity remaining for new sources after subtracting capacity being utilized by industrial sources, domestic sources (including commercial sources and septage disposal) and capacity reserved for future growth.