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JANUARY 23, 2020

HONORABLE WOODY JACOBS
MAYOR
CITY OF CULLMAN
POST OFFICE BOX 278
CULLMAN AL 35056

Re: REVISED DRAFT LOCAL LIMITS
CITY OF CULLMAN
CULLMAN WWTP
NPDES PERMIT NO. AL0050423

Dear Mayor Jacobs:

The Alabama Department of Environmental Management has completed our review of the sampling data submitted on September 9, 2019. ADEM utilized this site-specific data to revise proposed local limits for the Cullman WWTP. A copy of the revised draft along with supporting information is attached for your review and comment. ADEM is requesting that your comments be received no later than 30 days from the date of this letter.

Following evaluation of any additional information provided, revised draft local limits will be developed if needed. If your facility has no further comments, ADEM will proceed with the development of final local limits based on the attached revised 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 Wayne Holt by email at WHolt@adem.alabama.gov or by phone at (334) 271-7847.

Sincerely,

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

Attachments: Draft Local Limits
Rationale for Local Limits
Local Limits/Pass Through Calculations

CC: American Trim
Rehau Inc
Reliance Worldwide Corporation
Draper Rushing
Wayne Holt

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

LOCAL LIMITS

PUBLICLY OWNED TREATMENT WORKS: **CULLMAN WWTP**

LOCATION: **CULLMAN, ALABAMA**
CULLMAN COUNTY

PERMIT NUMBER: **AL0050423**

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.

Parameter	Allowable Average Daily Pollutant Load at Headworks of POTW (lbs/day)
Arsenic, Total Recoverable	0.1305
Cadmium, Total Recoverable	0.1379
Chromium, Total Recoverable	33.39
Copper, Total Recoverable	2.524
Cyanide, Free	1.382
Lead, Total Recoverable	3.163
Mercury, Total Recoverable	0.0033
Nickel, Total Recoverable	6.183
Silver, Total Recoverable	0.4154
Zinc, Total Recoverable	39.62

HYDRAULIC LOADING:
The hydraulic loading on an average basis is the design capacity of the treatment plant which is 4.75 million gallons per day.

ORGANIC LOADING:
The organic loading ($CBOD_5$) is the design capacity of the treatment plant which is 6616 pounds per day.

SOLIDS LOADING
The Total Suspended Solids loading (TSS) is the design capacity of the treatment plant which is 7923 pounds per day.

EFFECTIVE DATE:

ISSUANCE DATE:

DRAFT

Alabama Department of Environmental Management

Rationale for Local Limits

Cullman WWTP (AL0050423)
4.75 MGD High Rate Trickling Filter
Cullman/ Cullman County

Reissuance
Prepared Date: 10/30/2018
Prepared By: Ed Hughes
Revised: 1/8/2020
1/23/2020

Nonconventional Pollutants:

Pass Through:
Allowable pollutant loadings were based on state water quality standards applicable to streams with a use designated of Fish & Wildlife. Local limits calculations were performed using a receiving stream 7Q10 of 0.27 cfs, 1Q10 of 0.2 cfs, an annual average flow of 28.63 cfs and a stream hardness of 100 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 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 by landfilling. 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. Negative values indicate that no additional capacity is available for these pollutants.

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 is the design capacity of the treatment plant as indicated by the POTW, 4.75 MGD.

Organic loading:
The organic loading ($CBOD_5$) 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.

Revision Date: 1/8/2020
There were no changes to local limit requirements in this revision. The Local Limit- Pass Through spreadsheet and Local Limit documents were updated to the most recent versions.

Revision Date: 1/23/2020

The water system submitted results of Cyanide and Lead sampling performed in the collection system and at the influent and effluent of the POTW. The influent and effluent data was input into the local limit spreadsheet and provided the basis for calculating removal rates used in the determination of local limit requirements. Local data was also used to establish the concentrations of Lead and Cyanide from domestic sources. However, in an effort to provide a more conservative basis for local limits, influent sampling results instead of collection system measurements were used for this purpose.

The Local limit spreadsheet was also revised to include instream hardness data provided by the water system. The default value of 100 mg/l as CaCO3 was replaced with 104.5 mg/l as CaCO3, the average of the measured values.

As result of these changes, the local limit spreadsheet determined that capacity is currently available for Lead and Cyanide.

