

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Monroe City Route J Lake

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#### Water Body Segment at a Glance:

**County:** Ralls  
**Nearby Cities:** Monroe City  
**Area of impairment:** 94 acres  
**Pollutant:** Atrazine, Cyanazine  
**Source:** Corn, sorghum production

**Note:** The long term average atrazine levels indicate attainment of criteria and cyanazine data indicate designated use is being supported. Therefore this lake was removed from the 2004-06 303(d) List.



State map showing location of watershed

**Water Body Removed from List:** Sept. 27, 2007

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#### Description of the Problem

##### Beneficial uses of Monroe City Route J Lake:

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation – Category A
- Secondary Contact Recreation
- Drinking Water Supply

##### Use that was listed as impaired:

- Drinking Water Supply

##### Standards that apply

- Missouri's Water Quality Standards 10 CSR 20-7.031, Table A, allows a maximum of three micrograms per liter ( $\mu\text{g/L}$ ) atrazine. Because this number is based on health risk associated with a 70-year exposure period, the three  $\mu\text{g/L}$  is interpreted as a long-term average.
- A federal health advisory level of one  $\mu\text{g/L}$  cyanazine is recommended for drinking water supplies.

##### Background information and water quality data

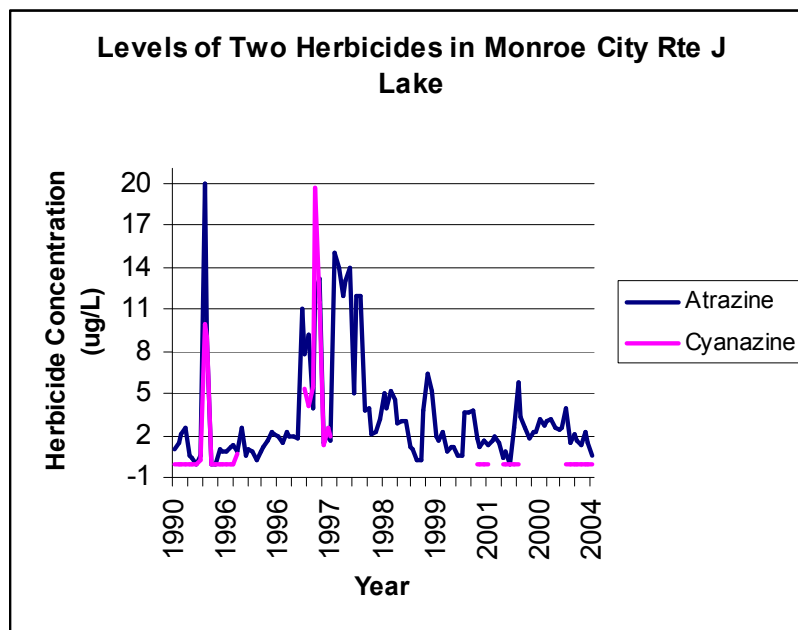
The Route J Lake is the larger of two lakes that are the drinking water supply for the 1,200 people in Monroe City. The watershed is approximately 5,000 acres in size, and is primarily agricultural with 65 percent cropland, 16 percent grassland, 17 percent forest, and two percent water. Monroe City also supplies three rural water districts. The lake has a history of elevated levels of atrazine

and cyanazine, two agricultural herbicides commonly used in Missouri on corn and grain sorghum for broadleaf weed control. Cyanazine was used from 1971 to 1999, when its manufacturer voluntarily withdrew it from production. At one time it was the fourth most widely used synthetic chemical pesticide in U.S. agriculture. It has been identified as a surface water contaminant in 30 states, including Missouri. Cyanazine was withdrawn from use after being linked to a range of adverse health effects, including respiratory distress, cerebral palsy, cancer, and impaired fetal development. After it was withdrawn from production, it virtually disappeared from all Missouri waters.

Since 1993, the allowable uses for atrazine have been restricted, but it continues to be widely used in Missouri. Atrazine is considered a possible human carcinogen, so the state standard is set at the very low level of three micrograms per liter ( $\mu\text{g/L}$ ) or parts per billion. In recent years, concentrations of atrazine and cyanazine have been found to frequently exceed state and federal drinking water standards. The state drinking water standard for atrazine is  $3 \mu\text{g/L}$  and the federal health advisory level for cyanazine is  $1 \mu\text{g/L}$ .

