Straight Fork
Chloride PILO

STATE OF MISSOURI Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

SEP 2 8 2007

Mr. John DeLashmit
U.S. Environmental Protection Agency
Region VII
901 North Fifth Street
Kansas City, KS 66101

RE: Permit for Versailles Wastewater Treatment Plant in Lieu of Total Maximum Daily Load for Straight Fork (WBID 959)

Dear Mr. DeLashmit:

Straight Fork, near the city of Versailles in Morgan County, Missouri, is on the 2002 303(d) list for Volatile Suspended Solids (VSS). The source of this impairment is listed as the Versailles Wastewater Treatment Plant (WWTP), Permit Number MO-0094927. The Missouri Department of Natural Resources (department) opted to correct this impairment through permit limits in lieu of a Total Maximum Daily Load (TMDL). The U.S. Environmental Protection Agency (EPA) approved the "permit in lieu of TMDL" on December 11, 2006. Although the same segment of Straight Fork was initially proposed to be added to the draft 2004/2006 303(d) List for chloride, the department determined that it more appropriately belongs in Category 4B because the chloride problem will be addressed through discharge limits in the Versailles WWTP permit.

Straight Fork was considered to be added to the draft proposed 2004/2006 303(d) List for chloride based on department personnel observing violations of the chronic chloride standard directly downstream, and attributable to, the Versailles WWTP. The WWTP is in the upper reaches of the watershed and there are no other facilities upstream of it. Eighty-two percent of land use in the watershed is in grassland or forest, which eliminates any nonpoint source contribution of chlorides.

In the fall of 2003 and spring of 2004, the department conducted a biological and water chemistry study on Straight Fork (see enclosed *Biological Assessment, Straight Fork, Morgan County, Missouri, 2003-2004*) to determine whether or not the WWTP was the sole source of the VSS impairment. This study documented that the macroinvertebrate community was impaired during both sampling seasons, probably related to the WWTP's effluent. Data trends documented in this study also suggested that the WWTP was the sole source of elevated chloride levels in Straight Fork. In the fall 2003, chloride levels exceeded the chronic Water Quality Standard (WQS) protective of aquatic life (230 mg/L) at sites #3 and #2 (0.2 and 1.4 miles, respectively, downstream from the WWTP). Although the level of chloride was not above WQS the following spring, chloride levels were highest near the WWTP (site #3) and decreased downstream (sites #2 and #1) in both seasons. All chloride values measured were much higher than those taken at control sites on a nearby stream. In addition, during both seasons, specific conductance was highest just below the WWTP and decreased downstream. The conductivity values measured on Straight Fork were overall much higher than those measured on the control stream. The latter suggests that the higher measurements on Straight Fork were not a function of geology or land use, but were instead a result of discharge

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from the WWTP. Subsequent sampling was conducted 1.4 to 2.3 miles below the WWTP between March 16, 2005 and April 7, 2006. Of 12 samples collected, nine exceeded the chronic WQS for chloride (see enclosed "water chemistry" data).

On June 21, 2007, specific conductance measurements (a surrogate for chloride) were collected by department personnel above and below the WWTP on Straight Fork, as well as from neighboring tributaries to Straight Fork (See enclosed summary memorandum dated June 30, 2007 and map). Less than one mile upstream of the WWTP on an unnamed tributary, specific conductance was 450 µS compared with 2085 µS directly below the WWTP. Approximately one mile downstream from the WWTP, conductivity measured 1972 µS. Samples taken from neighboring tributaries ranged from 341 µS to 780 µS. The data collected confirmed the department's belief that the Versailles WWTP is the sole source of the chloride impairment.

The City of Versailles' previous State Operating Permit, which expired on August 23, 2006, did not include limits for chloride. On September 18, 2006, the department reissued the permit with limits to ensure the stream's WQS will be met. The chronic chloride standard of 230 mg/L will be achieved by limiting the effluent to 376 mg/L and 188 mg/L chloride as a daily maximum and monthly average, respectively. Water quality-based effluent limits for chloride were calculated using methods and procedures described in EPA's *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001).

We have enclosed the Missouri State Operating Permit and Water Quality Review Sheet for the City of Versailles' WWTP. The new limits will go into effect on October 1, 2009. If these limits are met, the WQS should be achieved in Straight Fork. To determine if the new permit limits have eliminated the impairment, the department will schedule ambient stream monitoring within a year after those limits go into effect. A reopener clause is also included in the permit to allow for stricter limits if monitoring shows WQS violations.

With this letter, the department submits the Versailles WWTP permit to EPA for concurrence that the permit will serve in lieu of a TMDL. We appreciate EPA taking prompt action on this submittal. If you have any questions, please contact Ms. Donna Menown at (573) 526-1595, via e-mail at donna.menown@dnr.mo.gov, or by mail at Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM

Edward Galbraith
Director

EG:dml

Enclosures

c: Mr. Daniel R. Schuette, Director, Division of Environmental Quality
Mr. Earl Pabst, Deputy Director, Division of Environmental Quality
Missouri Clean Water Commission
Ms. Mary Bryan, Attorney General's Office