

LANCE R. LEFLEUR
DIRECTOR



KAY IVEY
GOVERNOR

AUGUST 31, 2020

Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

MS TERA TUBBS
DIRECTOR
TUSCALOOSA WATER AND SEWER DEPARTMENT
2201 UNIVERSITY BLVD
TUSCALOOSA AL 35401

Re: DRAFT LOCAL LIMITS
CITY OF TUSCALOOSA
HILLIARD N FLETCHER WWTP
NPDES PERMIT NO. AL0022713

Dear Ms. Tubbs:

This letter is to provide notification that ADEM has revised the draft local limits document for the Hilliard N Fletcher WWTP. The revision includes the change in flow for Quest Liner as previously discussed. Also it includes the metal limitations and loading for Quest Liner which were inadvertently left out of the previous version of the local limits documents. 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 10 days from the date of this letter.

Assuming that you have no additional comments, ADEM proposes to proceed to public notice 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
List of Significant Industrial Users

CC: GAF-Elk Corporation
Mercedes-Benz U S International Inc

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)

Merichem Company
Nucor Steel Tuscaloosa Inc
Phifer Inc
Peco Foods Inc
Quest Liner
Southern Ionics Inc
Warrior Asphalt Inc
Sandra Lee
Wayne Holt

LOCAL LIMITS

PUBLICLY OWNED TREATMENT WORKS: HILLIARD N FLETCHER WWTP

LOCATION: TUSCALOOSA, ALABAMA
TUSCALOOSA COUNTY

PERMIT NUMBER: AL0022713

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	0.1735
Cadmium, Total Recoverable	0.5065
Chromium, Total Recoverable	288.6
Copper, Total Recoverable	23.68
Cyanide, Free	4.356
Lead, Total Recoverable	3.796
Mercury, Total Recoverable	0.0258
Nickel, Total Recoverable	25.65
Silver, Total Recoverable	1.014
Zinc, Total Recoverable	200.2

No future loading above the domestic wastewater concentration of Arsenic, Cadmium, Cyanide, Lead or Silver will be allowed. All new or expanding industrial dischargers containing these pollutants shall be limited as indicated below:

<u>Parameter</u>	<u>Allowable Average Concentration</u> (mg/l)
Arsenic, Trivalent	0.001
Cadmium, Total Recoverable	0.003
Cyanide, Free	0.04
Lead, Total Recoverable	0.05
Silver, Total Recoverable	0.01

HYDRAULIC LOADING:

The hydraulic loading on an average basis is the design capacity of the treatment plant which is 24 million gallons per day.

ORGANIC LOADING:

The organic loading (CBOD₅) is the design capacity of the treatment plant which is 33,427 pounds per day.

SOLIDS LOADING

The Total Suspended Solids loading (TSS) is the design capacity of the treatment plant which is 40,032 pounds per day.

EFFECTIVE DATE:

ISSUANCE DATE:

DRAFT

Alabama Department of Environmental Management

Rationale for Local Limits

Hilliard N Fletcher WWTP
24 MGD activated sludge facility
Tuscaloosa/ Tuscaloosa County

(AL0022713)

Reissuance
Prepared Date: 11/4/2018
Prepared By: Ed Hughes
Revised: 2/13/2020, 8/19/2020

Nonconventional Pollutants:

Pass Through:

Hilliard N Fletcher WWTP routes wastewater to Cribbs Mill Creek during periods when the Black Warrior River flow is above 2500 cfs because hydraulic conditions make it impossible to discharge to the river. This option was evaluated in developing these limits because this is the most limiting discharge scenario. 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 11.05 cfs, 1Q10 of 11.05 cfs, an annual average flow of 21.31 cfs and a stream hardness of 50 mg/l as CaCO₃. The stream flow values are not the actual 7Q10 or 1Q10 but are being utilized in these calculations to be consistent with Tuscaloosa's NPDES permit which requires a minimum stream flow of 11.05 cfs in Cribbs Mill Creek during the summer months in order for the POTW to discharge the plant's design flow of 24 MGD to this outfall. 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.

