

## Verdigris River near Wagoner

Station AT178900 (121500010200-001AT) is a permanent ambient trend monitoring station near the lower end of the Verdigris River (McClellan-Kerr Navigational System) in Oklahoma. Situated in the central portion of Wagoner County, the site was established west of the city of Wagoner on State Highway 51. The station is positioned near the midpoint of stream segment 121500010200 and is classified within the Lower Verdigris River 8-digit HUC watershed (11070105). Water enters the stream system from several tributaries including Adams Creek (Newt Graham Lake), Inola Creek, Pea Creek, Coal Creek, and Coal Creek near Wagoner, among others.

This station on the Verdigris River has been active for all water quality variables since September of 1999. The following assessment of beneficial uses is based on data collected from October of 1999 through August of 2004. For purposes of reporting, this station is representative of the Verdigris River the confluence of Adams Creek (95.5510, 36.0673) downstream to its confluence with the Arkansas River (95.3073, 35.7983). As per Oklahoma Water Quality Standards, Appendix A, Table 1 of Oklahoma Administrative Code (OAC) 785:45, this water quality management segment is assigned the following designated beneficial uses: 1) Public and Private Water Supply (PPWS), 2) Warm Water Aquatic Community—Fish and Wildlife Propagation (WWAC), 3) Agriculture—Class I Irrigation (AG), and 4) Primary Body Contact—Recreation (PBCR).

The PPWS beneficial use is supported. The WWAC beneficial use is not supported. Of the ten (10) lead samples collected, seven (7) of the concentrations (or 70%) exceeded the prescribed hardness-dependant chronic criteria of 4.55 µg/L (Table 16). Of the 10 copper samples, four (4) of the concentrations (or 40%) exceeded the prescribed hardness-dependant chronic criteria of 16.26 µg/L, and two (2) of the concentrations (or 20%) exceeded the prescribed hardness-dependant acute criterion of 25.00 µg/L (Table 16). Of the twenty-five (25) turbidity samples (Figure 31c), 7 samples (or 28%) exceeded the numerical criterion 50. Dissolved oxygen (Figure 31a) and pH (Figure 31b) samples met the criteria prescribed in the WWAC beneficial use. The AG beneficial use is supported for total dissolved solids, chlorides, and sulfates (Figure 31d and Figure 31e). The PBCR beneficial use is not supported (Table 17). Of the twenty (20) fecal coliform concentrations, six (6) samples (or 30%) exceeded the prescribed screening level of 400 cfu/mL. Of the nineteen (19) enterococci concentrations, four (4) samples exceeded the prescribed screening level of 406 cfu/mL, and the geometric mean (194.0 cfu/mL) exceeded the prescribed mean standard of 33 cfu/mL. This segment of Verdigris Creek is not nutrient-threatened. The total phosphorus and nitrate/nitrite median values were below the threshold medians of 0.36 mg/L and 5.0 mg/L, respectively (Figure 31f).

**Figure 31a-f.** Dissolved Oxygen (a), pH (b), Turbidity (c), Total Dissolved Solids (d), Minerals (e), and Nutrients (f) for the Verdigris River at Wagoner (AT178900), 1999-2004.



