

WATER COMMITTEE
NOVEMBER 18, 2009
MINUTES

MEMBERS PRESENT:

Pete Frisina, Chairman
James K “Chip” Conner, Vice Chairman
Brian Cardoza
Tony Parrott

ABSENT:

Jack Kraakeel

NON-VOTING MEMBERS:

David Jaeger

STAFF PRESENT:

Russell Ray

GUEST:

Stephen Hogan, PTCWASA

The meeting was called to order by Chairman Pete Frisina at 8:00 A.M.

I. APPROVAL OF MINUTES FROM THE MEETING ON OCTOBER 28, 2009.

Vice Chairman Chip Conner made the motion and Brian Cardoza seconded, to approve the minutes from the meeting on October 28, 2009. There was no opposition.

II. LAKE MCINTOSH UPDATE.

David Jaeger reported that we have approval from the Safe Dams Program and the County has issued bid invitations to the pre-qualified bidders. There were a total of five pre-qualified bidders. He said they had a pre-bid meeting on November 12 for an overview of the project; they went over what they considered, as the designers, to be the important items that the bidders should be aware of. The Geotechnical engineer was at the pre-bid meeting so he could discuss some of the intricacies of the geotechnical part of the project. He stated it was a successful pre-bid meeting. The bid date is set for December 3, 2009.

Mr. Jaeger reported on the access road issue. Last week he spoke with the attorney for the airport, and they were finalizing the construction contract with Masanna Construction, who is doing some work at the airport right now. Mr. Jaeger said he also spoke with the President of Masanna Construction and discussed the project with him. He believes they are close to having that contract executed. It was on the next agenda for the City of Peachtree City council meeting for Peachtree City to approve the intergovernmental agreement. This is the agreement between the City and the airport, similar to what the County has with the airport for the 1/3, 1/3, 1/3 cost share for the access road.

Mr. Jaeger reported that the Board of Commissioners approved the Water Committee recommendation to add the Danielly-Wagner mitigation site to the fencing contract. This will be added on as a change order to resolve the fencing

issues at this site. They are working on Dr. Busey's site right now. The Goza Road site does not need to be fenced, because there is no work going on there.

Mr. Parrott stated the Board will only have one meeting in December. Mr. Jaeger stated that since all the bidders are pre-qualified, the process of recommending the award to the bidders is shorter, because we know all the contractors. The bids will have to be reviewed, tabulated and checked for errors; make sure that everything is in order, and then they can quickly put together a recommendation package for the Board so they can put it on the agenda for approval. The December Board meeting is the 10th, Water Committee will meet on the 9th. Mr. Parrott stated he would get the Water Committee recommendation on the agenda for whatever it might be; in hopes of having a quick turn around. There won't be another meeting before the 3rd of January. It will take a month for the contractor to get their insurance and bonds together before they can start work. He stated that we have already borrowed the money, and we need to get the project going because of arbitrage. Mr. Parrott stated that he would like to have the groundbreaking in January.

III. TOTAL ORGANIC CARBON UPDATE.

Mr. Jaeger distributed a draft version of a comparison between the different technologies they have looked at for the TOC removal at the water plants. Item #1 is granular activated carbon, which is a process where you replace the media that is currently in the filter with GAC that has about four foot bed depth. It improves the absorption of organic carbons through the filtration process. They have talked with Calgon about the cost to do it. The initial change out for the South Fayette Plant at the current permitted rate which is 6 MGD; up front cost would be about \$650,000.00. This would be to remove the existing anthracite and replace it with four feet of GAC in each of the six filters. The cost to replace that, when it is exhausted is about \$417,000.00 a year. He said that is based on a quote they have given him for just under \$70,000.00 per filter. That assumes that you contract with them to come get your carbon, take it back to their plant and reactivate it, and bring back the same carbon. They claim there is about a 20% cost savings associated with doing it that way. An unknown is what the actual life span of this carbon is once it is in your filter. A few years ago, we did a filter bottom replacement at one of the filters at the Crosstown Plant. At that time, we replaced the media there with GAC. It was an older filter, so it did not have the same availability for bed depth, so we added about two feet of GAC and we had about six months life span of the GAC. It performed very well, initially, by removing TOC in the neighborhood of 60% – 70% removal. He went on to say that based on a six month bed life at Filter 7 at Crosstown, doubling the bed depth to four feet at South Fayette, we are assuming we might get a year. You can not really get anybody to guarantee the bed life; the function of the chemistry of your water, how much you are putting through it, the contact time and so forth; these numbers are based on one year life expectancy and having to swap it out basically once a year. He said he also included one extra filter's worth of GAC in the initial purchase, so that as you do the reactivation process, you pull the media out of one filter and you can immediately replace it with

