

ADEQ

ARKANSAS
Department of Environmental Quality

March 4, 2008

Lisa Ellington
Environmental Service Manager
1901 Jones Road
P.O. Box 9
Paragould, Arkansas 72451

Re: City of Paragould Maximum Allowable Headworks Loadings and Water Quality Levels not to be Exceeded
- Guidance (NPDES #AR0033766)

Dear Ms. Ellington:

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 1/07), 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, specifically regarding selenium local limits for Martin Sprocket.

Sincerely,



Allen R. Gilliam
ADEQ State Pretreatment Coordinator

Attachments

Paragould 3/08

Pollutant	% Rem***	Water Quality mg/l	Water Quality lbs/day	Water Quality* lbs/day	Sludge mg/kg	Sludge lbs/day	Inhibition*** mg/l	Inhibition** lbs/day	Inhibition** mg/l	MAHL lbs/day	MAHL mg/l	Domestic Allocation for %SF lbs/day	Domestic Allocation for %SF lbs/day^	MAIL lbs/day	Max Inf Exceeder MAHC	Max Effluent vs WQS(mg/l)
Cadmium Total	70	0.0040	0.3173	85	0.19	23.85	1.00	23.85	0.189	0.00794	0.13	0.170	0.036	No	No	
Copper Total	87	0.0295	5.4080	4300	7.71	23.85	1.00	23.85	5.408	0.22673	1.04	4.867	3.827	No	No	
Lead Total	61	0.0117	0.7156	840	2.15	23.85	1.00	23.85	0.716	0.03000	0.64	0.644	0.008	No	No	
Mercury Total	95	0.00001	0.0064	57	0.09	2.39	1.00	2.39	0.006	0.00027	0.0019	0.006	0.004	No	No	
Nickel Total	42	0.3227	13.2691	420	1.56	23.85	1.00	23.85	1.560	0.06540	0.87	1.404	0.537	No	No	
Selenium Total	50	0.0056	0.2662	100	0.31	4.77	0.20	4.77	0.266	0.01116	0.02	0.240	0.220	No	No	
Silver Total	95	0.0069	3.2939	0	0.00	5.96	0.25	5.96	3.294	0.13810	0.19	2.965	2.772	No	No	
Zinc Total	67	0.2819	20.3737	7500	17.46	11.93	0.50	11.93	11.926	0.50000	2.83	10.734	7.902	No	No	
Chromium Total	82	0.8168	108.2432	3000	5.71	23.85	1.00	23.85	5.707	0.23928	0.46	5.137	4.674	No	No	
Cyanide Total	69	0.0058	0.4465	0	0.00	2.39	0.10	2.39	0.447	0.01872	0.08	0.402	0.325	No	No	
Arsenic	45	0.3905	16.9344	75	0.26	2.39	0.10	2.39	0.260	0.01090	0.48	0.234	0.000	No	No	
Molybdenum	21	0.0000	0.0000	75	0.56	4.77	0.20	4.77	0.557	0.02336	0.08	0.501	0.424	No	No	
Beryllium	50	0.005915	0.2822	0	0.00	2.39	0.10	2.39	0.2822	0.01183	0.01	0.254	0.248	No	No	

Dry tons/day of sludge **0.78** Safety Factor **0.10**

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

** Page 3-44 of EPA Guidance Mtrl. (Be est. @ 0.10 mg/l)

*** EPA Default Numbers from page 3-56 of TBLI guidance manual except for Cd, Cu, Ag, Zn & Mo. (Be est. @ 50%; Hg est. @ 95%)

**** lbs/day = dry tons/day * 0.002 * CFR 503 critical / % removal from EPA Pret. Prog. Implementation workshop mtrl. ~ 6/93

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

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

MAIL = Maximum allowable industrial loading = MAHL - Allocation for % SF - Domestic lb/day

CALCULATIONS OF ARKANSAS WATER QUALITY-BASED EFFLUENT LIMITATIONS

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

For an Arkansas River/Stream
(Reserved)
DL
St. Francis

FACILITY

Permittee & Date
NPDES Permit No.
Outfall No. (s)
Plant Ave Flow (MGD)
SILUS Ave Flow (MGD)
Domestic Flow (MGD)
Plant Design Flow (MGD)
Plant Design Flow (cfs)

Paragould 3/08
AR0033768
1.00
2.86
0.55
2.31
6.00
9.27

RECEIVING STREAM

Is this a large river? (see list at right)(enter "1" if yes, "0" if no, make entry as a number) 0
Name of Receiving Stream: unnamed trib
Waterbody Segment Code No. 5A
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); see Reg 2 page 1-3 for details. 0
(Reserved) DO NOT INPUT DATA INTO CELL H22, H23 & H24...LEAVE BLANK
(Reserved)
(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) (Reserved) 0.00
Long Term Ave / Harmonic Mean Flow (cfs) 0.00
Using Diffusers (Yes/No) No
pH (Avg) 7.80
Percent (%) of 7Q10 for Chronic Criteria 0.67
Percent (%) of 7Q10 for Acute Criteria 0.33
Water Effect Ration (WER) 1.00
EPA Statistical Factor for Data (enter 2.13 for <20; enter 1 for >20) 2.13
Ave Monthly Limit LTA Multiplier (Ref: page 103 TSD for WQ-Based Toxics Control) 1.55
Max Daily Limit LTA Multiplier (Ref: " " " " " ") 3.11

