2019 WQC

WATER QUALITY CALCULATIONS FOR METALS AND OTHER TOXIC SUBSTANCES
WATER QUALITY BASED EFFLUENT CALCULATIONS
OUTFALL 001

FACILITY:	PERMIT #:	DATE:	CALC BY:
Town of Rossville	TN0064092	3/2/2023	MTS

non-regulated stream worksheet (7Q10)

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]	
99.4	117.1	2.2	25	25	50	Wolf River at mile 43.7 is non-wadeable

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	Stream	Fish/Aqua. Life (F & AL) WQC			F & AL- instream allowable		Calc. Effluent Concentration		Human Health Water Quality Criteria *						effluent	
	Bckgrnd.	lab conditions		Fraction	ambient conditions (Tot)		based on F & AL		In-Stream Criteria			Calc. Effluent Concentration **			limited	
	Conc.	Chronic	Acute	Dissolved	Chronic	Acute	Chronic	Acute	Organisms	Water/Organisms	DWS	Organisms	Water/Organisms	DWS	case	
PARAMETER	[ug/l]	[ug/l]	[ug/l]	[Fraction]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	ug/l	**PARAMETER**
Copper (a,b)	1.25	2.739	3.640	0.296	9.242	12.281	**185.17**	**255.34**	N/A	N/A	N/A	**N/A**	**N/A**	**N/A**	**80.0**	**Copper (a,b)**
Chromium III	61.96	23.813	183.066	0.192	123.917	952.627	**1461.61**	**20596.65**	N/A	N/A	N/A	**N/A**	**N/A**	**N/A**		**Chromium III**
Chromium VI	5.50	11.000	16.000	1.000	11.000	16.000	**129.75**	**245.20**	N/A	N/A	N/A	**N/A**	**N/A**	**N/A**		**Chromium VI**
Chromium, Total		N/A	N/A	N/A	N/A	N/A	**N/A**	**N/A**	N/A	N/A	100.0	**N/A**	**N/A**	**2710.29**	**60.0**	**Chromium, Total**
Nickel (a,b)	23.69	16.096	144.918	0.340	47.383	426.611	**558.89**	**9315.31**	4600.0	610.0	100.0	**124043.10**	**15902.51**	**2080.02**	**180.0**	**Nickel (a,b)**
Cadmium (a,b)	0.46	0.253	0.492	0.276	0.917	1.783	**10.82**	**30.80**	N/A	N/A	5.0	**N/A**	**N/A**	**123.32**	**5.0**	**Cadmium (a,b)**
Lead (a,b)	1.06	0.541	13.882	0.158	3.424	87.877	**55.13**	**2005.16**	N/A	N/A	5.0	**N/A**	**N/A**	**107.32**	**45.0**	**Lead (a,b)**
Mercury (T) (c)	0.03	0.770	1.400	1.000	0.770	1.400	**17.21**	**31.76**	0.051	0.05	2.0	**0.72**	**0.69**	**53.54**	**0.4**	**Mercury (T) (c)**
Silver (a,b,e)	0.15	N/A	0.296	1.000	N/A	0.296	**N/A**	**3.50**	N/A	N/A	N/A	**N/A**	**N/A**	**N/A**	**5.0**	**Silver (a,b,e)**
Zinc (a,b)	6.21	36.498	36.202	0.236	154.870	153.613	**3435.67**	**3406.66**	26000.0	7400.0	N/A	**704510.34**	**200396.30**	**N/A**	**200.0**	**Zinc (a,b)**
Cyanide (d)	2.60	5.200	22.000	1.000	5.200	22.000	**61.33**	**449.25**	140.0	140.0	200.0	**3725.24**	**3725.24**	**5351.41**	**230.0**	**Cyanide (d)**
Toluene	0.000								15000.0	1300.0	1000.0	**406543.58**	**35233.78**	**27102.91**	**15.0**	**Toluene**
Benzene	0.000								510.0	22.0	5.0	**13822.48**	**596.26**	**135.51**	**3.0**	**Benzene**
1,1,1 Trichloroethane	0.000								N/A	N/A	200.0	**N/A**	**N/A**	**5420.58**	**30.0**	**1,1,1 Trichloroethane**
Ethylbenzene	0.000								2100.0	530.0	700.0	**56916.10**	**14364.54**	**18972.03**	**4.0**	**Ethylbenzene**
Carbon Tetrachloride	0.000								16.0	2.3	5.0	**433.65**	**62.34**	**135.51**	**15.0**	**Carbon Tetrachloride**
Chloroform	0.000								4700.0	57.0	N/A	**127383.66**	**1544.87**	**N/A**	**85.0**	**Chloroform**
Tetrachloroethylene	0.000								33.0	6.9	5.0	**894.40**	**187.01**	**135.51**	**25.0**	**Tetrachloroethylene**
Trichloroethylene	0.000								300.0	25.0	5.0	**8130.87**	**677.57**	**135.51**	**10.0**	**Trichloroethylene**
1,2 trans Dichloroethylene	0.000								10000.0	140.0	100.0	**N/A**	**3794.41**	**2710.29**	**1.5**	**1,2 trans Dichloroethylene**
Methylene Chloride	0.000								5900.0	46.0	5.0	**159907.14**	**1246.73**	**N/A**	**50.0**	**Methylene Chloride**
Total Phenols	0.000								860000.0	10000.0	N/A	**23308498.82**	**271029.06**	**N/A**	**50.0**	**Total Phenols**
Naphthalene	0.000								N/A	N/A	N/A	**N/A**	**N/A**	**N/A**	**1.0**	**Naphthalene**
Total Phthalates	0.000								N/A	N/A	N/A	**N/A**	**N/A**	**N/A**	**64.5**	**Total Phthalates**
Chlorine (T. Res.)	5.500	11.000	19.000	1.000	11.000	19.000	**259.49**	**628.93**	N/A	N/A	N/A	**N/A**	**N/A**	**N/A**	**N/A**	**Chlorine (T. Res.)**

a Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness.
b The criteria for this metal is in the dissolved form at lab conditions. The calculated effluent concentration is in the total recoverable form.
c The chronic criteria for mercury is not converted to dissolved, since it is based on fish tissue data rather than toxicity.
d The criteria for this parameter is in the total form.
e Silver limit is daily max if column 8 is most stringent.
f When columns 7 or 8 result in a negative number, use results from columns 5 or 6, respectively.
g When columns 12, 13 or 14 result in a negative number, use results from columns 9, 10 or 11, respectively, as applicable.

* Domestic supply not included in river use so pick from columns 7,8,12 or 15
** Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

Revions Date	Revision Description
September 30, 2019	Updated Cadimum for 2019 F&A WQS update

DWR Station ID	Date	Characteristic [unit]	Value	1/2 of MDL	MDL Measure	Unit	Detection Condition
WOLF044.4FA	5/21/2009	Copper	1.3	0.65	1.3	ug/l	
WOLF044.4FA	4/23/2009	Copper	1.9	0.65	1.3	ug/l	
WOLF044.4FA	3/17/2009	Copper	2.9	0.1	0.2	ug/l	
WOLF044.4FA	2/17/2009	Copper	0.73	0.1	0.2	ug/l	
WOLF044.4FA	1/20/2009	Copper	0.91	0.1	0.2	ug/l	
WOLF044.4FA	12/11/2008	Copper	3.9	0.19	0.38	ug/l	
WOLF044.4FA	11/20/2008	Copper	0.02	0.01	0.02	ug/l	Not Detected
WOLF044.4FA	10/22/2008	Copper	0.55	0.1	0.2	ug/l	
WOLF044.4FA	9/16/2008	Copper	0.54	0.1	0.2	ug/l	
WOLF044.4FA	8/19/2008	Copper	0.39	0.1	0.2	ug/l	
WOLF044.4FA	7/15/2008	Copper	0.64	0.1	0.2	ug/l	
			1.25				

