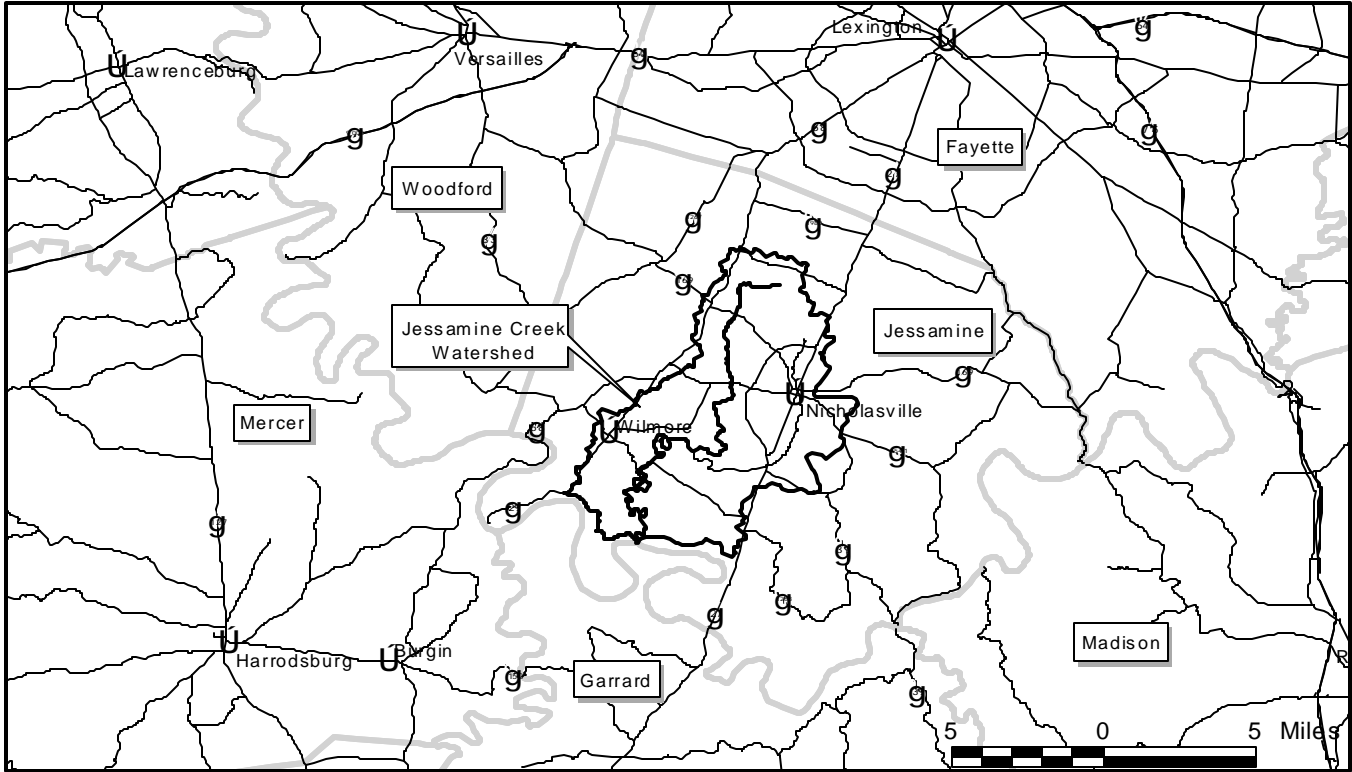


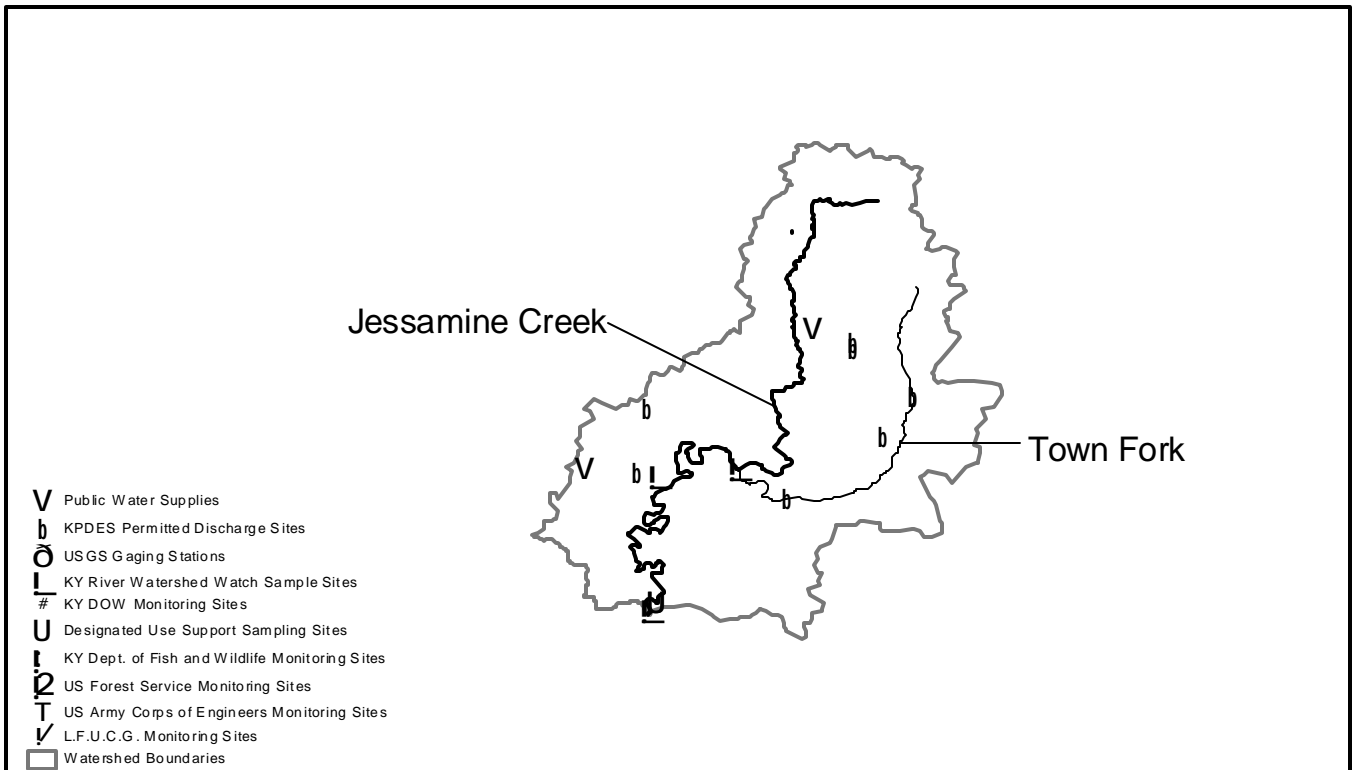
# Jessamine Creek Watershed

## Watershed Number: 05100205130

### Location Map



### Watershed Features



**Geography.** The Jessamine Creek watershed occupies central Jessamine County. The land is in the inner subregion of the Bluegrass physiographic region, characterized by undulating terrain and moderate rates of both surface runoff and groundwater drainage. The watershed lies above thick layers of easily dissolved limestone that form carbonate aquifers. Groundwater flows through channels in the limestone, so caves and springs are common in regions with this geology.

**Waterways.** Jessamine Creek empties into the Kentucky River between Pollys Bend and Handys Bend, south of Wilmore. Among the creeks that feed it are Town Fork (Town Branch, Nicholasville) and Wilmore Town Branch.

**Land and water use.** Land in the watershed is more than 80% agricultural, almost 10% residential, and roughly 2% industrial, 2% commercial, and 4% rural and wooded. The surface waters of the watershed supply the drinking water for the municipal system in Wilmore. Six businesses and organizations hold permits for discharges into the creeks. See tables for details.

