

KAY IVEY GOVERNOR

Alabama Department of Environmental Management adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 Post Office Box 301463
Montgomery, Alabama 36130-1463

FEBRUARY 12, 2020

(334) 271-7700 • FAX (334) 271-7950

HONORABLE HOWARD RUBENSTEIN MAYOR CITY OF SARALAND 716 U S HIGHWAY 43 SARALAND AL 36571

Re:

REVISED DRAFT LOCAL LIMITS

BOARD OF WATER & SEWER COMMISSIONERS OF THE CITY OF SARALAND

SARALAND WWTP

NPDES PERMIT NO. AL0055786

#### Dear Mayor Rubenstein:

The Alabama Department of Environmental Management (ADEM) has developed an updated draft local limits document for the Saraland 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 30 days from the date of this letter.

Following evaluation of any additional information provided, revised draft local limits will be developed. If your facility has no comments, 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 Brian Marshall by email at BMarshall@adem.alabama.gov or by phone at (334) 271-7895.

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:

Aaron Oil Company Qualawash Holdings Stephanie Ammons Brian Marshall

# **LOCAL LIMITS**

**PUBLICLY OWNED TREATMENT WORKS:** 

SARALAND WWTP

LOCATION:

SARALAND, ALABAMA MOBILE COUNTY

PERMIT NUMBER:

AL0055786

#### 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>	Allowable Average Daily Pollutant Load at Headworks of POTW
	(lbs/day)
Arsenic, Trivalent	0.3369
Cadmium, Total Recoverable	0.2008
Chromium, Total Recoverable	108.4
Copper, Total Recoverable	2.282
Cyanide, Free	0.2602
Lead, Total Recoverable	1.506
Mercury, Total Recoverable	0.0102
Nickel, Total Recoverable	4.824
Silver, Total Recoverable	0.3151
Zinc, Total Recoverable	21.68

•	mestic wastewater concentration of Cyanide will be allowed.  Int shall be limited as indicated below:	All new or expanding industrial
<u>Parameter</u>	Allowable Average Concentration	
	(mg/l)	
Cyanide, Free	0.04	
HVDDAIII IC I OADING.		

The hydraulic loading on an average basis is the design capacity of the treatment plant which is 2.6 million gallons per day.

### **ORGANIC LOADING:**

The organic loading (CBOD<sub>5</sub>) is the design capacity of the treatment plant which is 3621 pounds per day.

#### **SOLIDS LOADING**

The Total Suspended Solids loading (TSS) is the design capacity of the treatment plant which is 4337 pounds per day.

**EFFECTIVE DATE:** 

ISSUANCE DATE:

DRAFT

Alabama Department of Environmental Management

#### **Rationale for Local Limits**

Saraland WWTP (AL0055786)
2.6 MGD Activated sludge facility
Saraland/ Mobile County

Reissuance

Prepared Date: 12/3/2018 Prepared By: Ed Hughes Revised: 1/30/2020

#### Nonconventional Pollutants:

#### Pass Through:

Allowable pollutant loadings were based on state water quality standards applicable to streams with a use designation of Swimming/Fish & Wildlife. Local limits calculations were performed using a receiving stream 7Q10 of 24 cfs, 1Q10 of 18 cfs, an annual average flow of 160 cfs and a stream hardness of 50 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 Satsuma WWTP discharges to Bayou Sara upstream of Saraland's outfall. Local limits have not been developed for Satsuma because there are no significant industrial discharges in their system. An evaluation of expected pollutant discharge from their plant was determined based on the design flow of .995 MGD, assumed domestic levels of pollutants of concern and assumed removal efficiency for activated sludge facilities. The resultant mass of pollutants was allocated to the Satsuma plant and subtracted from the available allocation in Bayou Sara as a part of the development of local limits for Saraland.

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 land application. The POTW's NPDES permit application reported that 4.92 tons per day of sludge were generated and disposed by land application to agricultural sites. This value was used in the development of local limits for this facility. 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. Specifically, these calculations estimate that no additional loading of Cyanide above the domestic sewage concentration can be allowed; therefore, new and expanded discharges shall be limited to domestic sewage concentrations.

The limiting factor for this pollutant is shown below:

<u>Parameter</u>

Limiting Factor
Water Quality

Cyanide, Free

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, 2.6 MGD.

#### Organic loading:

The organic loading (CBOD<sub>5</sub>) 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 (1/30/2020):**

In this revision, Aaron Oil's discharge designated as SA2 in the previous spreadsheet was removed from the list of industrial sources that discharge to the Saraland WWTP. This wastewater is currently discharged to the Mobile CC Williams WWTP.