DWR Station ID	Date	Characteristic [unit]	Value	1/2 of MDL	MDL Measure	Unit	Detection Condition
WOLF044.4FA	5/21/2009	Lead	1.2	0.15	0.3	ug/l	
WOLF044.4FA	4/23/2009	Lead	1.4	0.15	0.3	ug/l	
WOLF044.4FA	3/17/2009	Lead	2.1	0.15	0.3	ug/l	
WOLF044.4FA	2/17/2009	Lead	0.38	0.15	0.3	ug/l	
WOLF044.4FA	1/20/2009	Lead	0.86	0.15	0.3	ug/l	
WOLF044.4FA	12/11/2008	Lead	3	0.05	0.1	ug/l	
WOLF044.4FA	11/20/2008	Lead	0.3	0.15	0.3	ug/l	
WOLF044.4FA	10/22/2008	Lead	0.34	0.15	0.3	ug/l	
WOLF044.4FA	9/16/2008	Lead	0.6	0.15	0.3	ug/l	
WOLF044.4FA	8/19/2008	Lead	0.78	0.15	0.3	ug/l	
WOLF044.4FA	7/15/2008	Lead	0.65	0.15	0.3	ug/l	
			1.06				

DWR Station ID	Date	Characteristic [unit]	Value	1/2 of MDL	MDL Measure	Unit	Detection Condition
WOLF044.4FA	5/21/2009	Zinc	2.8	1	2	ug/l	
WOLF044.4FA	4/23/2009	Zinc	11	1	2	ug/l	
WOLF044.4FA	3/17/2009	Zinc	11	1	2	ug/l	
WOLF044.4FA	2/17/2009	Zinc	8.1	1	2	ug/l	
WOLF044.4FA	1/20/2009	Zinc	2	1	2	ug/l	Not Detected
WOLF044.4FA	12/11/2008	Zinc	12	0.95	1.9	ug/l	
WOLF044.4FA	11/20/2008	Zinc	2.9	1	2	ug/l	
WOLF044.4FA	10/22/2008	Zinc	6.3	1	2	ug/l	
WOLF044.4FA	9/16/2008	Zinc	4.5	1	2	ug/l	
WOLF044.4FA	8/19/2008	Zinc	4.4	1	2	ug/l	
WOLF044.4FA	7/15/2008	Zinc	3.3	1	2	ug/l	
			6.21				

