Minerals Calculations

Permittee: City of Yellville

Permit No.: AR0034037

Receiving Stream: Crooked Creek

Design flow (Qe) = 0.75 MGD = 1.15875 CFS SOURCE: application

Municipalities = Design Flow
Industrial discharges = Highest monthly average flow of the last two years

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Qb (Harmonic Mean or 4 cfs) = 6.3 CFS Qb (7Q10), drink = 0 CFS Drinking Water Use removed? no

4 CFS is only for those streams with Site Specific Mineral Criteria marked with an * in Reg. 2.511(A)

SOURCE: harmonic mean is from USGS Station 07055608 (Crooked Creek @ Yellville)

Reported Value (Ce) =

Chlorides (Cl) =		mg/l
Sulfates (SO4) =		mg/l
Total Dissolved Solids (TDS) =	326.7	mg/l

Pollutant Concentration Upstream (Cb) =

Chlorides =		mg/l
Sulfates =		mg/l
TDS =	143	mg/l

Cb for small streams (7Q10 < 100 CFS) by ecoregion are as follows:

	Cl	SO4	TDS
Gulf Coastal Plains	5	13	67
Ouachita Mts.	3	6	53
Ark. River Valley	4	4	51
Boston Mts.	3	3	37
Ozark Highlands	6	6	143
Delta	9	10	188

Cb for large streams for the closest upstream station are as follows:

	SO4	Cl	TDS
Red River			

	SO4	Cl	TDS
Arkansas River			

	SO4	Cl	TDS
White River			

RED 25	116	152	565	ARK 38	47	96	341	WHIT 36	7	6	146
At Index	133	182	635	ARK 33	48	99	347	WHIT 31	6	6	146
RED 09	65	93	387	ARK 32	49	100	350	WHIT 29	7	5	157
				ARK 31	47	99	336	At Calico Rock	7	4	153
Ouachita River				ARK 30	44	92	315	WHIT 46	6	5	146
				ARK 29	43	88	294				
OUA 08A	13	38	127	ARK 46	50	83	304	**St. Francis**			
OUA 30	12	10	60	ARK 48	46	78	298	FRA 13	14	8	141
				ARK 20	40	77	298				

Stream

Chlorides (Cl):

IWC = (Cb*Qb + Ce*Qe)/(Qb +Qe)

IWC = 0 mg/l

Sulfates (SO4):

IWC = (Cb*Qb + Ce*Qe)/(Qb +Qe)

IWC = 0 mg/l

Total Dissolved Solids (TDS):

IWC = (Cb*Qb + Ce*Qe)/(Qb +Qe)

IWC = 171.5386 mg/l

Drinking Water

Chlorides (Cl):

IWC = (Cb*Qb + Ce*Qe)/(Qb +Qe)

IWC = 0 mg/l

Sulfates (SO4):

IWC = (Cb*Qb + Ce*Qe)/(Qb +Qe)

IWC = 0 mg/l

Total Dissolved Solids (TDS):

IWC = (Cb*Qb + Ce*Qe)/(Qb +Qe)

IWC = 326.7 mg/l

Stream

	Reported Value (Cd, mg/l)	WQS (Reg. No. 2) mg/l	IWC (mg/l)	Does IWC Exceed WQS?	Limits (mg/l) Monthly Average
Chlorides (Cl)	0		0	No	None
Sulfates (SO4)	0		0	No	None
Total Dissolved Solids (TDS)	326.7	238	171.5386	No	None

Secondary Drinking Water

	Reported Value (Cd, mg/l)	Secondary Drinking Water (mg/l)	IWC (mg/l)	Does IWC Exceed SDW?	Limits (mg/l) (Monthly Avg)

Chlorides (Cl)	0	250	0	No	None
Sulfates (SO4)	0	250	0	No	None
Total Dissolved Solids (TDS)	326.7	500	326.7	No	None

Permit Engineer: _____ Date: _____

Reviewing Engineer: _____ Date: _____

COLOR KEY

	User Inputs
	Calculated values