**Agency data assessment.** The assessed creek segment in this watershed fully supports its designated uses, based on biological and/or water-quality data. See tables for details.

**Watershed rankings.** The ranking formula provides a preliminary ranking by synthesizing a broad spectrum of watershed characteristics, current conditions, and threats. This watershed ranks in the group with a moderate need for protection and/or restoration. This rating is for the watershed on average: particular sites and particular waters within the watershed may vary widely. See tables for details.

**Volunteer data.** Data show high levels of bacteria indicative of fecal contamination in Town Fork and Jessamine Creek (above 200 colonies/ml). Phosphorus levels in Town Fork were more than fifteen times the level that may cause potential nutrient enrichment problems (> 0.1 mg/L). Town Fork also exhibited elevated levels of sulfate and of some metals. See tables for details.

This report was prepared by the Kentucky Water Research Institute as a product of the statewide Kentucky Watershed Management process. Information presented in this report was collected from many sources. Reasonable attempts were made to ensure that information and figures are as accurate as possible, but no representation or guarantee is made as to either the correctness or suitability of information for particular purposes. All critical information should be independently verified. Please address questions or corrections to Basin Coordinator, KWRI, Rm. 233 Mining and Minerals Resources Building, University of Kentucky, Lexington, Kentucky 40506-0107.

**Summary of Basin Characteristics and Facilities**

**General Land-use Characteristics:**

<i>Total Land Area (Acres):</i>	<input type="text" value="25,912"/>	<i>Acres</i>	<i>% of Total</i>		
<i>Residential Area:</i>	<input type="text" value="2,252"/>	<input type="text" value="2,252"/>	<input type="text" value="8.7"/>	<i>Number of Mine Permits:</i>	<input type="text" value="0"/>
<i>Commercial Area:</i>	<input type="text" value="630"/>	<input type="text" value="630"/>	<input type="text" value="2.4"/>	<i>Total Permitted Mining Area (Acres):</i>	<input type="text" value="0"/>
<i>Industrial Area:</i>	<input type="text" value="489"/>	<input type="text" value="489"/>	<input type="text" value="1.9"/>	<i>Number of Identified Wetland Areas:</i>	<input type="text" value="35"/>
<i>Agricultural Area:</i>	<input type="text" value="21,413"/>	<input type="text" value="21,413"/>	<input type="text" value="82.7"/>	<i>Total Wetland Area (Acres):</i>	<input type="text" value="15"/>
<i>Rural and Wooded Area:</i>	<input type="text" value="1,034"/>	<input type="text" value="1,034"/>	<input type="text" value="4.0"/>		
<i>Other Land-use Area:</i>	<input type="text" value="83"/>	<input type="text" value="83"/>	<input type="text" value="0.3"/>		

**Withdrawal and Discharge Sites:**

<i>Number of Public Water Supplies and Water Withdrawal Sites:</i>	<input type="text" value="2"/>	<i>Number of KPDES Discharge Permits:</i>	<input type="text" value="7"/>
<i>Surface Water Withdrawals:</i>	<input type="text" value="2"/>		
<i>Groundwater Withdrawals:</i>	<input type="text" value="0"/>		
<i>No. of Potable Water Treatment Facilities:</i>	<input type="text" value="1"/>		

**Sampling Site Statistics:**

<i>Number of USGS Gaging Stations:</i>	<input type="text" value="0"/>
<i>Number of Kentucky Division of Water Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of US Forest Service Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of US Army Corps of Engineers Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of Kentucky River Watershed Watch Sampling Sites:</i>	<input type="text" value="3"/>
<i>Number of Lexington-Fayette Urban Co. Gov. Sampling Sites:</i>	<input type="text" value="0"/>

**Watershed Indicators and Ranking Categories:** **Overall Watershed Ranking:**

Protection Ranking	Observed Impacts	Potential Impacts	Restoration Ranking	Medium
High	Medium	Medium	Medium	