DWR Station ID	Date	Characteristic [unit]	Value	1/2 of MDL	MDL Measure	Unit	Detection Condition
WOLF044.4FA	6/3/2019	Total suspended solids	16.8	0.175	0.35	mg/l	
WOLF044.4FA	5/1/2019	Total suspended solids	22	0.175	0.35	mg/l	
WOLF044.4FA	4/2/2019	Total suspended solids	9.6	0.175	0.35	mg/l	
WOLF044.4FA	3/21/2019	Total suspended solids	14.5	0.175	0.35	mg/l	
WOLF044.4FA	2/5/2019	Total suspended solids	15.9	0.175	0.35	mg/l	
WOLF044.4FA	1/10/2019	Total suspended solids	17	0.175	0.35	mg/l	
WOLF044.4FA	12/6/2018	Total suspended solids	19.4	0.175	0.35	mg/l	
WOLF044.4FA	11/15/2018	Total suspended solids	8.1	0.175	0.35	mg/l	
WOLF044.4FA	10/8/2018	Total suspended solids	13.5	0.175	0.35	mg/l	
WOLF044.4FA	9/11/2018	Total suspended solids	20.4	0.175	0.35	mg/l	
WOLF044.4FA	8/23/2018	Total suspended solids	14.8	0.175	0.35	mg/l	
WOLF044.4FA	7/17/2018	Total suspended solids	11.5	0.175	0.35	mg/l	
WOLF044.4FA	6/17/2014	Total suspended solids	47	5	10	mg/l	
WOLF044.4FA	4/23/2014	Total suspended solids	21	5	10	mg/l	
WOLF044.4FA	3/19/2014	Total suspended solids	18	5	10	mg/l	
WOLF044.4FA	2/18/2014	Total suspended solids	21	5	10	mg/l	
WOLF044.4FA	1/22/2014	Total suspended solids	13	5	10	mg/l	
WOLF044.4FA	12/12/2013	Total suspended solids	31	5	10	mg/l	
WOLF044.4FA	11/14/2013	Total suspended solids	10	5	10	mg/l	Not Detected
WOLF044.4FA	10/16/2013	Total suspended solids	20	5	10	mg/l	
WOLF044.4FA	9/24/2013	Total suspended solids	51	5	10	mg/l	
WOLF044.4FA	8/21/2013	Total suspended solids	10	5	10	mg/l	Not Detected
WOLF044.4FA	7/24/2013	Total suspended solids	45	5	10	mg/l	
WOLF044.4FA	6/17/2009	Total suspended solids	81	5	10	mg/l	
WOLF044.4FA	5/21/2009	Total suspended solids	36	5	10	mg/l	
WOLF044.4FA	4/23/2009	Total suspended solids	50	5	10	mg/l	
WOLF044.4FA	3/17/2009	Total suspended solids	38	5	10	mg/l	
WOLF044.4FA	2/17/2009	Total suspended solids	10	5	10	mg/l	Not Detected
WOLF044.4FA	1/20/2009	Total suspended solids	14	5	10	mg/l	
WOLF044.4FA	12/11/2008	Total suspended solids	74	5	10	mg/l	
WOLF044.4FA	11/20/2008	Total suspended solids	10	5	10	mg/l	Not Detected
WOLF044.4FA	10/22/2008	Total suspended solids	10	5	10	mg/l	
WOLF044.4FA	9/16/2008	Total suspended solids	20	5	10	mg/l	
WOLF044.4FA	8/19/2008	Total suspended solids	23	5	10	mg/l	
WOLF044.4FA	7/15/2008	Total suspended solids	18	5	10	mg/l	
WOLF044.4FA	6/16/2004	Total suspended solids	43			mg/l	
WOLF044.4FA	5/19/2004	Total suspended solids	44			mg/l	
WOLF044.4FA	4/27/2004	Total suspended solids	22			mg/l	
WOLF044.4FA	3/16/2004	Total suspended solids	15			mg/l	
WOLF044.4FA	2/18/2004	Total suspended solids	25			mg/l	
WOLF044.4FA	1/21/2004	Total suspended solids	10	5	10	mg/l	Not Detected
			25				

DWR Station ID	Date	Characteristic [unit]	Value	1/2 of MDL	MDL Measure	Unit	Detection Condition
WOLF044.4FA	6/17/2009	Total hardness	16	0.7	1.4	mg/l	
WOLF044.4FA	5/21/2009	Total hardness	17	0.7	1.4	mg/l	
WOLF044.4FA	4/23/2009	Total hardness	16	0.7	1.4	mg/l	
WOLF044.4FA	3/17/2009	Total hardness	13	0.7	1.4	mg/l	
WOLF044.4FA	2/17/2009	Total hardness	12	0.7	1.4	mg/l	
WOLF044.4FA	1/20/2009	Total hardness	12	0.7	1.4	mg/l	
WOLF044.4FA	12/11/2008	Total hardness	12	0.7	1.4	mg/l	
WOLF044.4FA	11/20/2008	Total hardness	13	0.7	1.4	mg/l	
WOLF044.4FA	10/22/2008	Total hardness	13	0.7	1.4	mg/l	
WOLF044.4FA	9/16/2008	Total hardness	12	0.7	1.4	mg/l	
WOLF044.4FA	8/19/2008	Total hardness	11	0.7	1.4	mg/l	
WOLF044.4FA	7/15/2008	Total hardness	13	0.7	1.4	mg/l	
WOLF044.4FA	11/1/2004	Total hardness	9	0.5	1	mg/l	
WOLF044.4FA	10/27/2004	Total hardness	6	0.5	1	mg/l	
WOLF044.4FA	10/20/2004	Total hardness	7	0.5	1	mg/l	
WOLF044.4FA	6/16/2004	Total hardness	16			mg/l	
WOLF044.4FA	5/19/2004	Total hardness	14			mg/l	
WOLF044.4FA	4/27/2004	Total hardness	17			mg/l	
WOLF044.4FA	3/16/2004	Total hardness	13			mg/l	
WOLF044.4FA	2/18/2004	Total hardness	13			mg/l	
WOLF044.4FA	1/21/2004	Total hardness	11			mg/l	
			13				