LOCAL LIMIT/ PASS THROUGH CALCULATIONS

POTW NAME: Cullman WWTP **UPDATE:** 1/23/2020

NPDES PERMIT NUMBER: AL0050423 **PREPARED BY:** Ed Hughes

STREAM DATA AND POTW FLOW DATA							
RECEIVING STREAM CLASSIFICATION	=	F & W	0		RECEIVING STREAM TIDALLY INFLUENCED =		No
POTW DESIGN FLOW	=	4.75	MGD				
FLOW FROM OTHER CONTRIBUTORS	=		MGD				
DOMESTIC FLOW	=	4.4794	MGD				
7Q10	=	0.27	CFS	OR	0.174	MGD	
1Q10	=	0.20	CFS	OR	0.131	MGD	
7Q2	=		CFS	OR	0.000	MGD	
ANNUAL AVG FLOW	=	28.63	CFS	OR	18.495	MGD	
STREAM HARDNESS (DEFAULT VALUE 100)	=	104.5	MG/L AS CaCO3				

ALLOWABLE LOADING TO STREAM BASED ON WATER QUALITY AND HH STANDARDS										
PARAMETER	1) CHRONIC TOXICITY (MG/L)	SW CHRONIC TOXICITY (MG/L)	2) MAX W Q INSTREAM (LBS/D)	3)ACUTE TOXICITY (MG/L)	SW ACUTE TOXICITY (MG/l)	4)MAX W Q INSTREAM (LBS/D)	5)HUMAN HEALTH (MG/L)	6)MAX W Q INSTREAM (LBS/D)	7)WQ / HH BASED DISC LEVEL (LBS/D)	PARAMETER
ANTIMONY, TOTAL RECOVERABLE	----	----	----	----	----	----	0.3733333	15.333	15.333	ANTIMONY, TR
ARSENIC, TRIVALENT	0.1500	----	6.160	0.3400	----	13.840	0.00030	0.059	0.059	ARSENIC, TRI
CADMIUM, TOT RECOVERABLE	0.0003	----	0.044	0.0021	----	0.363	----	----	0.044	CADMIUM, TR
CHROMIUM, TOT RECOVERABLE	0.0768	----	15.027	0.5907	----	114.496	----	----	15.027	CHROMIUM, TR
CHROMIUM, HEXAVALENT	0.0110	----	0.452	0.0160	----	0.651	----	----	0.452	CHROMIUM, HEX
COPPER, TOTAL RECOVERABLE	0.0093	----	0.984	0.0140	----	1.467	----	----	0.984	COPPER, TR
CYANIDE, FREE	0.0052	----	0.214	0.0220	----	0.896	9.3333	383.32	0.214	CYANIDE, FREE
LEAD, TOT RECOVERABLE	0.0026	----	0.526	0.0677	----	13.387	----	----	0.526	LEAD, TR
MERCURY, TOT RECQVERABLE	0.000012	----	0.002	0.0024	----	0.323	0.0000424	0.002	0.00163	MERCURY, TR
MOLYBDENUM	----			----	----		----		----	MOLYBDENUM
NICKEL, TOT RECOVERABLE	0.0540	----	4.390	0.4860	----	39.175	0.9929078	40.778	4.390	NICKEL, TR
SELENIUM, TOTAL RECOVERABLE	0.0005	----	0.021	0.0020	----	0.081	2.4305556	99.822	0.021	SELENIUM, TR
SILVER, TOT RECOVERABLE	----	----	----	0.0035	----	0.141	----	----	0.141	SILVER, TR
ZINC, TOT RECOVERABLE	0.1226	----	15.262	0.1216	----	15.004	14.8936170	611.68	15.004	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	0.0157	0.0017	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 =	3	Trickling filter
TREATMENT INCLUDE NITIFICATION?	No	

- SLUDGE DISPOSAL

DOES THE POTW HAVE SECONDARY CLARIFICATION?	Yes
AVERAGE TONS OF SLUDGE PER DAY (DRY WEIGHT)	1.65
IS SLUDGE LAND APPLIED?	No

