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PINE BLUFF WASTEWATER UTILITY

1520 S. OHIO ST. • PINE BLUFF, ARKANSAS 71601-6055 • PHONE: (870) 535-6603 • FAX (870) 535-6243

April 17, 2007

APR 24 2007
sw
AE

Mr. Allen Gilliam,
Pretreatment Coordinator-ADEQ
8001 National Drive
Little Rock, AR 72209

RE: Program Modification Submittal Request

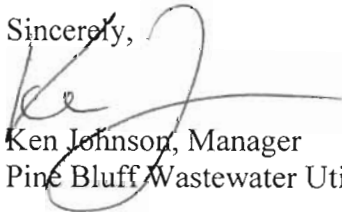
Mr. Gilliam,

Pine Bluff Wastewater Utility would like to submit a request for a program modification to be included in our Pretreatment Program. We are submitting 3 copies of the following: An ordinance to support page 49 to be included in Appendix C and information on the Technical Based Local Limits to be included in Appendix P.

*inserted into 3 copies of the city's P.P. Subsequently sent revisions back re: ZN concerns.
AE*

We hope that all materials enclosed will meet your specifications. If you should have any further questions or concerns, please feel free to contact me at (870) 535-6603. If possible, we would like for your approval within the next 30 days.

Sincerely,


Ken Johnson, Manager
Pine Bluff Wastewater Utility

Cc: Vincent Miles, Environmental Compliance Supervisor

NPDES PERMIT FILE
NPDES # 33316
AFIN # 35-00149
Permit PN
✓ Correspondence
✓ Technical Backup
4-24-07 sw Date Scanned

MISSION

We are committed to providing our customers with efficient, reliable service while protecting the public health and maintaining a clean environment.

Page 1 of 1

10/2/20

Appendix
C

1 **ORDINANCE # _____**
2
3

4 **AN ORDINANCE AMENDING ORDINANCE 5301 OF THE CITY OF PINE BLUFF**
5

6 **WHEREAS**, the City of Pine Bluff is required to implement a federal Environmental
7 Protection Agency Industrial Pretreatment Program;

8 **WHEREAS**, the Industrial Pretreatment Program is used to control and regulate
9 facilities that discharge non-domestic wastewater into the City of Pine Bluff's sewer
10 collection system;

11 **WHEREAS**, this program requires the issuance of permits or an equivalent control
12 mechanism to regulate the amount of waste that may be discharged by facilities;

13 **WHEREAS**, the proper implementation of this program is incumbent upon having
14 adequate administrative, procedural, and enforceable changes to the program;

15 **WHEREAS**, the local pretreatment program must have general discharge
16 prohibitions and maximum allowable limitations to control the amount of waste
17 discharged into the wastewater facility so as not to cause harm to wastewater
18 treatment personnel, environmental degradation, or damages to the wastewater
19 system;

20 **NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF**
21 **PINE BLUFF, ARKANSAS:**

22 That Section 32-69(e) of Ordinance 5301 of the City of Pine Bluff, Arkansas is
23 hereby amended to read as follows:

24 The Wastewater Utility shall establish specific Technically Based Local Limits
25 (TBLL) for any and all users of the system on an as-needed basis. These limits will
26 be based on an allocation system designed to protect the Maximum Allowable
27 Headworks Loadings (MAHL) discussed in Section 9 and Appendix P of the City's

City of Pine Bluff
City Council

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The Wastewater Utility reserves the right to modify these limitations as necessary to meet compliance guidelines in accordance with its pretreatment program. These changes supersede or replace previous ordinances, control mechanisms, or permits as it relates to discharge limitations pertaining to the local industrial pretreatment program.

PASSED AND APPROVED THIS THE _____ DAY OF _____, 2007.