Rossville	PTL	85%	PTL	Oct-22	May-22	Oct-21	Apr-21	Oct-20	Apr-20	Oct-19	Apr-19	Oct-18	Apr-18
TN0064092	2/4/2019	PTLs	3/16/2023										
COPPER	0.08000	0.06800	0.08000	0.00240	0.00390	0.00180	0.00540	0.00360	DNS	0.00490	DNS	0.00690	0.00960
CHROMIUM, III	Report	n/a	Report	0.01000	0.01000	0.01000	0.01000	0.01000	DNS	0.01000	DNS	0.01000	0.00100
CHROMIUM, VI	Report	n/a	Report	0.01000	0.01000	0.01000	0.01000	0.01000	DNS	0.01000	DNS	0.01000	0.00100
CHROMIUM, TOTAL	n/a	n/a	n/a	0.00100	0.00100	0.00100	0.00100	0.01000	DNS	0.00100	DNS	0.00100	0.00182
NICKEL	0.18000	0.15300	0.18000	0.00190	0.00210	0.00150	0.00110	0.00210	DNS	0.00110	DNS	0.00150	0.00210
CADMIUM	0.00328	0.00425	0.00500	0.00010	0.00010	0.00010	0.00010	0.00010	DNS	0.00010	DNS	0.00010	0.00010
LEAD	0.02811	0.03825	0.04500	0.00060	0.00100	0.00050	0.00070	0.00060	DNS	0.00060	DNS	0.00120	0.00400
MERCURY	0.00040	0.00034	0.00040	0.00020	0.00020	0.00020	0.00020	**0.00122**	DNS	0.00020	DNS	0.00020	0.00020
SILVER	0.00287	0.00298	0.00350	0.00010	0.00010	0.00010	0.00010	0.00010	DNS	0.00010	DNS	0.00010	0.00010
ZINC	0.20000	0.17000	0.20000	0.02000	0.02000	0.02000	0.02000	0.02000	DNS	0.02000	DNS	0.00548	0.01690
CYANIDE	0.05034	0.05213	0.06133	0.00500	0.00500	0.00500	0.00500	0.00500	DNS	0.00500	DNS	0.00500	0.00500
TOLUENE	0.01500	0.01275	0.01500										
BENZENE	0.00300	0.00255	0.00300										
1,1,1 TRICHLOROETHANE	0.03000	0.02550	0.03000										
ETHYLBENZENE	0.00400	0.00340	0.00400										
CARBON TETRACHLORIDE	0.01500	0.01275	0.01500										
CHLOROFORM	0.08500	0.07225	0.08500										
TETRACHLOROETHYLENE	0.02500	0.02125	0.02500										
TRICHLOROETHYLENE	0.01000	0.00850	0.01000										
1,2 TRANSDICHLOROETHYLI	0.00150	0.00128	0.00150										
METHYLENE CHLORIDE	0.05000	0.04250	0.05000										
TOTAL PHENOLS	0.05000	0.04250	0.05000	0.00500	0.00500	0.00500	0.00500	0.00500	DNS	0.00550	DNS	0.00500	0.00500
NAPHTHALENE	0.00100	0.00085	0.00100										
TOTAL PHTHALATES	0.06450	0.05483	0.06450										

Bolded in effluent data exceeds 85% of proposed PTLs

Shaded means detection level

Determining low flows on unregulated streams

Step 1: Use USGS StreamStats to find the drainage area ($A_{outfall}$) and calculate low flow at the point of discharge ($Q_{outfall\_streamstats}$).
Use print > print to pdf to save this output and insert it into permit appendix

