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Lawsuit threatened for Sierra Vista 'pollutants'

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SIERRA VISTA — Last year, the Center for Biological Diversity (CBD) went after the U.S. Fish and Wildlife Service and the U.S. Bureau of Reclamation for the negative impact that Sierra Vista's wastewater treatment plant may have on the San Pedro River and the endangered Huachucawaterumbel.

That legal action went nowhere, according to Center for Biological Diversity (CBD) member Dr. Robin Silver in an interview. So, a new strategy was devised, and now Sierra Vista isthetarget.

The CBD is putting the city on notice that a lawsuit based on an allegation that the city's wastewater treatment plant, also known as the Environmental Operations Park or EOP, is discharging "pollutants including, but not limited to, nitrogen, pharmaceuticals, antibiotics, and hormones (collectively hereafter as pollutants) into waters of the United States without a permit as required by the federal Clean Water Act," according to thedocumentationprovided.

The center's attorney for the case, Charles M. Tebbutt, states in the notice: "The discharge of reclaimed wastewater into surface water requires a National Pollutant Discharge Elimination System permit or the Arizona state equivalent called the Arizona Pollutant Discharge Elimination System from the Arizona Department of Environmental Quality. The City of Sierra Vista does not have the permit necessary for the discharge of its reclaimed wastewater into the surface water of the SanPedroRiver."

Tebbutt states, "The pollutants that Sierra Vista has discharged, is discharging and will continue to discharge include, but are not limited to, nitrogen associated with human waste, caffeine, prescription seizure medications such as carbamazepine, primidone, and dilantin, antibiotics such as sulfamethoxasole, and other pollutants. All pollutants being discharged not set forth specifically in this letter are violations that are or should be known to Sierra Vista and may be included in any future legal actions by the Center. Such pollutants may only be known toSierraVista."

Staff of the BLM and U.S. Geological Survey (USGS) conducted water quality and groundwater elevation monitoring in June 2010and noted an increased flow in Curry Draw and elevated groundwater levels attributable to artificial recharge occurring upstream at the EOP. Pharmaceuticals coming from the City of Sierra Vista's reclaimed wastewater are now found in Murray Springs that flows into the San Pedro River. The samples taken indicated the presence of prescription drugs in Murray Springs. Earlier in April, 2010, USGS found seizure medication in the WWTP and in Murray Springs, indicating to the Center that these medications came from the city's percolation of reclaimed wastewater intotheground.

The presence of the pharmaceuticals originating from the wastewater treatment plant confirms the connectivity between the wastewater treatment plant and the San Pedro River," statesTebbutt.

In addition to the pharmaceuticals, nitrogen from the EOP poses possibly more of a threat by inducing growth of non-desert native species that may live along and in the river. It can be a major threat to the endangered Huachuca water umbel, a tiny water plant that requires a very specific water environment, suggestsTebbutt.

The center alleges the city ignored surveys that indicated the site chosen for the recharge basins was not an optimal setting for accomplishing recharge to the aquifer and providing clean water to the SanPedroRiver.

Since 1999, when a USGS hydrologist indicated that the proposed Sierra Vista rechargeproject may be sited in the wrong area, more information has been developed. It confirms that the EOP is in the wrong location for recharge and for longterm San Pedro River protection, addedTebbutt.

The current wastewater treatment plant's location originally was chosen as an "ideal evaporative site because it is so poor for recharge as it is situated on top of a low permeability, recharge-retarding, underground clay layer." The USFWS was told by the BOR that it would take 200 years for any effluent from the EOP site to appear in the San Pedro River and that the water umbel would not "likely be adversely" effected, hecontinued.

However, in 1999, a BOR memorandum stated that some of the percolating water that would otherwise flow subsurface toward the river may actually be intercepted by the clay layer, flow easterly over the top of the layer and daylight at Murray Springs or create new springs between the recharge site andtheriver.

Thecityresponds

City Manager Chuck Potucek said in an interview that the matter would be brought before the city council in an upcomingmeeting.

"We have been talking with ADEQ for a permit for the wastewater facility, and that may include the discharge to the surface water at Murray Springs. We do not know why the water we are putting into the ground surfaces at Murray Springs," continued Potucek. "We just do not know what the parameters of the permit are yet and we need to have those surface water discussions withADEQ."

The city does have to file reports with ADEQ on the aquifer water permit, and a number of chemicals, minerals and organics are included, headded.

"I'm not sure if there are requirements for pharmaceuticals in water,"notedPotucek.

Scott Dooley, Public Works Director, stated that as far as he knew, there were no such limits on medications found in water on the state or federal level. He also noted that the city's reports on the water quality at the EOP have consistently been well withinfederallimits.

Once Potucek and Dooley get the information they need fromADEQ and move forward with that permitting process, Potucek will meetwith the city council and apprise them of that progress and what the response to the CBD's claimswillentail.

The problemofpharmaceuticals

The enigma of pharmaceutical occurrence in drinking water has especially alarmed the public and regulators despite the fact that relatively few pharmaceuticals have been detected and only at concentrations tens of thousands of times smaller than the therapeuticdoses.

Fortunately, pharmaceuticals have the most robust database of any environmental contaminant in terms of human health as these compounds undergo rigorous clinical trials during registration and post-registration monitoring. Although adverse human health consequences from the existing trace levels of pharmaceuticals in U.S. drinking water is highly unlikely (at least based on current knowledge), the resulting impacts to aquatic ecosystems are more nebulous. Several studies have demonstrated that fish exposed to wastewater treatment effluents can exhibit reproductiveabnormalities.

Moreover, fish exposed to trace levels of birth control pharmaceuticals in the range of concentrations found in the environment show dramatic decreases in reproductive success, suggesting population level impacts areplausible.

Although there are currently no federal regulations limiting the levels of pharmaceuticals in wastewater or drinking water, the U.S. Environmental Protection Agency has added some pharmaceuticals to the most recent contaminant candidate list. However, only four of the compounds on this list are exclusively used as human

pharmaceuticals: three birth control substances and oneantibiotic.

Treatment processes can and do reduce the concentrations of pharmaceuticals in water, however, the degree of efficacy is often a function of chemical structure, cost, and energy. All treatment processes have some degree of side effects, such as generation of residuals or bi-products. Thorough life-cycle analyses should be undertaken to ensure that the solutions for environmental control are not morerisky than the problem. Source control of contaminants to wastewater treatment plants should always be considered when unknown or questionable occurrence in effluents is predicted or observed. While pharmaceutical take-back programs may not lead to significant reductions in environmental loading, such activities are helpful in communicating to the public that toilets are not suitable receptacles for a diversity of consumerproducts.

The application of ultra-sensitive analytical technologies to detect anthropogenic substances in water at one trillionth of a gram or less per liter will undoubtedly reveal that nearly every compound known to man will be detectable. The question is not whether these compounds occur, as they certainly will, but rather whether they pose a risk of harm to humans and wildlife thatareexposed.

From a report by the National Association of Clean Water Agencies (NACWA) and the Association of Metropolitan Water Agencies (AMWA). Visit the website for more information: http://www.dcwater.com/waterquality/PharmaceuticalsNACWA.pdf [1].