**Protection Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	15	Acres	0 - 106	12
Surface Drinking Water Sources	2	No. of sources	0 - 14	2
Ground Drinking Water Sources	0	No. of sources	0 - 17	1
Groundwater Sensitivity	5.00	Score	2 - 5	3.21
KY Dept. of Fish and Wildlife Management Areas	0	Acres	0 - 2951	93
U.S. Forest Service Management Areas	0	Acres	0 - 155253	12,600
Kentucky State Park Areas	0	Acres	0 - 1928	42
Nature Preserves Commission Areas	0	Acres	0 - 1430	32
Nature Conservancy Areas	77	Acres	0 - 2473	28
Reference Reach Watersheds	0.00	Score	0 - 100	3.08
Outstanding Resource Watersheds	0.00	Score	0 - 0	0.00
Recognized Stream Resources	1	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	4.21	Score	0 - 11	1.80

**Observed Impact Categories:**

*Human Health Impact Categories:*

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Flood Declarations	4	Number since 1970	0 - 10	4
Water Supply Inadequacy	1.00	Score	0 - 2	0.22
Observed Impacts to Surface Drinking Water	1.00	Score	1 - 1	1.00
Observed Impacts to Fish Consumption	1.00	Score	1 - 1	1.00
Observed Impacts to Primary Water Contact	1.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	3	Number of sites	0 - 71	4

*Ecological Health Impact Categories:*

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Observed Impacts to Aquatic Life	1.00	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	3	Number of sites	0 - 71	4

**Potential Impact Categories:**

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	8	Number of sites	1 - 121	12
Potential Pesticide Loading	7	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	573	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	2.06	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	8,833	Animal units	55 - 43826	7,021
KPDES Discharge Violations	0	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	12	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	2,260	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	865	Number of persons	12 - 4511	1,114
Mining Area	0	Acres	0 - 6305	355
Surface Water Runoff Potential	71.29	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	7	Number of sites	0 - 56	6

Watershed Name:                     Jessamine Creek                    

11-Digit Watershed Identity Number:                     05100205130                    

**Stream and Waterbody Use Support Summary**

<i>Total Stream Miles:</i>						
<input type="text" value="34.23"/>	<i>Number of Segments</i>	<i>Stream Miles Assessed</i>	<i>Miles * Fully Supportina</i>	<i>Miles * Partially Supportina</i>	<i>Miles * Not Supportina</i>	<i>Miles * Threatened</i>
<i>Segments Assessed:</i>	1	5.3	5.3	0.0	0.0	0.0
<i>Designated Uses</i>						
<i>Aquatic Life:</i>	1	5.3	5.3	0.0	0.0	0.0
<i>Primary Contact:</i>						
<i>Fish Consumption:</i>						
<i>Drinking Water:</i>						

\* Blank values indicate no assessed segments for this category.

<i>Assessed Stream Segments and Waterbodies</i>					
<i>Stream or Waterbody Name *</i>	<i>Starting Milepoint</i>	<i>Ending Milepoint</i>	<i>Segment Length (miles)</i>	<i>Designated Uses *</i>	<i>Overall Level of Support</i>
Jessamine Creek	0	5.3	5.3	AL	Fully Supporting

*\*Abbreviations: AL - Aquatic Life Support, PC - Primary Contact Recreation, SC - Secondary Contact Recreation, FC - Fish Consumption, DW - Drinking Water Supply, UT - Unnamed Tributary*

Watershed Name:                     Jessamine Creek                    

11-Digit Watershed Identity Number:                     05100205130                    

**Withdrawal Sites and Discharge Facilities:**

<i>Public Water Supplies and Water Withdrawal</i>			
<i>Facility</i>	<i>Origin of Source</i>	<i>Type of Facility</i>	<i>Permit ID Number</i>
LONE OAK COUNTRY CLUB	Surface Water	Water Withdrawal Site	WW1175
WILMORE WATER WORKS	Surface Water	Water Treatment Plant	0570010

