

**TRI-STATE WATER RESOURCE COALITION
BOARD OF DIRECTORS MEETING
WEDNESDAY, MAY 21, 2014 – 9:00 A.M.
CITY HALL – COUNCIL CHAMBERS**

Welcome:

President David Hertzberg called the meeting to order. He asked those present to introduce themselves. The following were present:

David Hertzberg – City of Joplin, Missouri
Matt Barnhart – Missouri American Water
Hal VanDaGriff – Empire District Electric Company
Carl Francis – City of Webb City, Missouri
Gene Stanton – City of Mt. Vernon, Missouri
Roddy Rogers – Springfield City Utilities, Springfield, Missouri
Lynn Calton – City of Lamar, Missouri
Skip Schaller – City of Monett, Missouri
Steve Walensky – City of Cassville, Missouri
Tom Pittman – City of Carthage, Missouri
Jason Choate – Carthage Water/Electric Plant
Jeff Couch – Bio₂ Solution
Lonnie Losh – Bio₂ Solution
Doyle Childers – Flotron & McIntosh
Earl Pabst – Flotron & McIntosh
Darrell Townsend – Grand River Dam Authority
Bobbi Wendt – Kansas Water Office
Dick Scott – Olsson & Associates
Fred Schlegel – Missouri Department of Natural Resources
Ray Elliott – Missouri American Water Company
Kyle Slagle – Empire District Electric Company
Gail Melgren – Senator Claire McCaskill’s Office
Anna Nottmeier – USGS – Arkansas
Jim Whitford
Wally Kennedy – Joplin Globe
Susan Champlin - City of Joplin, Missouri

Approval of Minutes from March 19, 2014:

Mr. Hertzberg asked for any corrections or additions to the minutes from March 19, 2014.

Mr. Styron stated there was a change suggested by Gail Melgren, so he has made that change in a new copy that Mr. Calton has signed. This is not the version the board members received.

He asked for a motion to approve the minutes with that noted change.

Hal VanDaGriff moved, seconded by Steve Walensky, that the minutes from March 19, 2014 be approved. The motion carried, with all voting “aye”.

Standing Committee Reports:

President:

Executive:

Mr. Hertzberg stated that the executive committee will meet following the board meeting.

Financial:

Mr. VanDaGriff reported that the current fund balance is \$407,579.38.

Technical:

Mr. Rogers stated that the technical committee is working with the U. S. Army Corps of Engineers on scoping out the Phase 3 studies and investigating different alternatives for water supply. This is the last study to be conducted before Tri-State asks for reallocation. They will be looking at different alternatives for solving the water supply problem and looking at the costs associated with those alternatives. They are still looking at screening the treatment and distribution facilities and location of possible intakes.

Communications:

Mr. Barnhart stated that a couple of presentations have been given. He met with local business leaders in southwest Missouri to discuss the water issues.

Mr. Styron spoke at the Missouri Water and Wastewater Association with over 200 operators and associates in attendance to hear about Tri-State and the water issues in southwest Missouri.

Membership:

Mr. Stanton is now the chairman of the membership committee. He had no new update at this time.

Legislative/Regulatory:

Mr. Hertzberg stated that Mr. Bingle was unable to attend this meeting. Mr. Styron paid attention to the bills and the legislative session, with nothing of interest to Tri-State. Tri-State needs to be reviewing the JMUC legislation and seeing if it fits Tri-State's needs.

Ad Hoc Committee Reports:

JMUC:

Mr. Hertzberg stated that Mr. Williams was unable to attend this meeting. Mr. Styron stated that the JMUC has not met, so there is nothing new to report.

Executive Director Report:

Mr. Styron distributed to the board members a summary of his activities. The technical committee has had two conference calls with the Corps of Engineers. Ryan Mueller with the Missouri Department of Natural Resources (MDNR) participated in the first conference, with the committee

defining the scope of the Phase 3 study. The Phase 2 report has not been delivered in its final form and is awaiting review by the Corps of Engineers. The delivery of the Final Phase 2 report is important for preparing materials for presentations and communications for the legislators and civic organizations.

Tri-State needs to be able to describe the project they're seeking for and to be more specific than they have been in the past. It is important to discuss water shortage, but Tri-State needs to say they have a project to solve that problem.

The Corps of Engineers' recommendations for the Phase 2 report are somewhat abbreviated. They want to look at the user cost analysis, being those things that have an economic impact for hydroelectric flood control and alternative uses of reservoirs. Those will be dealt with in great detail in a reallocation study. They have an evaluation of the existing facilities for delivery of water in the project. Sources of water that Tri-State may pursue will hopefully be identified in the Phase 3 study.