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, TOTAL RECOVERABLE	15.3327	0	15.3327	0	15.3327				15.3327	0.0374	0.0000	13.7658	WATER QUALITY
ARSENIC, TRIVALENT	0.0587	0	0.0587	55	0.1305	0.100	3.9615	-------	0.1305	0.0374	0.0000	0.0839	WATER QUALITY
CADMIUM, TOT RECOVERABLE	0.0441	0	0.0441	68	0.1379	1.000	39.6150	-------	0.1379	0.1121	0.0028	0.0208	WATER QUALITY
CHROMIUM, TOT RECOVERABLE	15.0266	0	15.0266	55	33.3925	5.000	198.0750	-------	33.3925	1.8679	1.4261	27.0886	WATER QUALITY
CHROMIUM, HEXAVALENT	0.4518	0	0.4518	55	1.0039	1.000	39.6150	------	1.0039	0.0000	0.0000	0.9035	WATER QUALITY
COPPER, TOTAL RECOVERABLE	0.9843	0	0.9843	61	2.5238	1.000	39.6150	-------	2.5238	2.2415	0.0550	0.2046	WATER QUALITY
CYANIDE, FREE	0.2136	0	0.2136	85	1.3819	0.100	3.9615	------	1.3819	0.5871	0.0367	0.6823	WATER QUALITY
LEAD, TOT RECOVERABLE	0.5264	0	0.5264	83	3.1626	1.000	39.6150	-------	3.1626	0.0641	0.0459	2.7473	WATER QUALITY
MERCURY, TOT RECOVERABLE	0.0016	0	0.0016	50	0.0033	0.100	3.9615	-------	0.0033	0.0000	0.0000	0.0029	WATER QUALITY
MOLYBDENUM		0						-------	0.0000	0.0000	0.0000	------	------
NICKEL, TOT RECOVERABLE	4.3900	0	4.3900	29	6.1830	1.000	39.6150	-------	6.1830	0.7472	1.9849	3.1059	WATER QUALITY
SELENIUM	0.0205	0	0.0205	50	0.0411			-------	0.0411	0.0000	0.0000	0.0370	WATER QUALITY
SILVER, TOT RECOVERABLE	0.1412	0	0.1412	66	0.4154	0.250	9.9038	------	0.4154	0.3736	0.0083	0.0301	WATER QUALITY
ZINC, TOT RECOVERABLE	15.0036	0	15.0036	67	45.4656	1.000	39.6150	------	39.6150	6.7245	1.3223	28.4114	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 critria 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 critria 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.

Item 9: Remaining allocation available.

Item 10: Pollutant removal rates based on the treatment process.

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 treament 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 availablity) 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)
American Trim (IU392200007)	0.1000	0.0000	0.0000	0.0030	1.7100	0.0000	0.0600	0.0400	0.0500	0.0000	0.0000	2.3800	0.0000	0.0100	1.4800
Rehau Inc (IU392200441)	0.1606	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
Reliance Worldwide (IU392201154) 01	0.0040	0.0000	0.0000	0.0030	0.0000	0.0000	0.0600	0.0400	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000	1.0490
Reliance Worldwide (IU392201154) 02	0.0060	0.0000	0.0000	0.0030	0.0000	0.0000	0.0600	0.0400	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000	1.0590
Total Industrial flow	0.2706														

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)
American Trim (IU392200007)	0.1	0.0000	0.0000	0.0025	1.4261	0.0000	0.0500	0.0334	0.0417	0.0000	0.0000	1.9849	0.0000	0.0083	1.2343
Rehau Inc (IU392200441)	0.1606	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
Reliance Worldwide (IU392201154) 01	0.004	0.0000	0.0000	0.0001	0.0000	0.0000	0.0020	0.0013	0.0017	0.0000	0.0000	0.0000	0.0000	0.0000	0.0350
Reliance Worldwide (IU392201154) 02	0.006	0.0000	0.0000	0.0002	0.0000	0.0000	0.0030	0.0020	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000	0.0530
	0.2706	0.0000	0.0000	0.0028	1.4261	0.0000	0.0550	0.0367	0.0459	0.0000	0.0000	1.9849	0.0000	0.0083	1.3223

CURRENT PERMITTED INDUSTRIAL LOADING TO POTW (LBS/DAY)

PARAMETER	
ANTIMONY	0.0000
ARSENIC	0.0000
CADMIUM	0.0028
CHROMIUM	1.4261
HEX CHROM	0.0000
COPPER	0.0550
CYANIDE	0.0367
LEAD	0.0459
MERCURY	0.0000
Molybdenum	0.0000
NICKEL	1.9849
SELENIUM	0.0000
SILVER	0.0083
ZINC	1.3223