Mayor

Sponsor

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

1992-1993

1992-1993

Appendix
P

Pollutant	% Rem	Water Quality		PINE BLUFF				MAHL	MAHC^^	Domestic	Allocation for %SF	MAIL	Max Influent vs MAHC	Max Effluent vs WQS(mg/l)
		mg/l	lbs/day	Sludge mg/kg	Sludge+ lbs/day	Inhibition** mg/l	Inhibition++ lbs/day							
Cadmium Total	67	0.0681	18.9452	85	0	1.00	91.74	18.95	0.21	0.07	15.16	15.08	No	No
Copper Total	86	0.2107	138.0473	4300	0	1.00	91.74	91.74	1.00	3.71	73.39	69.69	No	No
Lead Total	61	0.2588	60.8876	840	0	1.00	91.74	60.89	0.66	0.36	48.71	48.35	No	No
Mercury Total	60	0.00018	0.0421	57	0	0.10	9.17	0.04	0.00046	0.02	0.03	0.01	No	No
Nickel Total	42	6.4427	1019.0512	420	0	1.00	91.74	91.74	1.00	1.43	73.39	71.96	No	No
Selenium Total	50	0.0716	13.1347	100	0	0.20	18.35	13.13	0.14	0.18	10.51	10.33	No	No
Silver Total	75	0.0590	21.6334			0.25	22.94	21.63	0.24	0.07	17.31	17.24	No	No
Zinc Total	79	1.6621	726.1120	7500	0	0.30	27.52	27.52	0.30	9.68	22.02	12.33	0.3960	No
Chromium Total	82	11.5458	5884.4966	3000	0	1.00	91.74	91.74	1.00	0.78	73.39	72.61	No	No
Cyanide Total	69	0.0796	23.5517			0.10	9.17	9.17	0.10	0.72	7.34	6.62	No	No
Arsenic	45			75	0	0.10	9.17	9.17	0.10	0.36	7.34	6.98	No	No
Molybdenum	50			75	0	0.20	18.35	18.35	0.20	0.00	14.68	14.68		
Dry tons/day of sludge		0.00	Safety Factor	0.20										
lbs/day = mg/l * 8.34 * average flow / (1-%Rem)				Average flow =		11.00		MGD						
* Page 3-44 of EPA														
lbs/day = (dry tons/day * 0.002 * criteria(mg/kg)) / % Rem														
+ lbs/day = mg/l * average Flow * 8.34														
- lbs/day = (1 - SF) * MAHL														
MAIL = Maximum allowable industrial loading = Allocation for % SF - Domestic														
MAHL = Maximum allowable headworks level (most stringent of WQ, Sludge, and inhibition in unit of lbs/day)														
^ MAHL = Maximum allowable headworks level in unit of mg/l ((MAHL(lbs/day))/(8.34 * Q(MGD)))														
***** = Not Available														

PRETREATMENT									
Permittee	PINE BLUFF								
Receiving Stream	Arkansas River								
Permit number	AR0033316								
Design Flow (Qd)	14.00	MGD	Average Flow (Qa)	11	MGD				
Design Flow (Qd)	21.63	CFS	Industries Flow (Qi)	2.4	MGD				
Q10 =	1100.00	CFS	Domestic Flow(Qdo)	8.60	MGD				
Long Term Average =	4065.86	CFS	TSS for:						
Using Diffusers	no	Yes/No	Gulf Coastal	5.5 mg/l	Ouach Mount = 2 mg/l				
H =	7.88	S.U.	Ark River Valley	= 3 mg/l	Ozark Highlands = 2.5 mg/l				
Total Hardness	125.00	mg/l	Boston Mount	= 1.3 mg/l	Delta = 8 mg/l				
SS	8.3	mg/l							
Chronic Aquatic Toxicity:	0.25	Total Hardness for:							
Acute Aquatic Toxicity:	0.06	Arkansas River = 125 mg/l				Red River = 211 mg/l			
		Ouachita River = 28 mg/l				St. Francis River = 103 mg/l			
For the following receiving enter 0.06 in cell "C17"									
		White River = 116 mg/l							
Mississippi, Arkansas, Red River.			Gulf Coastal = 31 mg/l			Ouachita Mount = 31 mg/l			
White (Below confluence with Black River)			Ozark Highlands = 148 mg/l			Ark River Valley = 25 mg/l			
Ouachita (below Confluence with Little Miss. River)			Boston Mount = 25 mg/l			Delta = 81 mg/l			
Poststream Flow (Qb) =	275.00	(Chronic)	66.00	(Acute)					
Pollutant Concentration Upstream (Cb) =	0 ug/l								
Water Effect Ratio(WER)	1.00								
Cancer Risk Level:	1.00E-05 (STATE); 1.00e-6 (EPA)								
*C = Instream concentration of pollutant after mixing with the receiving stream									
*C = (Cd*Qd + Cb*Qb)/(Qb +Qd)									
*C = Pollutant concentration in the effluent (ug/l) - Reported value as Total									