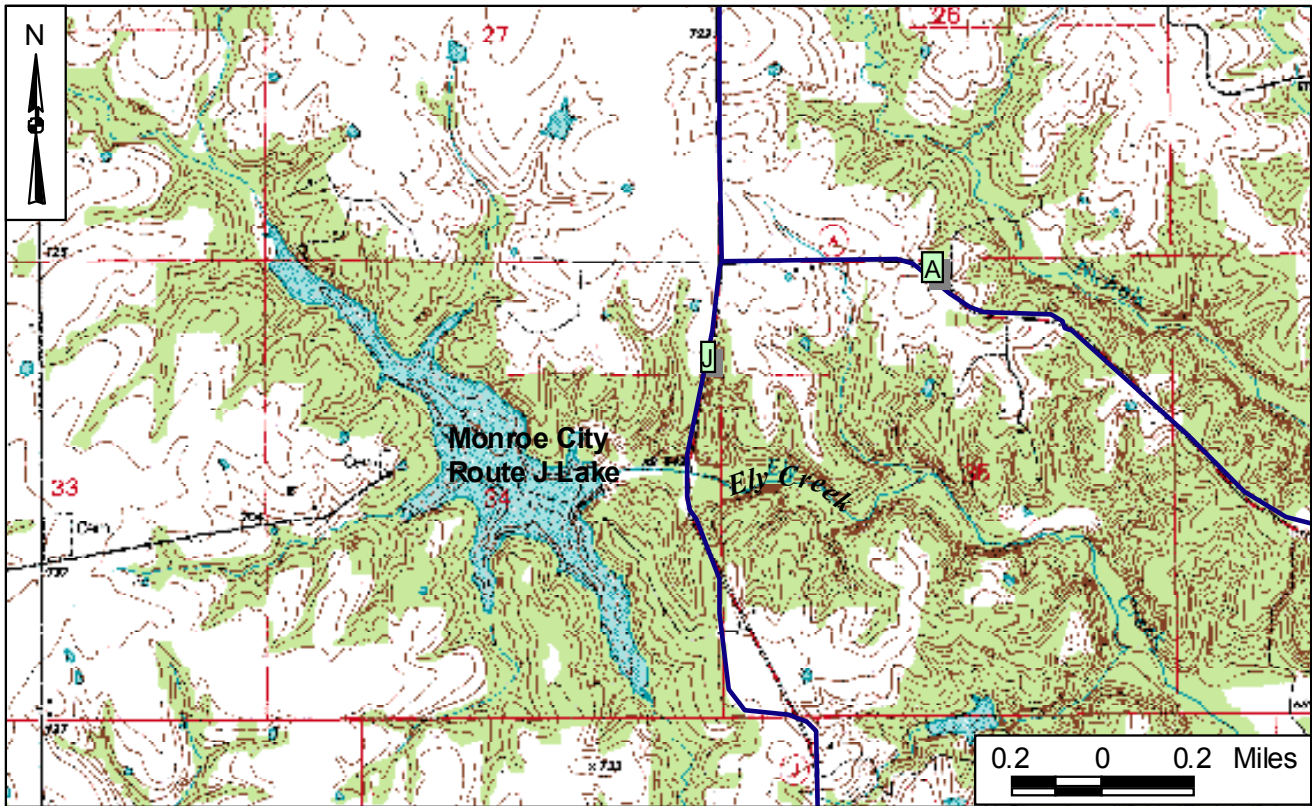
Missouri decided not to include Route J Lake in the 2004-06 List for cyanazine, citing the lack of a water quality criterion. The state's original listing was based on the federal health advisory level of  $0.001 \text{ mg/L}$  for the protection of drinking water, since Missouri has no criterion for cyanazine. Following the national cancellation of the pesticide's registration, which became effective Dec. 31, 1999, cyanazine levels in La Belle Lake No.2 have fallen below the health advisory level (graph below). As such, EPA approves the state's decision to not list La Belle Lake No.2.

The Department of Natural Resources will continue to monitor herbicide levels in the Route J lake.



There is a map of the area on the next page.

## Map of Monroe City Route J Lake, Ralls County



**For more information call or write:**

Missouri Department of Natural Resources

Water Protection Program

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