



ARKANSAS
Department of Environmental Quality

March 19, 2008

Denise Bosnick, Pretreatment Coordinator
City of West Memphis
P O Box 1868
West Memphis, AR 72301

Re: AFIN 18-00109 AR0022039 City of West Memphis Maximum Allowable Headworks Loadings and Water Quality Levels not to be Exceeded - Guidance

Dear Ms. Bosnick:

Please find enclosed the final excel spreadsheet indicating your POTW's maximum allowable headworks and industrial loadings (MAHLs and MAILs) and water quality (WQ) levels not to be exceeded. These are highlighted in the grey columns.

This spreadsheet is the culmination of several other spreadsheets (also attached) that takes into account your city's site specific data for influent, effluent (from the last two annual reports thru 3/07), domestic background and removal efficiencies. If you wish to discuss these spreadsheets, please feel free to contact this office.

You may accept these spreadsheet calculations as guidance, accurate and valid. Or, hire a consultant engineer to calculate these numbers separately and submit a certification statement that a technical evaluation has demonstrated that the existing technically based local limits (TBLL) are based on current state water quality standards and are adequate to prevent pass through of pollutants, inhibition of or interference with the treatment works, worker health and safety problems, and sludge contamination.

Also enclosed is a copy of your influent/effluent summary sheet which reflects the above calculated numbers. Copies of this sheet (should you accept this office's MAHLs and MAILs) should be made for subsequent years' annual reports. Various assumptions were made regarding removal efficiencies because of all the influent/effluent non-detect values reported. These are footnoted by "***" on the excel spreadsheet. Other assumptions were made regarding domestic background analysis for the same reason. EPA's "Guidance Manual on the Development and Implementation of Local Discharge Limits" ('87) was followed.

At this point, it appears local limits are not necessary for any of EPA's suggested pollutants of concern. Through your quarterly monitoring, you should be capable of determining if either your MAHLs or WQ levels are in danger of being exceeded. If this is the case in the future, local limits should be allocated from the MAILs and implemented through your system of industrial permitting.

Feel free to contact this office with any questions.

Sincerely,

Rufus Torrence
ADEQ Engineer

Attachments

CALCULATIONS OF ARKANSAS WATER QUALITY-BASED EFFLUENT LIMITATIONS

For an Arkansas River/Stream

(Reserved)

STEP 1: INPUT TWO LETTER CODE FOR ECOREGION (Use Code at Right)
Basin Name

DL
Miss River

FACILITY

Permittee	W Memphis
NPDES Permit No.	AR0022039
Outfall No.(s)	001
Plant Average Flow (MGD)	4.60
Total SIU Flow (MGD)	0.69
Domestic Flow (MGD)	3.91
Plant Design Flow (MGD)	6.30
Plant Design Flow (cfs)	9.73

RECEIVING STREAM

Is this a large river? (see list at right)(enter "1" if yes, "0" if no; make entry as a number)	1
Name of Receiving Stream:	Miss River
Waterbody Segment Code No.	6C
Is this a lake or reservoir? (enter '1' if yes, '0' = no; make entry as a number)	0
Is seasonal critical flow applicable (1=yes, 0=no); 7Q10<1 & watershed <10 sq miles. See Reg 2	0
(Reserved) DO NOT INPUT DATA INTO CELL H25, H26 & H27....LEAVE BLANK=:	?
(Reserved)	?
(Reserved)	?
(Reserved)	(Reserved)
(Reserved)	(Reserved)
(Reserved)	(Reserved)
Ecoregion TSS (mg/l) (For Large River, See List to Right)	8.00
Ecoregion Hardness (mg/l)	81.00
Enter 7Q10 (cfs) as the Critical Flow (Reserved)	100000.00 (Reserved)
Long Term Ave / Harmonic Mean Flow (cfs)	300000.00 (Reserved)(Reserved)
Using Diffusers (Yes/No)	No
pH (Avg)	7.00
Percent (%) of Critical Flow for Chronic Criteria	0.25
Percent (%) of Critical Flow for Acute Criteria	0.06
Water Effect Ratio (WER)	1.00
Ave Monthly Limit LTA Multiplier (Ref: page 103 TSD for WQ-Based Toxics Control)	1.55
Max Daily Limit LTA Multiplier (Ref: " " " ")	3.11

Large Rivers

Mississippi River, Arkansas River, Red River
White (Below confluence with Black River)
Ouachita (Below confluence with Little Miss. River)

For industrial and federal facility, use the highest monthly average flow for the past 24 months. For POTWs, use the design flow.

