

Ms. Sarah Parker Pauley  
Director, Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102-0176

September 9, 2013

RE: INSPECTION URGENTLY NEEDED OF PROBLEM WATER TOWER AT  
CAMP DERRICOTTE

Dear Ms. Parker Pauley;

Twice earlier this year PEER corresponded with U.S. EPA, Region 7 concerning violations of the Safe Drinking Water Act (SDWA) at Cuivre River State Park-Camp Derricotte (PWS ID # MO6120055, Lincoln County). We are writing the Missouri Department of Natural Resources directly as the recent PEER Missouri Sunshine Law request did not provide proof of inspection of the water tower at this troubled system and such inspection is needed to protect human health and safety. We urge the department to provide proof positive of the sanitary integrity of the water tower at Camp Derricotte by hiring a professional tank inspection firm.

The department's response to the Sunshine Law request shows DNR installed a \$100,000 chlorination system at Camp Derricotte in response to multiple violations of the Total Coliform Rule that occurred in 2011 and 2012. The DNR owns and operates this public water system through its Division of State Parks and is the state primacy agency for enforcement of the Safe Drinking Water Act via the Public Drinking Water Branch of its Division of Environmental Quality (DEQ). PEER's request also showed the state park failed multiple times to follow DEQ recommendations to resolve obvious problems with the system's well and water tower. The DEQ failed to follow its own escalation policy in response to the mounting violations at this system. While no bacteriological violations have occurred over the past year, serious concerns over water quality continue, as chlorination at a groundwater system with problems, both at the source and in the distribution, only masks bacteriological problems and leads to formation of disinfection by-products, which are known carcinogens.

Deterioration of the Camp Derricotte well casing and water tower (storage tank) is documented in written remarks by Division of Environmental Quality staff over a period of years. PEER's Sunshine Law request shows that in 2005 rust on the well casing had been documented. In 2007 the well casing was described as "OK" and the surface condition of the Camp Derricotte water tower was rated as "good." But in 2008 the casing again needed to be descaled, sealed and repainted; "Some rust on tower" was noted. Comments in 2009 include,

“Storage tank has a lot of rust. It needs to be descaled and painted” and “Vines need to be removed.” Both of these remarks are given a date to be corrected as, “as soon as possible.” A formal inspection report from 2010 states, “De-scale the rusted area(s) of the exterior of the storage tank and restore the surface protecting coating” and “Remove the brush and saplings around the base of the tower to allow access for inspection.” (Note: PEER did not receive the entire 2010 inspection report, possibly due to failure to copy both sides of two-sided pages and needs to be corrected.)

The reply from state park staff to the 2010 inspection report states, “We have corrected the immediate compliance requirements and will continue to work on completing the recommendations.” The formal report of 2011, however, shows very similar problems and some of the exact same recommendations as 2010.

Positive results for total coliform bacteria began shortly after the April 2011 inspection report, the most recent available. Maximum contaminant level (MCL) violations in July, August and September 2011 and April and May 2012 followed, with October 2011 being the only break in the string of violations. In September 2011 this system also tested positive for *E.coli* bacteria, resulting in an acute violation and was under a mandatory boil water order for four days. Camp Derricotte had one of the worst records of the 2,800 public water systems in Missouri for compliance with the Total Coliform Rule in fiscal year 2012 (July 2011 through June 2012). This is a seasonal system listed as routinely open April through October, so for five of the seven months it was open in FY2012, it exceeded at least one bacteriological standard for drinking water.

When a water system reaches this level of non-compliance with the Safe Drinking Water Act, the escalation policy of the Public Drinking Water Branch requires the DEQ Regional Office to draft a written document called a bilateral compliance agreement, or BCA. The BCA summarizes what violations occurred and what steps a water system needs to take to resolve the problem; parties from the regional office and the water system sign the document and the system should be back on the road to compliance. Whatever process was followed for Camp Derricotte, it was not a BCA. The Division of State Parks instead responded to the violations by budgeting \$100,000 in October 2011 for permanent disinfection using chlorine; this was up and running by the end of May 2012. Completely lacking are a thorough inspection of the water tower by a reputable tank inspection firm and on-going observation of the casing for the well reportedly drilled in 1938; these are among the items typically included in a BCA along with the installation of permanent disinfection.

While public notices from July and August 2011 document shock chlorination and flushing of water lines in an attempt to correct the bacteriological violations, the *cause* of the microbial contamination is not given. All source water samples collected during the months of violation tested negative for total coliform bacteria, eliminating the well from immediate concern. Turning to the distribution system, the sanitary integrity of the water tower looms both literally and figuratively as a most serious unanswered question.

