

# LOCAL LIMITS

**PUBLICLY OWNED TREATMENT WORKS:** TOWN CREEK WWTP

**LOCATION:** JASPER, ALABAMA  
WALKER COUNTY

**PERMIT NUMBER:** AL0023418

## 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	0.0984
Cadmium, Total Recoverable	0.1617
Chromium, Total Recoverable	100.4
Copper, Total Recoverable	8.439
Cyanide, Free	0.8586
Lead, Total Recoverable	1.603
Mercury, Total Recoverable	0.0015
Nickel, Total Recoverable	9.088
Silver, Total Recoverable	0.5525
Zinc, Total Recoverable	17.85

No future loading above the domestic wastewater concentration of Cyanide will be allowed. All new or expanding industrial dischargers containing this pollutant shall be limited as indicated below:

<u>Parameter</u>	<u>Allowable Average Concentration</u>
Cyanide, Free	(mg/l) 0.04

**HYDRAULIC LOADING:**

The hydraulic loading on an average basis is the design capacity of the treatment plant which is 4.8 million gallons per day.

**ORGANIC LOADING:**

The organic loading (CBOD<sub>5</sub>) is the design capacity of the treatment plant which is 6685 pounds per day.

**SOLIDS LOADING**

The Total Suspended Solids loading (TSS) is the design capacity of the treatment plant which is 8006 pounds per day.

**EFFECTIVE DATE:**

**ISSUANCE DATE:**

**DRAFT**

---

**Alabama Department of Environmental Management**

## Rationale for Local Limits

Jasper Town Creek WWTP (AL0023418)  
4.8 MGD Activated sludge facility  
Jasper/ Walker County

Reissuance  
Prepared Date: 11/20/2018  
Prepared By: Ed Hughes  
Revised Date: 5/6/2019

### Nonconventional Pollutants:

#### Pass Through:

Allowable pollutant loadings were based on state water quality standards applicable to streams with a use designated of Limited Warmwater Fishery. Local limits calculations were performed using a receiving stream 7Q10 of 0.72 cfs, 7Q2 of 2.07 cfs, an annual average flow of 25.73 cfs and a stream hardness of 100 mg/l as CaCO<sub>3</sub>. 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 land application. According to information provided by the POTW, 287.2 dry tons of sludge are land applied annually. Based on this information the POTW generates 0.79 TPD with an average wastewater flow of 4.04 MGD. Using the design flow of 4.8 MGD this equates to 0.94 TPD. This value was used in developing local limits for this facility.

The POTW’s Municipal Water Pollution Prevention Reports for the past three years show that the concentration of Nickel in the sludge was well within the EPA 503 standard for land application. Based on this site specific data which shows that Nickel is in compliance with EPA 503 regulations, a sludge disposal related restriction is not required for this pollutant.

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>	<u>Limiting Factor</u>
Cyanide, Free	Water Quality

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, 4.8 MGD.

#### Organic loading:

The organic loading limit (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 CBOD<sub>5</sub> 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: (5/6/2019)**

An error was detected in the Mercury calculation on the local limit spreadsheet for streams classified as LWF. Making this correction resulted in an increase in the Mercury allocation at the headworks of the WWTP. This change is reflected in the revised local limit document.

