

Environment & Energy Commission

City of Columbia & Boone County

Daniel Boone Building, Mezzanine Conference Room

Minutes of Tuesday, April 28, 2009

Present: Barbara Buffaloe, Alyce Turner, Dick Parker, Tom O'Connor, Kip Kendrick, Dillon Wyatt, Jean Sax, Bob Walters, Dan Goldstein

Absent: Teresa Hunter, Michael Merkle, David Brodsky

Guests: J. Kraig Kahler, Water and Light Director; John Schumacker, USGS; Michael Kleeschulte, USGS; Brian Kelly, USGS; Shawna Marquardt, MDOC; Jennifer Battson, MDOC; Tim James, MDOC; Terry Timmons, MDNR

City Staff Liaison: Stephanie Brown

WELCOME AND OPENING REMARKS

Barbara Buffaloe opened the meeting at 7:00 p.m. She explained that the Environment and Energy Commission has been discussing the topic of drinking water quality since the fall of 2008. She went through Columbia's wetlands history from 1989 to 2008, the year the Missouri Department of Natural Resources informed the City that the drinking water violated the maximum level of allowed trihalomethanes (THM). She said during approximately the same time the United States Geological Survey's (USGS) unreleased study showed an increasing influence of effluent on the monitoring wells. The report also suggested that some water in the aquifer is flowing from beneath the Eagle Bluffs toward a depressed area near the City's well fields, which could increase the chance that effluent will influence the City wells. Tom O'Connor said chloride is a wastewater tracer. He said rainwater has 1 part per million (ppm), groundwater has 15, the Missouri River has 19, and wastewater has 240. He showed that after the wetlands were established the chloride levels in the wells increased. Mr. O'Connor said the purpose of this meeting was to bring together the stakeholders to discuss and compare data.

CITY OF COLUMBIA (CITY)

J. Kraig Kahler, Water and Light Director, presented an overview of the City's water supply. He mentioned that water supply and distribution is number four on the list of greatest Engineering Achievements of the 20th century. Mr. Kahler said the Wastewater Treatment Plant, which treats 20.6 million gallons of wastewater per day, discharges to the wetlands. He said there are four wetlands numbered 1 to 4, and they receive discharge in the sequence of 4, 1, 2, and 3. After that, water is discharged to the Eagle Bluffs Conservation area. He said the construction of the first three wetland cells was completed in 1994 and the last, number four, was completed in 2001. Mr. Kahler said the City has 15 wells with a depth of 100 feet each. He said each well is capable of dispersing 1,500 gallons of water per minute or 2.16 million gallons per day. The Water Treatment Plant is capable of treating 32 million gallons of water per day. He explained that the water is aerated, softened, filtered, and disinfected. The water is then pumped into the City. Mr. Kahler said the current water issue that had arisen was that the City

exceeded the limit of 80 parts per billion of total trihalomethane (TTHM) in November 2007 and May 2008. He said the Water Resources Research Center tested for levels of chloroform, bromoform, bromodichloromethane, and dibromochloromethane in each of the wells. He said the City is currently obtaining approval to change the disinfection process to chloramines by adding ammonia to the chlorinated water. He said the University of Missouri, who was contracted to sample the water for the City, showed that this process will drop the levels of TTHM by 50%. He said the City will also perform a study of the water treatment process and will consider changing the filtering method. Mr. Kahler said currently the City meets all State and Federal requirements for water quality.

Barry Kirchoff, Superintendent of the Water Treatment Plant said THMs may have become more noticeable because as the distribution system grows, it takes more time to move water through, and the maximum allowable limit for THM was lowered.

UNITED STATES GEOLOGICAL SURVEY (USGS)

Mike Kleeschulte of the USGS gave a background of the studies performed at McBaine. He said the USGS is concerned with the flow of groundwater and water quality. He said the data collection in the 1995 monitoring network included water-level measurements from 34 wells and the baseline water quality came from 28 wells and two surface water sites. Additional monitoring wells were installed in 2000. He said that groundwater flows down and parallel with the Missouri River. He explained that groundwater flow is affected by the stage of the Missouri River, rainfall and infiltration to the aquifer, water withdrawal from the City well field, operations of the conservation area, leakage from treatment wetland units and wetland pools. He said between 1992 and 2007, 22 wells were affected.

Mr. Kahler added that many utilities “reuse” water. He explained that effluent water can be treated to drinking water standards, but it is costly.

MISSOURI DEPARTMENT OF CONSERVATION (MDOC)

Shawna Marquardt, Wildlife Manager for Eagle Bluffs Wildlife Area, said the MDOC acquired Eagle Bluffs in 1989. During that time the City stopped releasing wastewater to Perche Creek and started sending it to Eagle Bluffs. She said water quality goes up as it filters through the wetlands. Ms. Marquardt said the wetlands at Eagle Bluffs provide a source of water for wildlife year around. She said the wet pools can be manipulated to accommodate the wildlife that inhabits that area. She said the Eagle Bluffs serve three main purposes: restore and manage the wetlands, provide a place for water birds, and provide recreational activities. She said Eagle Bluffs still has a high water supply during dry seasons. Ms. Marquardt explained that effluent cannot be placed within a mile of the drinking water well source. Jennifer Battson of MDOC said the Department is currently working on a preliminary plan to manage the water and is working with USGS to determine what is happening with the flow of the water.

MISSOURI DEPARTMENT OF NATURAL RESOURCES (MDNR)

Terry Timmons of MDNR said it is the Department’s job to monitor the public water supply. He said the pH, temperature, chlorine, and time are all factors in the formation of THMs. He said there were 17 violations in Missouri and it is not a rare occurrence. He said one sample per quarter is taken from the north side of the City it is reported to the MDNR. He added that City staff reacted properly to the violation. Mr. Timmons said the free chlorine in the water reacts with organic methane and produces THMs. He said

chloramines will stop the reaction. He added that the necessary steps are being taken to slow down the formation of THMs.

Mr. Timmons said currently the MDNR is working with the University of Rolla on a study regarding pharmaceuticals in the water. Mr. Kahler added that right now there is no federal or state regulation, or method to deal with pharmaceuticals in the water. He said that issue will be added to the treatment plant process study. Mr. Timmons said pesticides in the water are not a problem in Missouri.

Mr. O'Connor thanked everyone for participating in the meeting.

The meeting adjourned at 9:15 p.m.

Prepared by: Stephanie Brown, City Staff Liaison