Effects of a contaminated water tower can be grave indeed. As you should know, the last time deaths attributable to a public water system occurred in Missouri, it was 1993 when *Salmonella* bacteria from bird droppings contaminated the water tower of Gideon, Missouri. While not every water system has a water tower, those that do must routinely do gross inspections themselves and periodically call in a team of trained professionals specialized in this area. DNR has no less than three publications available on line about the importance of proper inspection of water towers, tanks and other water storage facilities. Yet DNR has again failed to take its own recommendation to let no more than five years lapse between thorough inspections by qualified professionals.

Comprehensive water tower inspection is a costly, difficult and dangerous chore that most public water systems must hire out at a cost of thousands of dollars. Though often the largest man-made structure on the landscape, tiny defects not visible from the ground can lead to widespread microbial contamination. Larger holes allow the entry of birds and other animals where they can congregate and die in water poised for immediate human consumption. The monetary cost of a water tower inspection, however, pales in comparison to the chlorination system installed at Camp Derricotte with its \$100,000 price tag. The cost of *not* inspecting a water tower can be measured in human lives and widespread waterborne illness. It is unfathomable why the overdue inspection of the water tower was not conducted prior to or at least in concert with development of these expensive new facilities.

Permanent disinfection may very well have proven necessary in any scenario. Without proper maintenance of the rest of the water system, however, chlorination can detract from rather than enhance public health. While Camp Derricotte now has over a year without any routine samples testing positive for total coliform bacteria, the chlorine present may be masking any problems with the water tower. If any sanitary defects are present in the water tower, all it would take would be a large flock of birds roosting on it to overwhelm the current system, or for there to be a malfunction with the chlorinator, for *Salmonella* or other pathogens to go coursing through the water lines at Camp Derricotte.

Even if microbial growth is kept in check, the formation of disinfection by-products that results from the interaction between chlorine and any organic material is still a concern. Surface water systems have no choice but to disinfect and have long been regulated for the disinfection by-products total trihalomethanes (TTHMs) and haloacetic acids (HAAs). These are carcinogens where long-term exposure is the concern. As a transient non-community system using groundwater, Camp Derricotte is not required to test for disinfection byproducts. Formation of these byproducts, however, increases in the warmer months when the camp is open. A thorough inspection of the water tower with any needed cleaning would greatly decrease the amount of organic material interacting with chlorine, thereby decreasing by-product formation.

The inspection report of 2011 shows the water tower is not even accessible to inspection due to “brush and saplings” surrounding it. Regional office staff, able to make only gross observations, noted the surface of the tank was corroding. EPA Region VII weighed in on the subject in its June 5, 2013 letter to PEER stating, “. . .no significant deficiencies, or sanitary concerns were identified during the survey.” The Missouri Ground Water Rule states a

significant deficiency for finished water storage includes “the existence of any unprotected, inadequately protected or improperly constructed opening in a storage facility.”

The out-of-sight/out-of-mind bias exhibited by the state primacy agency and federal oversight authority in the case of Camp Derricotte is truly troubling. Many deficiencies may exist that can only be found by a comprehensive inspection of the water tower. DNR needs to have the water tower at Camp Derricotte inspected ASAP and provide proof positive of its sanitary integrity. Chlorination is no cure-all, allowing a public water system to neglect everything else.

The condition of other water storage tanks in the Missouri state park system is obviously a concern with the neighboring Cuivre River State Park-Camp Sherwood (PWS ID #MO6122659, Lincoln County) a case in point. This system incurred maximum contaminant level violations for total coliform bacteria in July and September 2011 and August 2012. So far in 2013 routine samples collected in May and July have tested positive for total coliform bacteria. With all source water samples testing negative, this suggests an on-going problem in the distribution system. If it has been more than five years since a professional tank inspection firm has conducted a thorough inspection, it needs to be done ASAP.

Concurrent with the writing of this letter, PEER is submitting another Sunshine Law request regarding water storage tanks at public water systems owned and operated by DNR. We request that you ensure that the water tower at Camp Derricotte is inspected promptly so that human health is protected.

Sincerely,

Kathryn Douglass  
Staff Counsel

CC: Karen Fluornoy, Director, U.S. EPA, Region 7  
Cynthia Giles, Assistant Administrator, US EPA Office of Enforcement and Compliance  
Arthur A. Elkins J., US EPA Inspector General  
Thomas A. Schweich, Missouri State Auditor  
Jeremiah W. Nixon, Missouri Governor