<i>KPDES Permitted Discharge Facilities</i>			<i>KPDES Site ID Number</i>
<i>Facility</i>	<i>Type of Facility</i>		
JESSAMINE CRK ENV CONTROL #1	SEWERAGE SYSTEMS		KY0100404
KTC JESSAMINE CO MAINT GARAGE	BUS TERMINAL & SERVICE FACILIT		KY0099198
KY VETERANS CENTER	SKILLED NURSING CARE FACILITIE		KY0096903
MINIT MART FOODSTORE #82	GASOLINE SERVICE STATIONS		KY0101630
NICHOLASVILLE STP	SEWERAGE SYSTEMS		KY0020036
WILMORE STP	SEWERAGE SYSTEMS		KY0028428

**Gaging Stations and Sampling Sites:**

<i>KY River Watershed Watch Sampling Sites</i>		
<i>Stream Name</i>	<i>KRWW Sample ID No.</i>	<i>Site Description</i>
Jessamine Creek	K22	At SR 29 Bridge
Town Branch	K21	Just below New WWTP, Nicholasville
Wilmore Tn Branch	K23	Just above Mouth at Jessamine Creek

**Results from 1999 KY River Watershed Watch Sampling:**

**Conventional Parameters:**

Sample ID Number: K21      Stream: Town Branch

**Physical Data (May):**

pH	8.5	Alkalinity	132
Temperature	20.5	Total Hardness	292
Dissolved Oxygen	8.5	Chlorides	72.5
		Conductivity	1109
		Total Organic Carbon	7.5
		Total Suspended Solids	3

**Fecal Data (July / August):**

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	560	1400	0.04
August	2600	11000	0.24

Sample ID Number: K22      Stream: Jessamine Creek

**Physical Data (May):**

pH	8.5	Alkalinity	
Temperature	22.7	Total Hardness	
Dissolved Oxygen	8.8	Chlorides	
		Conductivity	
		Total Organic Carbon	
		Total Suspended Solids	

**Fecal Data (July / August):**

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	2000	2400	0.83
August			

Sample ID Number: K23      Stream: Wilmore Town Branch

**Physical Data (May):**

pH	8.5	Alkalinity	
Temperature	18.9	Total Hardness	
Dissolved Oxygen	9.52	Chlorides	
		Conductivity	
		Total Organic Carbon	
		Total Suspended Solids	

**Fecal Data (July / August):**

	Coliform Count	Strep Count	Coliform/Strep Ratio
July	70	170	0.41
August			

Note: Most indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm). Temperature is in Celsius degrees. Alkalinity and hardness are as mg/L of calcium carbonate. Bacterial counts are in colonies per 100 milliliters. Conductivity units are micro-mhos per centimeter.

**Nutrient Parameters:**

Sample ID Number: K21      Stream: Town Branch

Ammonia		Orthophosphate as Phosphate	7.363	Sulfate	296
Ammonia Nitrogen		Orthophosphate as Phosphorus	2.401		
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus	1.65		
Total Kjeldahl Nitrogen as N					
Nitrate	34.9				
Nitrate Nitrogen	7.89				

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Sample ID Number: K22      Stream: Jessamine Creek

Ammonia		Orthophosphate as Phosphate		Sulfate	
Ammonia Nitrogen		Orthophosphate as Phosphorus			
Total Kjeldahl Nitrogen as NH3		Total Recoverable Phosphorus			
Total Kjeldahl Nitrogen as N					
Nitrate					
Nitrate Nitrogen					

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Watershed Name: Jessamine Creek

11-Digit Watershed Identity Number:

05100205130

Sample ID Number: K23 Stream: Wilmore Town Branch

Ammonia	<input type="text"/>	Orthophosphate as Phosphate	<input type="text"/>	Sulfate	<input type="text"/>
Ammonia Nitrogen	<input type="text"/>	Orthophosphate as Phosphorus	<input type="text"/>		
Total Kjeldahl Nitrogen as NH3	<input type="text"/>	Total Recoverable Phosphorus	<input type="text"/>		
Total Kjeldahl Nitrogen as N	<input type="text"/>				
Nitrate	<input type="text"/>				
Nitrate Nitrogen	<input type="text"/>				

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

**Metals and Mineral Parameters:**

Sample ID Number: K21 Stream: Town Branch

Aluminum	<input type="text"/>	Calcium	<input type="text" value="69.57"/>	Lead	<input type="text" value="0.009"/>	Selenium	<input type="text" value="0.02"/>	Thallium	<input type="text" value="0.08"/>
Antimony	<input type="text" value="0.08"/>	Chromium	<input type="text"/>	Lithium	<input type="text" value="0.03"/>	Silicon	<input type="text" value="2.35"/>	Vanadium	<input type="text"/>
Barium	<input type="text" value="0.02"/>	Cobalt	<input type="text"/>	Magnesium	<input type="text" value="32.20"/>	Sodium	<input type="text" value="106.93"/>	Zinc	<input type="text" value="0.04"/>
Beryllium	<input type="text"/>	Copper	<input type="text" value="0.009"/>	Manganese	<input type="text" value="0.006"/>	Strontium	<input type="text" value="0.39"/>		
Boron	<input type="text" value="1.49"/>	Iron	<input type="text" value="0.06"/>	Potassium	<input type="text" value="15.04"/>	Sulfur	<input type="text" value="75.10"/>		

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Sample ID Number: K22 Stream: Jessamine Creek

Aluminum	<input type="text"/>	Calcium	<input type="text"/>	Lead	<input type="text"/>	Selenium	<input type="text"/>	Thallium	<input type="text"/>
Antimony	<input type="text"/>	Chromium	<input type="text"/>	Lithium	<input type="text"/>	Silicon	<input type="text"/>	Vanadium	<input type="text"/>
Barium	<input type="text"/>	Cobalt	<input type="text"/>	Magnesium	<input type="text"/>	Sodium	<input type="text"/>	Zinc	<input type="text"/>
Beryllium	<input type="text"/>	Copper	<input type="text"/>	Manganese	<input type="text"/>	Strontium	<input type="text"/>		
Boron	<input type="text"/>	Iron	<input type="text"/>	Potassium	<input type="text"/>	Sulfur	<input type="text"/>		

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

Sample ID Number: K23 Stream: Wilmore Town Branch

Aluminum	<input type="text"/>	Calcium	<input type="text"/>	Lead	<input type="text"/>	Selenium	<input type="text"/>	Thallium	<input type="text"/>
Antimony	<input type="text"/>	Chromium	<input type="text"/>	Lithium	<input type="text"/>	Silicon	<input type="text"/>	Vanadium	<input type="text"/>
Barium	<input type="text"/>	Cobalt	<input type="text"/>	Magnesium	<input type="text"/>	Sodium	<input type="text"/>	Zinc	<input type="text"/>
Beryllium	<input type="text"/>	Copper	<input type="text"/>	Manganese	<input type="text"/>	Strontium	<input type="text"/>		
Boron	<input type="text"/>	Iron	<input type="text"/>	Potassium	<input type="text"/>	Sulfur	<input type="text"/>		

Note: All indicators are in milligrams per liter (mg/L) which is equivalent to parts per million (ppm).

**Pesticide/Herbicide Parameters:**

Sample ID No.	Stream	2,4-D	Chlorpyrifos	Triazines
K21	Town Branch	<input type="text"/>	<input type="text"/>	<input type="text" value="0.3"/>
K22	Jessamine Creek	<input type="text"/>	<input type="text"/>	<input type="text"/>
K23	Wilmore Town Branch	<input type="text"/>	<input type="text"/>	<input type="text"/>

Note: All indicators are in micrograms per liter which is equivalent to parts per billion (ppb).