Hunt Refinery discharges to the Black Warrior River near the Tuscaloosa WWTP. Northport WWTP discharges to Mill Creek which flows to the Black Warrior River in this same stream segment. The allowable pollutant loadings from these discharges were taken into consideration when developing local limits for the Tuscaloosa WWTP. Calculations indicate that adequate pollutant loading is available for all discharges based on proposed local limits for the two POTWs and existing permit limits for Hunt's discharge.

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. Specifically, these calculations estimate that no additional loading of Arsenic, Cadmium, Cyanide, Lead or Silver above the domestic sewage concentration can be allowed; therefore, new and expanded discharges shall be limited to domestic sewage concentrations.

The limiting factor for each of these pollutants is shown below:

<u>Parameter</u>	<u>Limiting Factor</u>
Arsenic, Trivalent	Water Quality
Cadmium, Total Recoverable	Water Quality
Cyanide, Free	Water Quality
Lead, Total Recoverable	Water Quality
Silver, Total Recoverable	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 is the design capacity of the treatment plant as indicated by the POTW, 24 MGD.

Organic loading:

The organic loading (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.

Revision Date (2/13/2020):

The local limit spreadsheet was revised to update SUI loadings based on recent SID permit reissuance(s).

Revision Date (8/19/2020):

The local limit spreadsheet was revised to update the flow for one of the SIUs. Also it includes metal limits and loadings for this facility which were inadvertently left out of the previous version of the spreadsheet. These changes did not affect the list of pollutants which are currently over-allocated.

TYPE OF TREATMENT =	2	Act Sludge
TREATMENT INCLUDE NOTIFICATION?	No	
SLUDGE DISPOSAL		
DOES THE POTW HAVE SECONDARY CLARIFICATION?	Yes	
AVERAGE TONS OF SLUDGE PER DAY (DRY WEIGHT)	43	
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)	8) ALLOWABLE DISC FROM POTW (LBS/D)	10) REMOVAL RATE (%)	11) ALLOWABLE DISCHARGE (LBS/D)	12) INHIBITION THRESHOLD (MG/L)	13) ALLOWABLE DISCHARGE (LBS/D)	14) ALLOWABLE DISCHARGE (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	96.9522	0	96.9522	0	96.9522				96.9522	0.1933	0.0000	87.0830	WATER QUALITY
ARSENIC, TRIVALENT	0.0954	0	0.0954	45	0.1735	0.100	20.0160	-----	0.1735	0.1933	0.0000	-0.0178	WATER QUALITY
CADMIUM, TOT RECOVERABLE	0.1671	0	0.1671	67	0.5065	1.000	200.1600	-----	0.5065	0.5800	0.0100	-0.0752	WATER QUALITY
CHROMIUM, TOT RECOVERABLE	51.9519	0	51.9519	82	288.6216	5.000	1000.8000	-----	288.6216	9.6672	5.9049	245.7446	WATER QUALITY
CHROMIUM, HEXAVALENT	2.8566	0	2.8566	83	16.8037	1.000	200.1600	-----	16.8037	0.0000	0.0000	15.1233	WATER QUALITY
COPPER, TOTAL RECOVERABLE	3.3151	0	3.3151	85	23.6795	1.000	200.1600	-----	23.6795	11.6005	3.6679	7.6599	WATER QUALITY
CYANIDE, FREE	1.3504	0	1.3504	69	4.3561	0.100	20.0160	-----	4.3561	7.7338	0.1338	-3.1603	WATER QUALITY
LEAD, TOT RECOVERABLE	1.4804	0	1.4804	61	3.7960	1.000	200.1600	-----	3.7960	9.6672	0.1694	-5.4385	WATER QUALITY
MERCURY, TOT RECOVERABLE	0.0103	0	0.0103	60	0.0258	0.100	20.0160	-----	0.0258	0.0000	0.0004	0.0228	WATER QUALITY
MOLYBDENUM		0						-----	0.0000	0.0000	0.0000		
NICKEL, TOT RECOVERABLE	14.8784	0	14.8784	42	25.6524	1.000	200.1600	-----	25.6524	3.8689	7.9397	12.4613	WATER QUALITY
SELENIUM	0.1298	0	0.1298	50	0.2597			-----	0.2597	0.0000	0.0000	0.2337	WATER QUALITY
SILVER, TOT RECOVERABLE	0.2536	0	0.2536	75	1.0143	0.250	50.0400	-----	1.0143	1.9334	0.0334	-0.8572	WATER QUALITY
ZINC, TOT RECOVERABLE	51.2654	0	51.2654	79	244.0732	1.000	200.1600	-----	200.1600	34.8019	4.9464	144.3706	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 Q_{10} 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 Q_{10} x 8.34 x Item 3. For LWF streams, Item 4 = stream Q_{2} 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 $7Q_{10}$ 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. This includes the permitted loading from Hunt Refinery and the loading allowed for Northport WWTP.