Step 2: Use USGS StreamStats to explore the watershed and determine if an appropriate gage is available.
A gage is useable when the **drainage area** (A_{gage}) and the **period of record** representative of the point of discharge.
As a rule of thumb, the A_{gage} should be 0.5 to 1.5 times the $A_{outfall}$
The period of record should be > 10 years and "not too old"

Step 3: If enough gage data is available, use SWToolbox to download gage data and calculate the low flow at the gage (Q_{gage})

$$Q_{outfall} = Q_{gage} * \frac{A_{outfall}}{A_{gage}}$$

Where:

Q_Outfall = Low flow statistic at outfall location
Q_Gage = Low flow statistic at gage location (from SWToolbox output)
A_Outfall = Area draining to outfall
A_Gage = Area draining to gage

	square miles	
A_Outfall:	503.54	StreamStats
A_Gage:	503	#07030500

	7Q10		30Q5		
	cfs	MGD	cfs	MGD	
Q_Gage:	153.640	99.30	180.930	116.94	SW Toolbox from April 1, 1999 - March 31, 2022
Q_Outfall:	**153.80**	**99.40**	**181.12**	**117.06**	

```
Program SWStat          U.S. GEOLOGICAL SURVEY              Seq 00001
Ver. 5.0      Log-Pearson & Pearson Type III Statistics    Run Date / Time
03/13/2018            based on USGS Program A193           3/13/2023 9:52 AM

 Notice -- Log-Pearson Type III or Pearson Type III distributions are used
           for these computations. Users are responsible for assessment
           and interpretation.


       Description:  07030500 WOLF RIVER AT ROSSVILLE, TN
    Year Boundaries:  April  1 - March 31
   Period in report:  April  1, 1999 - March 31, 2022
          Parameter:  7-day low
    Non-zero values:    20
        Zero values:     0
    Negative values:     3  (ignored)

Input time series (zero and negative values not included in listing.)

   235.140   230.000   255.140   193.140   207.860   140.290   143.860   170.570
   190.000   158.000   159.570   172.570   216.140   204.710   194.860   176.860
   209.860   212.000   287.140   266.710


  LOG PEARSON TYPE III Frequency Curve Parameters
  (based on logs of the non-zero values)

  Mean (logs)                                    2.296
  Variance (logs)                                0.007
  Standard Deviation (logs)                      0.086
  Skewness (logs)                                0.050
  Standard Error of Skewness (logs)              0.512
  Serial Correlation Coefficient (logs)          0.613
  Coefficient of Variation (logs)                0.037


Frequency Curve - Parameter values at selected probabilities

   Non-                                  Variance    95-Pct Confidence
 exceedance     Recurrence  Parameter       of          Intervals
 Probability     Interval     Value     Estimate    Lower      Upper
 -----------    ----------  ---------   --------  ---------  ---------
      0.1000         10.00     153.640      1.002    130.450    169.560
```

Program SWStat U.S. GEOLOGICAL SURVEY Seq 00001
Ver. 5.0 Log-Pearson & Pearson Type III Statistics Run Date / Time
03/13/2018 based on USGS Program A193 3/13/2023 9:57 AM

Notice -- Log-Pearson Type III or Pearson Type III distributions are used for these computations. Users are responsible for assessment and interpretation.

Description: 07030500 WOLF RIVER AT ROSSVILLE, TN
Year Boundaries: April 1 - March 31
Period in report: April 1, 1999 - March 31, 2022
Parameter: 30-day low
Non-zero values: 20
Zero values: 0
Negative values: 3 (ignored)

Input time series (zero and negative values not included in listing.)