Mr. Styron spoke at the Missouri Water and Wastewater Association meeting in Monett. He also spoke at the Branson West Rotary meeting to received feedback from business people and governmental leaders active in the Table Rock Lake area about a potential allocation or withdrawal of water from Table Rock Lake for drinking water supply. He explained that it would not interfere with recreation and resort operations but received no instant reaction to that.

Mr. Styron visited with Brad Scott, who has been a leader in the East Locust Creek Reservoir in northern Missouri. This is a \$69 million project to create a reservoir in Sullivan County that will serve 10 counties with a population of only 54,000. The federal sponsor was Natural Resources Conservation Service, with this being the largest water project that they had ever done.

The scale of the project Tri-State envisions for southwest Missouri is 10 times as big as the East Locust Creek project, the Loop project in northwest Missouri, and the Four-County project in Arkansas. Tri-State envisions a project serving 800,000 people. The magnitude of the project will be very large and may be constructed in several phases. The involvement of the municipalities is also much larger, including the charter cities of Springfield and Joplin, with many rural and agriculture interests being involved, as well as other cities, tourist, and suburban areas.

Another challenge is calculating the magnitude of the project. A Black & Veatch study indicated a cost of \$1.5 Billion for southwest Missouri. Tri-State must be able to figure out a way to construct a project make debt service based on a trickle of revenue from water sales. Contracts must be structured that will provide for debt service, whether or not the water is taken or not, that involve "take or pay" contracts. The only way to reduce the impact is to receive grants or appropriations for governmental stakeholders' associations.

The water conference is scheduled for November 6-7, 2014 at the Darr Agricultural Center at Missouri State University in Springfield. Mr. Styron will discuss an idea for the theme with the executive committee.

Comments by Representatives of Federal and State Offices/Agencies:

Mr. Hertzberg asked for comments from the federal and state agencies.

Mr. Schlegel from the DNR had nothing new to report.

Ms. Melgren reported that the Water Resource Development Bill (WRDA) is working its way through, and that the Water Infrastructure Finance and Innovation Act (WIFIA) may provide opportunities for water projects.

New Business:

Bobbi Wendt, Kansas Water Office:

Mr. Styron introduced Bobbi Wendt from the Kansas Water Office. They are analogous to the Missouri Department of Natural Resource that Ryan Mueller manages.

Mr. Styron met Ms. Wendt at a visioning meeting in Pittsburg, Kansas, where she was soliciting comments about issues for the Kansas Water Plan that is being prepared.

Ms. Wendt showed those present the main projects her office is working on in the Neosho Basin in the eastern part of Kansas. These include the Cottonwood stream bank projects, the John Redmond Reservoir project, and their governor's 50-year vision.

The Kansas Water Office has a water assurance district program. They also have a water marketing program which supplies Kansas municipalities and industries, so they want to make sure that the federal reservoirs from which they have purchased water supply provides enough yield annually to supply them.

The most critical basin is the Neosho River basin. The water levels continue to decline, so the John Redmond Reservoir just gets worse every year. The idea is to stabilize the streams right above John Redmond. The earliest aerial was 1950, with that being overlaid onto their 1990 and 2000 aerials, showing where erosion has occurred. Those areas are called "hot spots". The Kansas Water Office have identified 41 of those "hot spots" as their highest priority.

Ms. Wendt stated that her office cannot afford to take care of all the "hot spots" at this time but is just working on a few. The areas they are working on are closest to John Redmond. A significant amount of sedimentation would be kept out of John Redmond to secure the future water supply.

Sedimentation has already been accumulating in John Redmond, so the Kansas Water Office is proposing a dredging project. They anticipate beginning this dredging in the fall. They will start dredging 3 million cubic yards in the first phase and will develop a power plan into the future.

Ms. Wendt discussed the proposed the stream bank projects. The Kansas Development Finance Authority will issue a \$20 million bond for the stream bank sites. About 29 sites are being paid for with the revolving loan fund through the Department of Health and Environment.

In order to meet all their contracts for 55,000 acre feet, they may have to reduce the contractual obligation, because they are renewed after so many years. Wolf Creek's contract expires in 2016.

Ms. Wendt stated that a pool rise was actually signed in 2013, with a rise from 39 feet to 41 feet. It did increase the amount of water, but only gets out to 2027. The stream bank projects will take a few more. They do stream main and dredging. This work will extend basically to the end of Wolf

Creek's license, so they could be supplied with enough water for the term of their license. Repeated dredging can push it out 32 years.