#### LOCAL LIMIT/ PASS THROUGH CALCULATIONS

POTW NAME:

Saraland WWTP

NPDES PERMIT NUMBER:

AL0055786

DATE PREPARED:

12/3/2018

PREPARED BY:

Ed Hughes

REVISED DATE:

1/30/2020

	STREAM DATA AND POTW FLOW DATA							
RECEIVING STREAM CLASSIFICATION =	F&W	0 <sup>i</sup>	RECEIVING STREAM TIDALLY INFLUENCED =	Yes				
POTW DESIGN FLOW	=	2.6 MGD	÷					
FLOW FROM OTHER CONTRIBUTORS	=	MGD	ŧ					
DOMESTIC FLOW	=	2.565 MGD	İ					
7010		<b>24</b> CFS	OR 15.50 MGD					
1Q10		18.00 CFS	OR 71.63 MGD					
7Q2	=	crs	OR 0.00 MGD					
ANNUAL AVG FLOW	=	160 CFS	OR 103.36 MGD					
STREAM HARDNESS (DEFAULT VALUE 100)	=	50 MG/L AS CaC						

	ALLOWABLE	LOADING TO STR	EAM BASED ON	WATER QUALITY	AND HH STAND	)ARDS			:	
PARAMETER	1) CHRONIC	SW CHRONIC	2) MAX W Q	3)ACUTE	SWACUTE	4)MAX W Q	5)HUMAN	6)MAX W Q	7)WQ/HH	PARAMÉTÉR
	TOXICITY	TOXICITY	INSTREAM	TOXICITY	TOXICITY	INSTREAM	HEALTH	INSTREAM	BASED DISC	
	(MG/L)	(MG/L)	(LBS/D)	(MG/L)	(MG/I)	(LBS/D)	(MG/L)	(LBS/D)	LEVEL (LBS/D)	
ANTIMONY, TOTAL RECOVERABLE							0.3733333	56.369	56.369	ANTIMONY, TR
ARSENIC, TRIVALENT	0.1500	0.0360	9.470	0.3400	0.0690	14.264	0.00030	0.268	0.268	ARSENIC, TRI
CADMIUM, TOT RECOVERABLE	0.0002	0.0088	0.097	0.0010	0.0400	0.516			0.097	CADMIUM, TR
CHROMIUM, TOT RECOVERABLE	0.0420		30.205	0.3230		182.491			30,205	CHROMIUM, TR
CHROMIUM, HEXAVALENT	0.0110	0.0500	1,661	0.0160	1,1000	1.899		Andrea -	1.661	CHROMIUM, HEX
COPPER, TOTAL RECOVERABLE	0.0050	0.0031	0.468	0.0070	0.0048	1.468			0.468	COPPER, TR
CYANIDE, FREE	0.0052	0.0010	0.151	0.0220	0.0010	0.119	9.3333	1409.22	0.119	CYANIDE, FREE
LEAD, TOT RECOVERABLE	0,0012	0.0081	0.861	0.0301	0.2100	17.359			0.861	LEAD, TR
MERCURY, TOT RECOVERABLE	0.000012	0.000025	0.006	0.0024	0.0021	0.825	0.0000424	0.006	0.00600	MERCURY, TR
MOLYBDENUM										MOLYBDENUM
NICKEL, TOT RECOVERABLE	0.0289	0.0082	4,100	0.2605	0.0740	29.076	0.9929078	149.917	4.100	NICKEL, TR
SELENIUM, TOTAL RECOVERABLE	0.0005	0.0071	0.075	0.0020	0.0290	0.237	2.4305556	366.983	0.075	SELENIUM, TR
SILVER, TOT RECOVERABLE				0.0010	0.0019	0.116		*****	0.116	SILVER, TR
ZINC, TOT RECOVERABLE	0.0657	0.0810	30.044	0.0651	0.0900	23.420	14.8936170	2248.75	23.420	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								

7/05 05 705 474547	_			
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)	4.92
			IS SLUDGE LAND APPLIED?	Yes
-			GROWTH ALLOCATION	'
			% ALLOCATION RESERVED FOR FUTURE GROWTH =	10