#VALUE! => No violation or Not Applicable

WQ Limits for the City of W Memphis

Aquatic Life
AML, ug/l

Cadmium Total	6513.57
Chromium (hex)	8570.86
Copper Total	21202.34
Lead Total	30062.83
Mercury Total	34.41
Nickel Total	829045.49
Selenium Total	10909.95
Silver Total	4263.22
Zinc Total	174035.89
Chromium (Tri)	1230842.65
Cyanide Total	12197.32
Beryllium Total	15197.78
Arsenic	361640.24

W Memphis MAHC

Pollutant	% Rem***	Water Quality mg/l	Water Quality* lbs/day	Sludge mg/kg	Sludge+ lbs/day	Inhibition** mg/l	Inhibition++ lbs/day	MAHL lbs/day	MAHC mg/l	Domestic lbs/day	Allocation for %SF lbs/day^	MAIL lbs/day	Max Inf Exceeded MAHC	Max Effluent vs WQS(mg/l)
Cadmium Total	67	6.5136	757.2321	85	0.47	1.00	38.36	0.468	0.01219	0.07	0.35	0.286	No	No
Copper Total	80	21.2023	4067.0336	4300	19.82	1.00	38.36	19.821	0.51666	3.26	14.87	11.605	No	No
Lead Total	61	30.0628	2957.2570	840	5.08	1.00	38.36	5.078	0.13237	1.63	3.81	2.178	No	No
Mercury Total	60	0.03441	3.3003	57	0.35	0.10	3.84	0.350	0.00913	0.0098	0.2627	0.253	No	No
Nickel Total	42	829.0455	54837.0711	420	3.69	1.00	38.36	3.688	0.09612	0.65	2.77	2.114	No	No
Selenium Total	50	10.9099	837.0986	100	0.74	0.20	7.67	0.738	0.01922	0.16	0.55	0.390	No	No
Silver Total	75	4.2632	654.2163	0	0.00	0.25	9.59	9.591	0.25000	0.16	7.19	7.030	No	No
Zinc Total	44	174.0359	11922.7017	7500	62.86	0.429	16.46	16.458	0.42900	4.96	12.34	7.387	No	No
Chromium Total	82	1230.8427	262333.5975	3000	13.49	1.00	38.36	13.491	0.35167	1.63	10.12	8.488	No	No
Cyanide Total	69	12.1973	1509.4778	0	0.00	0.10	3.84	3.836	0.10000	1.34	2.88	1.540	No	No
Arsenic	45	361.6402	25225.3927	75	0.61	0.10	3.84	0.615	0.01602	0.10	0.46	0.363	No	No
Molybdenum	50	0.0000	0.0000	75	0.55	0.20	7.67	0.553	0.01442	0.33	0.41	0.089	No	No
Beryllium	50	15.197778	1166.0951	0	0.00	0.10	3.84	3.8364	0.10000	0.02	2.88	2.861	No	No

Dry tons/day of sludge **1.84** Safety Factor **0.25**

* lbs/day = mg/l * 8.34 * average flow / (1-%Rem)

** Page 3-44 of EPA 833B87202 Be est @ 0.10 mg/l

+ lbs/day = (dry tons/day * 0.002 * critria(mg/kg)) / % Rem

++ lbs/day = mg/l * Flow * 8.34

^ lbs/day = (1 - SF) * MAHL

MAIL = Maximum allowable industrial loading = Allocation for % SF - Domestic

***Copper and Zinc removal eff from "Rem" spreadsheet; others found on Page 3-56 EPA 833B87202 (Be & Mo est @ 50)