Governor Brownback asked the Kansas Water Office to look at water supply and economic growth, as to how Kansas wants to be in 50 years. They obviously need water to grow.

The Kansas Water Office decided to focus on two main topics. The first one is Ogallala, which is the western aquifer. They are focusing on reservoirs on the eastern side. The Ogallala aquifer will be depleted by 70 percent in the next 50 years. Loss of the irrigation wells will result in the loss of the ability to irrigate a lot of productive crop lands. The darker colors on the map show the critical areas, with there not being enough water to serve those areas. The water level has been declining for decades in western Kansas.

Ms. Wendt stated the eastern portion of Kansas has five major basins that support the M & I, with the Neosho basin being the most critical one. The John Redmond Reservoir is the third one down the line, with Toronto and Tuttle being above it. They are critical, but they are just deeper and bigger reservoirs. John Redmond is smaller and basically flat.

The Kansas Water Office is responsible for \$5 billion in irrigating crop lands and are responsible for \$1.7 billion in corn production, and \$2 billion in beef. Their reservoirs provide two-thirds of Kansas with water in a \$1.96 billion dollar business.

Ms. Wendt discuss the need for a water supply sufficient to meet the needs of a growing Kansas population and economy. She expressed the need to preserve the Ogallala Aquifer and protect their reservoirs. They asked the citizens of Kansas about their interests and what they thought the Kansas Water Office needs to do to grow Kansas in the way they foresee it in 50 years and have a sustainable water supply.

The Kansas Water Office will keep the governor focused on the Ogallala Aquifer and the reservoirs with a 50-year vision. They write the Kansas water plan, which gives their agencies their directive and how to spend their money. The plan is updated every five years. It was to have been updated in January, 2014, but with the announcement of the governor's vision, they decided to update the water plan at the same time they were working on the vision.

The vision gives the Kansas Water Office their five-year check so they can project where they need to be in 50 years. They focus on extreme events, water quality, recreational infrastructure—anything that basically deals with water. They are working with the Department of Agriculture and the Kansas Water Authority. They also have their basin advisory committees, an Ogallala Aquifer committee, a reservoir committee, and an aqueduct stakeholders' meeting.

The governor's conference is in November, with everyone else being on key. The Kansas Water Office has done some stakeholder outreach and is now drafting the vision, with additional feedback being obtained this summer regarding the drought.

Mr. Styron stated that the slide for new sources of water shows a picture of a wastewater treatment plant. He read that Big Spring, Texas, implemented a reverse osmosis plan to recycle wastewater for drinking water. He asked if there are any similar projects in Kansas.

Ms. Wendt is not currently implementing any similar projects but has received comments on recycling of wastewater, not for drinking water, but for golf courses, soccer fields, and that type of thing. The larger the city, the more attractive the recycling of wastewater seems to be.

Mr. Styron asked if the John Redmond Reservoir on the Neosho River near Burlington serves the communities in the Neosho River valley. Ms. Wendt replied that is correct. It doesn't serve Emporia but serves basically everything below Emporia. The water is sold to Wolf Creek by contract.

Mr. Styron asked Ms. Wendt to describe the role of Spring River in the Kansas water plan. Ms. Wendt replied that Spring River is still open for appropriations, so you can still obtain a water right in the state of Kansas to use. The newest user is the Public Wholesale District No. 19. There isn't a lot of interest in the Baxter Springs area except for Empire District Electric and a few irrigators.

Ms. Wendt stated that the main focus for southeast Kansas was the Ozark Aquifer, with Spring River not being used as a source of supply.

Mr. Hertzberg stated that the Kansas Water Office is one step ahead of Tri-State since Kansas is drier than Missouri. He asked about any particular highlights in southeast Kansas that Ms. Wendt would like to discuss. He asked about the future sources for southeast Kansas that directly affect the Tri-State area.

Ms. Wendt stated that they focus mostly on the Ozark Aquifer in southeast Kansas since Pittsburg draws its water from there, and they are the community that will probably grow the most. They are participating in the study that the USGS is starting up again about the Ozark Aquifer.

Mr. Hertzberg asked if Pittsburg's future is still in the aquifer, and Ms. Wendt stated that they have not indicated they would like to use Spring River. Mr. Styron stated that Pittsburg's city engineer stated they are on a sweet spot in the Ozark Aquifer, and they believe that it's going to be plentiful based on their growth rate, which is not large. Ms. Wendt stated they are very confident that they have enough water and can grow. At one time, they did have a water right on Spring River. They were looking at being a regional supplier, but they dismissed that.

Mr. Calton received a publication called "Emergency Management" that discusses the water shortage in the Dallas, Texas area. The demand for water is exceeding the supply. They are investigating the drawing of water from the Gulf of Mexico.