PARAMETER	7) MAX WQ	8) ALLOCATION	9) ALLOWABLE	10) REMOVAL	11) ALLOWABLE	12) INHIBITION	13) ALLOWABLE	14) ALLOWABLE	15) ALLOWABLE	16) DOMESTIC	17) INDUSTRIAL	18) AVAILABLE	LIMITING
	INSTREAM	FROM	DISC FROM	RATE	DISCHARGE	TRESHOLD	DISCHARGE	DISCHARGE	DISCHARGE	INFLUENT	INFLUENT	CAPACITY	FACTOR
	(LBS/D)	BACKGROUND	POTW	(%)	(WQ/HH)	CONC	(INHIBITION)	(SLUDGE)	LOCAL LIMIT	LOADING	LOADING	FOR GROWTH	
		(LBS/D)	(LBS/D)		(LBS/D)	(MG/L)	(LBS/D)	(LBS/D)	(LBS/D)	(LBS/D)	(LBS/D)	(LBS/D)	
ANTIMONY, TOT RECOVERABLE	56.3686	0	56.3686	0	56,3686				56.3686	0.0214	0.0000	50.7125	WATER QUALITY
ARSENIC, TRIVALENT	0.2678	0.0825	0.1853	45	0.3369	0.100	2.1684	1.64	0.3369	0.0214	0.0207	0.2653	WATER QUALITY
CADMIUM, TOT RECOVERABLE	0.0972	0.0309	0.0663	67	0.2008	1.000	21.6840	1.248358209	0.2008	0.0642	0.0086	0.1153	WATER QUALITY
CHROMIUM, TOT RECOVERABLE	30.2052	9.593	20,6122	82	114.5120	5.000	108.4200		108.4200	1.0696	0.1015	96.5240	INHIBITION
CHROMIUM, HEXAVALENT	1.6609	0	1.6609	83	9.7698	1.000	21.6840		9.7698	0.0000	0.0000	8.7928	WATER QUALITY
COPPER, TOTAL RECOVERABLE	0.4681	0.1486	0.3195	86	2.2819	1.000	21.6840	49.2	2.2819	1.2835	0.1328	0.7790	WATER QUALITY
CYANIDE, FREE	0.1187	0.038	0.0807	69	0.2602	0.100	2.1684		0.2602	0.8557	0.0000	-0.5359	WATER QUALITY
LEAD, TOT RECOVERABLE	0.8607	0.2734	0.5873	61	1.5060	1.000	21.6840	13.55016393	1.5060	1.0696	0.0146	0.3796	WATER QUALITY
MERCURY, TOT RECOVERABLE	0.0060	0.0019	0.0041	60	0.0102	0.100	2.1684	0.9348	0.0102	0.0000	0.0003	0.0090	WATER QUALITY
MOLYBDENUM		0		i				0.738	0.7380	0.0000	0.0000		SLUDGE
NICKEL, TOT RECOVERABLE	4.0997	1.302	2.7977	42	4.8235	1.000	21.6840	9,84	4.8235	0.4278	0,0323	3.9270	WATER QUALITY
SELENIUM	0.0755	0	0.0755	50	0.1510			1.968	0,1510	0.0000	0.0000	0.1359	WATER QUALITY
SILVER, TOT RECOVERABLE	0.1159	0.0371	0.0788	75	0.3151	0.250	5.4210		0.3151	0.2139	0.0008	0.0903	WATER QUALITY
ZINC, TOT RECOVERABLE	23.4201	7.508	15.9121	79	75.7718	1.000	21.6840	93.41772152	21.6840	3.8506	0.9299	15,2132	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 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	DAILY AVG	DAILY AVG	DAILY AVG	DAILY AVG	DAILY AVG									
	(MGD)	ANTIMONY	ARSENIC	CADMIUM	CHROMIUM	HEX CHROM	COPPER	CYANIDE	LEAD	MERCURY	Molybdenum	NICKEL	SELENIUM	SILVER	ZINC
		(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)									
Aaron Oil Co (IU414900244) SA1	0.0250	0.0000	0.0992	0.0413	0.4870	0.0000	0.3010	0.0000	0.0500	0.0000	0.0000	0.1550	0.0000	0.0000	4.4600
Qualawash Holdings (IU414900629)	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.8400	0.0000	0.0500	0.0031	0.0000	0.0000	0.0000	0.0100	0.0000
					-										
/				į.											
				į.											
		- 1													
		8													
							_	,							
Total Industrial flow	0.0350														

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	DAILY AVG	DAILY AVG	DAILY AVG	DAILY AVG	DAILY AVG									
	(MGD)	ANTIMONY	ARSENIC	CADMIUM	CHROMIUM	HEX CHROM	COPPER	CYANIDE	LEAD	MERCURY	Molybdenum	NICKEL	SELENIUM	SILVER	ZINC
		(LBS/D)	(LBS/D)	(LBS/D)	(LBS/D)	(LBS/D)									
Aaron Oil Co (IU414900244) SA1	0.025	0.0000	0.0207	0.0086	0.1015	0.0000	0.0628	0.0000	0.0104	0.0000	0.0000	0.0323	0.0000	0.0000	0.9299
Qualawash Holdings (IU414900629)	0,01	0.0000	0.0000	0.0000	0.0000	0.0000	0.0701	0.0000	0.0042	0.0003	0.0000	0.0000	0.0000	0.0008	0,0000
	1								]						
								i							
						i									
"					ľ										
		1 1	-	-									1		
								Ì							
,		,							,						
	\.														
	0.0350	0.0000	0.0207	0.0086	0.1015	0.0000	0.1328	0.0000	0.0146	0.0003	0.0000	0.0323	0.0000	0.0009	0.0000
	0,0000	5.0000	0.0201	0.0000	0.1010	0.0000	V. 1320	0.0000	0.0140	0.0003	0.0000	0.0323	0.0000	0.0008	0.9299

# CURRENT PERMITTED INDUSTRIAL LOADING TO POTW (LBS/DAY)

PARAMETER	
ANTIMONY	0.0000
ARSENIC	0.0207
CADMIUM	0.0086
CHROMIUM	0.1015
HEX CHROM	0.0000
COPPER	0.1328
CYANIDE	0.0000
LEAD	0.0146
MERCURY	0.0003
Molybdenum	0.0000
NICKEL	0.0323
SELENIUM	0.0000
SILVER	0.0008
ZINC	0.9299
ZINC	0.9299