307.570	262.970	294.200	212.670	234.770	147.370	148.870	248.430
192.770	166.670	179.370	183.730	261.030	211.700	209.870	187.130
227.130	221.600	300.630	331.370				

LOG PEARSON TYPE III Frequency Curve Parameters
(based on logs of the non-zero values)

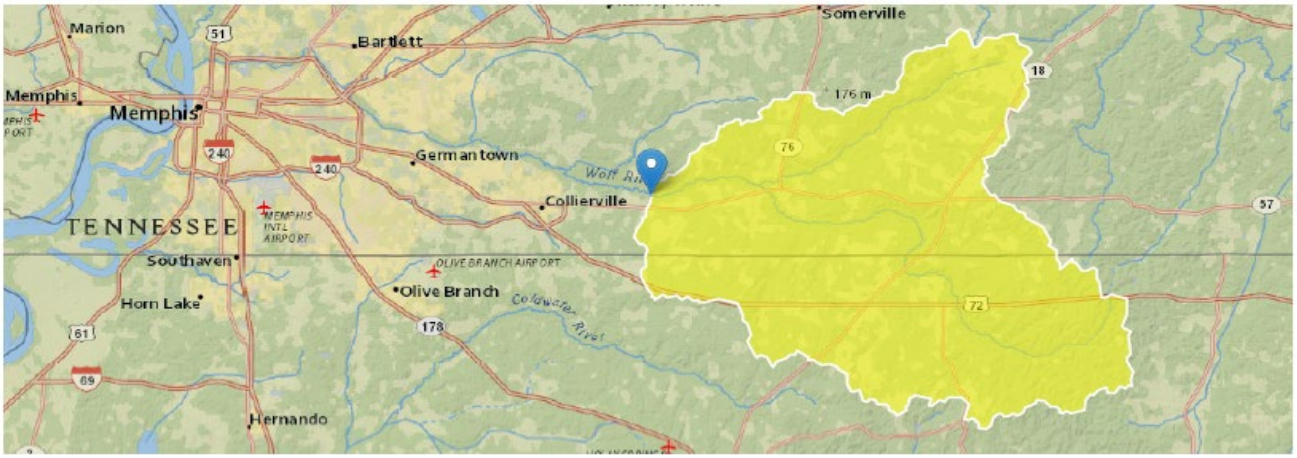
Mean (logs)	2.344
Variance (logs)	0.010
Standard Deviation (logs)	0.102
Skewness (logs)	-0.005
Standard Error of Skewness (logs)	0.512
Serial Correlation Coefficient (logs)	0.427
Coefficient of Variation (logs)	0.044

Frequency Curve - Parameter values at selected probabilities

Non-exceedance Probability	Recurrence Interval	Parameter Value	Variance of Estimate	95-Pct Confidence Intervals Lower	Upper
0.2000	5.00	180.930	1.008	154.880	202.860

StreamStats Report

Region ID: TN
Workspace ID: TN20230302201201102000
Clicked Point (Latitude, Longitude): 35.05419, -89.54081
Time: 2023-03-02 14:12:24 -0600



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	503.54	square miles
PERMGTE2IN	Percent of area underlain by soils with permeability greater than or equal to 2 inches per hour	66.53	percent
RECESS	Number of days required for streamflow to recede one order of magnitude when hydrograph is plotted on logarithmic scale	209	days per log cycle

Low-Flow Statistics

Low-Flow Statistics Parameters [99.9 Percent (503 square miles) Low Flow West Region 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	503.54	square miles	2	2405
RECESS	Recession Index	209	days per log cycle	32	350
PERMGTE2IN	Percent permeability gte 2 in per hr	66.53	percent	2	98

Low-Flow Statistics Flow Report [99.9 Percent (503 square miles) Low Flow West Region 2009 5159]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
7 Day 10 Year Low Flow	81.3	ft^3/s	123
30 Day 5 Year Low Flow	99.1	ft^3/s	93.5

Low-Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009–5159, 212 p., 1 pl. (http://pubs.usgs.gov/sir/2009/5159/)

PRETREATMENT PASS-THROUGH LIMIT REQUEST SHEET

DATE: 3/2/2023
NPDES: TN0064092
FACILITY: Town of Rossville
COUNTY: Fayette
DESIGN FLOW (MGD): 2.2
TOTAL DESIGN FLOW (MGD), *if different*: _____
EXPLANATION, *if applicable*: _____
RECEIVING STREAM: Wolf River at mile 43.7