Mr. Styron commented that most of southwest Missouri has had only seven inches of rain so far in 2014 and anticipates a crisis within another month if that trend continues.

Darrell Townsend, PhD, Grand River Dam Authority:

Mr. Styron introduced Dr. Darrell Townsend, the assistant lake manager for Grand River Dam Authority (GRDA). He is very interested in water quality and other issues of Grand Lake.

Dr. Townsend discussed a recent meeting with Mr. Styron and Mr. Rogers where water supply and water quality were discussed for the Tri-State region. Mr. Hertzberg and Bob Nichols also approached GRDA several years ago to address these issues.

Dr. Townsend stated that Oklahoma was in a battle with Texas over water rights, specifically tributaries that flow into Oklahoma, trying to meet the supply and demand that Texas needs. Any conversation about out-of-state water sales is currently a very controversial topic in Oklahoma.

GRDA is a state agency, and they are responsible for the waters of the Grand River. The Neosho and Spring Rivers come together to form Grand Lake. GRDA is directly under the Oklahoma Water Resources Board, so they have water rights in Grand Lake, Lake Hudson, and a lake to the south into Fort Gibson. They sell water through rural water contracts. Lake Hudson is a raw water supplier for the City of Tulsa.

GRDA deals with the water issues in northeast Oklahoma. They generate power out of their dams, so they are regulated by the Federal Energy Regulatory Commission (FERC). GRDA has a rule curve, with that rule curve being highly controversial with all the competing interests for Grand Lake water for recreation, the sport-fish community, with the rule curve that changes throughout the seasons. They don't typically operate like a Corps of Engineers lake having storage capacity.

GRDA essentially has a target elevation that Grand Lake is supposed to be at. If they don't have any inflow coming into the lake, their generation essentially shuts down. That adds another layer of issues that they are trying to address. The good news is that GRDA has a relicensing process that will start during 2017. This is a five-year relicensing period with the FERC. GRDA will be preparing water quality and lake models to address all of the competing interests for recreation, water supply, hydropower, and flood control issues upstream with the City of Miami are all important that GRDA must address when the relicensing process starts during 2017.

GRDA has a contract with the University of Oklahoma to prepare some models to address some of the flooding issues, but water supply will be a key component of that as well. GRDA will be making a request to Washington, DC for a change in the rule curve. The rule curve was implemented during the early 1990's when their license was first issued, with there being lots of water during that period. Now we are entering those dry years, with Oklahoma having a rainfall shortage of 11 to 12 inches so far during 2014. Drought, and how GRDA manages that reservoir, will be key issue in anticipation of lingering droughts in the years to come.

GRDA is starting to look at competing interests and the available yield to address to local communities around Grand Lake. They don't have a reliable yield that they can even present to the Oklahoma constituents. Many water districts began coming to GRDA for increased yields over what they currently have, trying to meet that 50-year demand.

GRDA approached the Corps of Engineers to look at some modeling issues, but the Corps stated GRDA had no yield at this time due to their rule curve since they have no storage capacity. They have no reliable yield to address these water issues in the future.

GRDA's goal, in the relicensing process, is to regain their power pool. The power pool was established at 745 and below. Once you get about 745, you get into the flood pool, which is then operated by the Corps of Engineers. In 2017, GRDA anticipates looking at different lake elevations, and what kind of yields they might have available for municipalities as a water supply issue for Grand Lake. The goal is to regain control in managing that pool anywhere below 745 and manage that for all the different competing interests—the recreation, hydropower, flood control issues, and how they are currently being addressed in drought conditions.

GRDA currently has water quality issues to address, with their rule curve indicating they have to drop three feet out of the lake beginning August 1, 2014. That puts GRDA in a real bind at FERC due to the downstream water quality issues they must address with dissolved oxygen (DO). The only way to address dissolved oxygen below their dams is to move water. They actually inject air as they move that water through the powerhouse to meet that rule curve, but in periods of extreme drought, that leaves very little water to address their downstream dissolved oxygen issues.

GRDA is now looking at all the potential uses of Grand Lake water, with the modeling work being prepared for their relicensing in 2017. They anticipate having a new license by 2022. This gives an idea of some of the obstacles that GRDA has as they move forward into the future to address these critical issues, not only for water supply, but also the drought conditions that many are predicting to increase in the future.

Mr. Styron asked about the relative amount of water coming into Grand Lake from Missouri, from Elk River and Spring River. He understood 40 percent of the Grand Lake watershed is in southwest Missouri. Dr. Townsend thought 40 percent may be a little high, in that the majority of the watershed is in Kansas, but most of the people living in the watershed are from the Joplin area.