Allen Gillman

8/19/03 - Pine Bluff WQ calc's for Copper

H = 125 ppm TSS = 8.3 ppm

$[1.942(LW H)] - 1.464$

$C_{mc} = e^{-1.942(LW H) - 1.464} \times .96$
 $= e^{-(1.9422 \times 4.828) - 1.464} \times .96 = (e^{-3.085}) = 21.87$

solved

$= 21.867 \times .96$
 $= 21 \text{ ppb}$

$[.8545(LW TSS)] - 1.465$

$(e^{-2.6607}) = 14.3$

$C_{cc} = e^{-.8545(LW TSS) - 1.465} \times .96$

$= 13.7 \text{ ppb}$

Convert to Total

$K_p = K_{p0} \times TSS^2$

$= 1.04(10^6) \times 8.3^2$

$= 72089$

$= .217(10^4)$

$\frac{C}{C_T} = \frac{1 + (K_p)(TSS)(10^{-4})}{1 + (K_p)(TSS)}$

$= \frac{1}{1 + (.217 \times 8.3)}$

$= \frac{1}{2.8}$

$= 35676$

Total $C_{mc} = \frac{21}{35676}$

$= 58.86 \text{ ppb}$ ✓

Total $C_{cc} = \frac{13.7}{35676}$

$= 38.4 \text{ ppb}$ ✓

8/19/03 Pine Bluff WQ calc's for Copper (cont)

Calc. Wasteload Allocation

Acute
$$WLA_a = \frac{\{ [WQS_{conc} \times (Q_d + Q_b)] - (Q_b \times C_b) \}}{Q_d}$$

$$[58.84 \times (14 + .02 \times 715)]$$

$$= \frac{3349}{14}$$

$$= 239.22$$

$$WLA_c = \frac{WQS_{conc} \times [14 + (.25 \times 715)] - 0}{14}$$

$$= 528.7$$

Calc Long Term Avg

$$LTA_a = .57 \times 239.22$$

$$= 136.355$$
 more restrictive

$$LTA_c = .72 \times 528.7$$

$$= 380.65$$

Avg Monthly level

$$AML = LTA_c \times 1.55$$

$$= 590.01$$
 ✓

Recalc

10/4/03 Pine Bluff WQ calcs for Arsenic

Allen Gilliam

Not Hardness dependent TSS = 8.3 ppm

CFR 131

$$CME = 340 \text{ ppb} \quad (C.F. = 1)$$

$$CCC = 150 \text{ ppb}$$

Convert to Total

$$K_p = K_{pa} \times TSS^2 \quad [COP \text{ A.H. Table}]$$
$$= (.48)(8.3^{1.73})$$

$$= .102 (10^4)$$

$$\frac{C}{C_T} = \frac{1}{1 + (K_p)(TSS)(10^{-4})}$$

$$= .542$$

Acute
↑
WQS

$$\text{Total CMC} = \frac{340}{.542}$$

$$= .627 \text{ ppm}$$

↓
Chronic

$$\text{Total CCC} = .277 \text{ ppm}$$

$$WLA_a = WQS \times \left(\frac{Q_d + Q_b}{Q_d} \right) - 0$$

$$= \frac{.627 \times [14 + (.06 \times 715)]}{14}$$

$$= 2.54 \text{ ppm}$$

$$WLA_c = \frac{.277 \times [14 + (.25 \times 715)]}{14}$$

$$= 3.81 \text{ ppm}$$

$$LTA_a = .57 \times WLA_a$$

$$= 1.45 \text{ ppm} \quad \checkmark \text{ more restrictive}$$

$$LTA_c = .72 \times WLA_c$$

$$= 2.74 \text{ ppm}$$

$$\therefore AML = 2.24 \text{ ppm}$$