Codes & TSS for Ecoregions and Large Rivers

Ouachita Mts. Eco (OM) = 2.0 mg/l Arkansas (Ft. Smith to Dardanelle Dan 12.0 mg/l
Ozark Highlands Eco (OH) = 2.5 mg/l Arkansas (Dardanelle Dam to Terry L& 10.5 mg/l
Boston Mts. Eco (BM) = 1.3 mg/l Arkansas (Terry L&D to L&D No. 5) 8.3 mg/l
Ark River Valley Eco (AV) = 3.0 mg/l Arkansas (L&D No. 5 to Mouth) 9.0 mg/l

Gulf Coastal Eco (GC) = 5.5 mg/l White (Above Beaver Lake) 2.5 mg/l
Delta Ecoregion (DL) = 8.0 mg/l White (Below Bull Shoals to Black Riv) 3.3 mg/l
White (From Black River to Mouth) 18.5 mg/l
St. Francis River 18.0 mg/l
Ouachita (Above Caddo River) 2.0 mg/l
Ouachita (Below Caddo River) 5.5 mg/l
Red River 33.0 mg/l

Total Hardness for:
Arkansas River = 125 mg/l Red River = 211 mg/l
Ouachita River = 28 mg/l St. Francis River = 103 mg/l
White River = 116 mg/l

Gulf Coastal = 31 mg/l Ouachita Mount = 31 mg/l
Ozark Highlands = 148 mg/l Ark River Valley = 25 mg/l
Boston Mount = 25 mg/l Delta = 81 mg/l

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

WQ Levels not exceed for Paragould 3/08

Aquatic Life
AML, ug/l

Cadmium Total	3.99
Chromium (hex)	11.81
Copper Total	29.47
Lead Total	11.70
Mercury Total	0.01
Nickel Total	322.65
Selenium Total	5.58
Silver Total	6.90
Zinc Total	281.87
Chromium (Tri)	816.85
Cyanide Total	5.80
Beryllium Total	5.91
Arsenic	390.48

MONITORING RESULTS FOR THE ANNUAL PRETREATMENT REPORT
REPORTING YEAR: _____, 20 _____ TO _____, 20 _____
TREATMENT PLANT: City of Parsgould NPDES PERMIT #AR0033766
AVERAGE POTW FLOW: _____ MGD % IU FLOW: _____ %

METALS, CYANIDE and PHENOLS (Total)	MAHL (mg/l) (2)	Influent Dates Sampled (mg/l) Once/quarter			WC level/ limit (mg/l) (2)	Effluent Dates Sampled (mg/l) Once/quarter			Laboratory Analysis	
									Required EPA MQL (ug/l) (1)	Detection Level Achieved (ug/l)
Antimony	N/A				N/A				60	
Cadmium	0.00794				0.0040				.5	
Copper	0.22673				0.0295				.5	
Lead	0.03000				0.0117				.5	
Mercury	0.00027				0.00001				.005	
Nickel	0.06540				0.3227				.5	
Selenium	0.01116				0.0056				5	
Silver	0.13810				0.0069				.5	
Zinc	0.50000				0.2819				20	
Chromium	0.23928				0.8168				10	
Cyanide	0.01872				0.0058				10	
Arsenic	0.01090				0.3905				.5	
Molybdenum	0.02336				--				--	
Phenols	N/A				N/A				5	
Beryllium	0.01183				0.005915				.5	
Thallium	N/A				N/A				.5	
Flow, MGD	N/A				N/A					
(3)										

- (1) It is advised that the influent and effluent samples are collected considering flow detention time through each plant. **Analytical MQLs must be met for the effluent (and SHOULD be met for the influent) so the data can also be used for Local Limits assessment and NPDES application purposes. See attached PPS form for minimum mqls.**
- (2) This value was calculated during the development of TELL based on State WQ criteria, EPA guidance and ADEQ Pretreatment staff Excel spreadsheets.
- (3) Record the name of any pollutant [40 CFR 122, Appendix D, Table II and/or Table V] detected and the quantity at which they were detected.

MAHL - Maximum Allowable Headworks Level

WQ - "Water Quality Levels not to exceed" OR actual permit limits

PPS ATTACHMENT

METALS AND CYANIDE	Required MQLs (ug/l)
Antimony , Total Recoverable	60
Arsenic , Total Recoverable	.5
Beryllium, Total Recoverable	.5
Cadmium , Total Recoverable	.5
Chromium Total Recoverable	10
Chromium (6+) Dissolved	10
Copper, Total Recoverable	.5
Lead, Total Recoverable	.5
Mercury, Total Recoverable	0.005
Nickel, Total Recoverable	.5
Selenium, Total Recoverable	5
Silver, Total Recoverable	.5
Thallium, Total Recoverable	.5
Zinc, Total Recoverable	20
Phenols, Total Recoverable	5
Cyanide, Total Recoverable	10