**LOCAL LIMIT/ PASS THROUGH CALCULATIONS**

POTW NAME: Jasper Town Creek WWTP  
 NPDES PERMIT NUMBER: AL0023418

DATE REVISED: 5/6/2019  
 PREPARED BY: Ed Hughes

STREAM DATA AND POTW FLOW DATA					
RECEIVING STREAM CLASSIFICATION	=	LWF	3	RECEIVING STREAM TIDALLY INFLUENCED =	No
POTW DESIGN FLOW	=		4.8 MGD		
FLOW FROM OTHER CONTRIBUTORS	=		MGD		
DOMESTIC FLOW	=		3.125 MGD		
7Q10	=		0.72 CFS	OR	0.465 MGD
1Q10	=		0.54 CFS	OR	0.349 MGD
7Q2	=		2.07 CFS	OR	1.337 MGD
ANNUAL AVG FLOW	=		25.73 CFS	OR	16.622 MGD
STREAM HARDNESS (DEFAULT VALUE 100)	=		100 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	16.393	16.393	ANTIMONY, TR
ARSENIC, TRIVALENT	0.1500	----	7.678	0.3400	----	14.600	0.00030	0.054	0.054	ARSENIC, TRI
CADMIUM, TOT RECOVERABLE	0.0002	----	0.053	0.0020	----	0.366	----	----	0.053	CADMIUM, TR
CHROMIUM, TOT RECOVERABLE	0.0741	----	18.064	0.5698	----	116.507	----	----	18.064	CHROMIUM, TR
CHROMIUM, HEXAVALENT	0.0110	----	0.563	0.0160	----	0.687	----	----	0.563	CHROMIUM, HEX
COPPER, TOTAL RECOVERABLE	0.0090	----	1.181	0.0134	----	1.484	----	----	1.181	COPPER, TR
CYANIDE, FREE	0.0052	----	0.266	0.0220	----	0.945	9.3333	409.84	0.266	CYANIDE, FREE
LEAD, TOT RECOVERABLE	0.0025	----	0.625	0.0646	----	13.462	----	----	0.625	LEAD, TR
MERCURY, TOT RECOVERABLE	0.000012	----	0.002	0.0024	----	0.341	0.0000424	0.002	0.00186	MERCURY, TR
MOLYBDENUM	----	----	----	----	----	----	----	----	----	MOLYBDENUM
NICKEL, TOT RECOVERABLE	0.0520	----	5.271	0.4682	----	39.815	0.9929078	43.600	5.271	NICKEL, TR
SELENIUM, TOTAL RECOVERABLE	0.0005	----	0.026	0.0020	----	0.086	2.4305556	106.728	0.026	SELENIUM, TR
SILVER, TOT RECOVERABLE	----	----	----	0.0032	----	0.138	----	----	0.138	SILVER, TR
ZINC, TOT RECOVERABLE	0.1181	----	18.324	0.1172	----	15.248	14.8936170	654.00	15.248	ZINC, TR

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

TYPE OF TREATMENT =	2	Act Sludge	<b>SLUDGE DISPOSAL</b>	
TREATMENT INCLUDE NITIFICATION?	No		DOES THE POTW HAVE SECONDARY CLARIFICATION?	Yes
			AVERAGE TONS OF SLUDGE PER DAY (DRY WEIGHT)	0.94
			IS SLUDGE LAND APPLIED?	Yes
<b>GROWTH ALLOCATION</b>				
			% 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 (LBS/D)	12) INHIBITION TRESHOLD (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	16.3935	0	16.3935	0	16.3935				16.3935	0.0261	0.0000	14.7307	WATER QUALITY
ARSENIC, TRIVALENT	0.0541	0	0.0541	45	0.0984	0.100	4.0032	0.31333333	0.0984	0.0261	0.0000	0.0651	WATER QUALITY
CADMIUM, TOT RECOVERABLE	0.0534	0	0.0534	67	0.1617	1.000	40.0320	0.238507463	0.1617	0.0782	0.0438	0.0357	WATER QUALITY
CHROMIUM, TOT RECOVERABLE	18.0643	0	18.0643	82	100.3574	5.000	200.1600	-----	100.3574	1.3031	1.0696	88.1862	WATER QUALITY
CHROMIUM, HEXA VALENT	0.5630	0	0.5630	83	3.3119	1.000	40.0320	-----	3.3119	0.0000	0.0000	2.9807	WATER QUALITY
COPPER, TOTAL RECOVERABLE	1.1814	0	1.1814	86	8.4388	1.000	40.0320	9.4	8.4388	1.5638	1.2948	5.0222	WATER QUALITY
CYANIDE, FREE	0.2662	0	0.2662	69	0.8586	0.100	4.0032	-----	0.8586	1.0425	0.0250	-0.1880	WATER QUALITY
LEAD, TOT RECOVERABLE	0.6253	0	0.6253	61	1.6033	1.000	40.0320	2.588852459	1.6033	1.3031	0.0313	0.2421	WATER QUALITY
MERCURY, TOT RECOVERABLE	0.0019	0	0.0019	60	0.0047	0.100	4.0032	0.1786	0.0047	0.0000	0.0000	0.0042	WATER QUALITY
MOLYBDENUM		0						0.141	0.1410	0.0000	0.0000	-----	SLUDGE
NICKEL, TOT RECOVERABLE	5.2711	0	5.2711	42	9.0882	1.000	40.0320	-----	9.0882	0.5213	1.4887	6.3704	WATER QUALITY
SELENIUM	0.0256	0	0.0256	50	0.0512			0.376	0.0512	0.0000	0.0000	0.0461	WATER QUALITY
SILVER, TOT RECOVERABLE	0.1381	0	0.1381	75	0.5525	0.250	10.0080	-----	0.5525	0.2606	0.1501	0.1276	WATER QUALITY
ZINC, TOT RECOVERABLE	15.2481	0	15.2481	79	72.6102	1.000	40.0320	17.84810127	17.8481	4.6913	0.9257	11.0080	SLUDGE

Jasper has provided site specific data which shows that the nickel concentration in the POTW's sludge complies with EPA 503 req'ts. Based on this a sludge disposal related limit is not being proposed.

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.

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 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.