7Q10	153.8	**(CFS)**	99.4	**(MGD)**
30Q5	181.1	**(CFS)**	117.1	**(MGD)**

StreamStats based on latitude and longitude:
7Q10= 81.3 CFS
Drainage Area= 503.54

USGS gage 07030500 (Wolf River at Rossville, TN):
7Q10= 124.999 CFS
Drainage Area= 503.04

SW Toolbox gage 07030500 from April 1, 1999 - March 31, 2022
7Q10= 153.64

7Q10= 153.8 CFS
Low Flow calculated using gage data and drainage area ratio (StreamStats and SWToolbox)

___ **Domestic in stream uses (use columns 7, 8, 12 – 15 in PTL spreadsheet)**
_X_ **Domestic NOT in stream uses (use columns 7, 8, 12 &15 in PTL spreadsheet)**
_X_ **Not on 303(d) list** ____ **Not on 305(b) report**
___ **On 303(d) list as not supporting of fish and aquatic life and recreation designated uses**
___ **On 305(b) report, page _____**
___ **Tier evaluated (Y/N) and if evaluated, Tier designation**

OTHER DISCHARGERS ON SAME STREAM +/- 5 RM (FACILITY, PERMIT #, FLOW, RM):

LIST ANY CONCERNS, SPECIAL CONSIDERATIONS:

_____

_____

INFORMATION PROVIDED BY: _____
CALCULATED BY: _MTS___ **REVIEWED BY:** _GRH___
DATE: _3/2/2023 **DATE:** _3/13/2023___

Navigation NAV

0400-40-04-.01 MEMPHIS AREA BASIN.

STREAM	DESCRIPTION	DOM	IWS	FAL	REC	LWW	IRR	NAV	TS	NRTS
Mississippi River	Mississippi-Tennessee State Line (Mile 714.0) to Upstream End of Loosahatchie Bar (Mile 741.0)		X	X	X	X	X	X		
McKellar Lake	Mouth on Mississippi R. to Origin		X	X	X			X		
Nonconnah Creek	Mile 0.0 to Origin			X	X	X	X			
Wolf River	Mile 0.0 to 6.7 (L & N Railroad Bridge)			X	X	X	X			
Cypress Creek	Mile 0.0 to Origin			X	X	X	X			
Wolf River	Mile 6.7 to Miss.-TN State Line (Mile 77.0)		X	X	X	X	X	X		
Loosahatchie River	Mile 0.0. to 20.9 (Austin Peay Hwy Bridge)			X	X	X	X			

Wolf River at mile 43.7

PASS THROUGH LIMITATIONS

Rossville STP	3/16/2023	Fayette County
Design Flow: 2.2 MGD	TN0064092	7Q10: 99.4 MGD

Parameter	Concentration (µg/l)
Copper	80.00
Chromium, III	Report only
Chromium, VI	Report only
Nickel	180.00
Cadmium	5.00
Lead	45.00
Mercury	0.40
Silver, **Daily Maximum**	3.50
Zinc	200.00
Cyanide	61.33
Toluene	15.00
Benzene	3.00
1,1,1 Trichloroethane	30.00
Ethylbenzene	4.00
Carbon Tetrachloride	15.00
Chloroform	85.00
Tetrachloroethylene	25.00
Trichloroethylene	10.00
1,2 trans Dichloroethylene	1.50
Methylene Chloride	50.00
Phenols, Total	50.00
Naphthalene	1.00
Phthalates, Total [1]	64.50

[1] Total Phthalates is the sum of Bis (2-ethylhexyl) phthalate, Butyl benzylphthalate, Di-n-butylphthalate and Diethyl phthalate.

Note: These limits are monthly averages, except for silver, which is a daily maximum. All sampling and analysis must be in accordance with 40 CFR 136 unless explicitly allowed by the NPDES permit. See Part 3.2. of the NPDES permit for sample type requirements. References include T.C.A. 0400-40-14-.12(7)(c), 40 CFR 136, and EPA Form 3510-2C (8/90 version).