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.

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)
GAF - ELK Corp (IU396300129)	0.0045	0.0000	0.0000	0.0000	0.0483	0.0000	0.1878	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2425
Mercedes-Benz (IU396300520)	0.2000	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
Merichem (IU396300012)	0.0182	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
Nucor Steel (IU396300346)	0.0063	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0500	0.0000	0.0000	0.0000	0.0000	0.0000	0.0003
Phifer Inc (IU396300404)	0.2000	0.0000	0.0000	0.0030	1.7100	0.0000	2.0700	0.0400	0.0500	0.0000	0.0000	2.3800	0.0000	0.0100	1.4800
Peco Foods (IU396300066)	0.2512	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
Quest Liner (IU396300491)	0.0160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0600	0.0000	0.0000	0.0031	0.0000	0.0000	0.0000	0.0000	0.0000
Tuscaloosa V A (IU396300601)	0.0563	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
Southern Ionics (IU396300245)	0.0567	0.0000	0.0000	0.0000	0.4200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Warrior Asphalt (IU396300096)	0.0081	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
Total Industrial flow	0.8173														

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)
GAF - ELK Corp (IU396300129)	0.0045	0.0000	0.0000	0.0000	0.0018	0.0000	0.0070	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0091
Mercedes-Benz (IU396300520)	0.2	0.0000	0.0000	0.0050	2.8523	0.0000	0.1001	0.0667	0.0834	0.0000	0.0000	3.9698	0.0000	0.0167	2.4686
Merichem (IU396300012)	0.0182	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
Nucor Steel (IU396300346)	0.006325	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Phifer Inc (IU396300404)	0.2	0.0000	0.0000	0.0050	2.8523	0.0000	3.4528	0.0667	0.0834	0.0000	0.0000	3.9698	0.0000	0.0167	2.4686
Peco Foods (IU396300066)	0.2512	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
Quest Liner (IU396300491)	0.016	0.0000	0.0000	0.0000	0.0000	0.0000	0.0080	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
Tuscaloosa V A (IU396300601)	0.0563	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
Southern Ionics (IU396300245)	0.05667	0.0000	0.0000	0.0000	0.1985	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Warrior Asphalt (IU396300096)	0.0081	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
	0.8173	0.0000	0.0000	0.0100	5.9049	0.0000	3.5679	0.1338	0.1694	0.0004	0.0000	7.9397	0.0000	0.0334	4.9464

CURRENT PERMITTED INDUSTRIAL LOADING TO POTW (LBS/DAY)

PARAMETER	
ANTIMONY	0.0000
ARSENIC	0.0000
CADMIUM	0.0100
CHROMIUM	5.9049
HEX CHROM	0.0000
COPPER	3.5679
CYANIDE	0.1338
LEAD	0.1694
MERCURY	0.0004
Molybdenum	0.0000
NICKEL	7.9397
SELENIUM	0.0000
SILVER	0.0334
ZINC	4.9464