Mr. Styron asked if the off-river creeks have as much water coming in as Spring River, and Dr. Townsend replied no. The quantity is typically much less, with most of GRDA's flow coming from the Neosho and Spring Rivers.

Mr. Calton asked where the rules originated that stated GRDA had to drop three feet, and Dr. Townsend replied those rules were established in their license that was issued during 1992. This was during a very wet period, with drought not being discussed during that time. The primary reason for dropping the water level during August was for water fowl. The Oklahoma Department of Wildlife required the planting of millet for water fowl, so GRDA would drop the lake three feet in August, plant millet in the mud flats in the upper part of the lake around Twin Bridges and bring slowly bring that water and flood that as the migration comes through.

GRDA wants to prevent fish kills below their dam and feels it's more important to store that water beyond that point to meet those downstream DO needs.

Mr. Calton asked about the minimum DO downstream, and Dr. Townsend replied it changes throughout the year. The target is essentially five milligrams per liter, with some deviation within a 24-hour period. During the summer, unless GRDA is actively injecting air, it's very difficult to meet that minimum standard. They most move water periodically throughout the day.

Mr. Calton asked if the Corps of Engineers assume jurisdiction about 745, and Dr. Townsend replied that begins their flood pool. The direct GRDA how to operate their gates at that point.

Mr. VanDaGriff asked about the possibility of getting away from the rule curve. He asked if that doesn't change anything with out-of-state water service exchanges. Dr. Townsend replied that is a completely separate, and he did not believe FERC would have an opinion on that, so that would be specifically a state issue. GRDA would like to be able to adaptively manage their reservoir in anticipation of drought conditions during the summer months where water is needed to meet that downstream need.

Mr. Rogers discussed the maintenance of five milligrams per liter and asked if that DO level decreases if water is released. Dr. Townsend replied the DO level will increase. The water passes through a turbine, with valves being opened to draw air from within the powerhouse and injects it into the water.

Mr. Rogers commented that this hurts upstream because the lake level is down. Dr. Townsend stated that is correct, because of the license requirements to draw down on August 1, and to meet downstream DO. GRDA must be able to manage the reservoir so they don't have to dump all that water in August. They can continue making periodic releases downstream that will get them through the end of September.

Mr. Hertzberg asked Dr. Townsend if GRDA currently sells drinking water, and he replied that they sell a lot of water primarily to municipalities and rural water districts. They have some raw water contracts with businesses.

Mr. Hertzberg asked if Oklahoma still has a moratorium on selling Oklahoma water outside the state. Dr. Townsend thought the moratorium had been lifted, but he was not sure if it was reissued or if it has expired.

Mr. Calton asked about state legislation to sell water outside Oklahoma, and Dr. Townsend was not sure what this legislation might look like in the future.

Mr. Styron understood that the Oklahoma Constitution prohibits the export of water except with the express approval of the legislature.

Mr. Hertzberg asked if GRDA would not be able to do anything until 2022, and Dr. Townsend replied their new licenses will be issued in 2022. They are already starting the relicensing with the modeling work being done by the University of Oklahoma. That will be a key component of the relicensing phase for all these competing interests—flood control, water supply for recreation.

Mr. Styron asked if that is for all three lakes, and Dr. Townsend replied they are currently licensed separately. One of the issues with the federal officials is convincing them how their projects are so inter-related. GRDA also has DO issues below Lake Hudson, which is the reservoir just south of Grand Lake where they open a gate and discharge water all summer. The only way to essentially replenish Lake Hudson is by releasing water out of Pensacola. That also ties into their pump-back facility, in which a 619 elevation must be maintained at Lake Hudson.

GRDA has visited with federal officials about essentially surrendering their other two licenses and really bringing them all together under one big umbrella as one larger license covering all three projects, primarily because they are so inter-related. It is easier to combine all three projects into one report rather than separate them out.

Mr. Calton asked if Lake Hudson is hydroelectric, and Dr. Townsend replied that it is.

Doyle Childers and Earl Pabst, Flotron & McIntosh:

Doyle Childers and Earl Pabst of Flotron & McIntosh, assisted by Lonnie Losh and Jeff Couch of Bio₂ Solutions, made a presentation concerning their method of cleaning polluted water using electrocoagulation.

Adjournment:

Mr. Hertzberg asked for a motion to adjourn the meeting. The executive committee will convene following this meeting.

Hal VanDaGriff moved, seconded by Lynn Calton, that the meeting be adjourned. The motion carried, with all voting "aye".



Lynn Calton, Secretary