your spare GAC; then ship it off and have them reactivate it while the plant is still fully operational. You have seven filters worth of media that you are constantly rotating one filter at a time. It does have the highest O & M processes that we are comparing at this point. There is some inconvenience in having to do that because they will have to bring in a crane and a vacuum truck. This is somewhat cumbersome to make that swap out. There is the ability to put in a GAC post filtration contactor which basically allows you to take advantage of your current filtration system which is the anthracite and sand media. Whatever benefit you get through your current filter, you would still have that and then you have the GAC afterwards. He stated that they think we are getting very little benefit from the filter as we currently stand because most of the TOC that we are having trouble removing is of the dissolved nature. It was passing through the filter anyway with little benefit to the filter, but we wanted to look at this as an option. If you do that, you would have to build a new contactor downstream of the filter between the filter and the clear well. According to Calgon, you are not really saving on the amount of GAC that you have to use, versus putting it in the filters. You want the same basic contact time through it, at the same rate, dealing with the same amount of carbon. The up front capital cost is higher, up in the \$2,000,000.00 range to build this post filtration contactor. The O & M cost is a little lower. He said they have made an assumption that you get 25% greater life span after the filters than you would in the filters. That drops the O & M cost down some. Also, the swap out of the GAC is a little easier to do; it is a pressurized system versus having to bring it and dump it in with a crane. Mr. Jaeger said the plant works on a gravity flow now; right now it gravity flows through the sed basin, the filters and into the clear well. If you put something in the middle you would have to re-pump it to get it to run the contactor. There would be additional operational cost for the pumping system. He stated this is not factored into his estimates. He stated this is the least desirable of all the options they looked at.

Mr. Jaeger stated the third option is the Magnetic Ion Exchange System which is a magnetic charge resin that is injected into the raw water prior to the settlement process. The brand name is MIEX. It would most likely go in between the raw water pump station and the chemical building and would need it's own facility. It could be crude or it could be elaborate depending on exactly what the county wanted to invest in. He said he and Mr. Ray visited one in Alabama that was fairly elaborate; total cost was over \$5,000,000.00. Some of that cost was for land. The equipment was in the 1 and 1/2 million dollar range. He added a little escalation to that number because of the time when that one was built to when we would likely do it; he then added some money in for building. We are in the \$3,000,000.00 range for the up front capital cost for MIEX. They have visited us and done a jar test on site. They got in the neighborhood of 55% to 60% removal of TOC. He said they saw the same things they saw in Alabama. We are confident that system works well; the issues are the up front costs and it is a proprietary system supplied by one supplier, manufactured in Australia. It is likely to be manufactured in the southeast in the next few years, but currently it is all coming from Australia. Their O & M cost is significant, but a little less than the first options. The resin itself is the high number

in that total. They estimate somewhere in the neighborhood of eleven cents per thousand gallons for the resin, because there is a loss to the resin over time. That is a quarter of a million dollars per year. There are some other materials that are used in that process; there is a waste product that is created that has to be dealt with. There is no existing sanitary sewer at the South Fayette Plant, so it would have to be dealt with sort of as septic disposal. We are looking at around 140 gallons of the product per day, per million gallons. That disposal rate is based on investing in a brine recovery system, which reduces the percentage of brine waste. He said the he factored that into the \$3,000,000.00 up front cost; it is about \$250,000.00 for the brine recovery system. But, there is still a brine waste that you have to deal with, so he has estimated that cost, plus the power consumption. You will see some savings in chemicals, a reduction in lime and alum, also a reduction in chlorine because you knock down the organics in your raw water before treatment. Mr. Jaeger stated that those numbers are significant, but not substantial, compared to the other costs of running the system. He has tried to show those as well.

Mr. Jaeger explained that the last of the four options is the ballasted settlement process; ActiFlow by Kruger. They have done a bench test for us; we shipped four samples, two samples of raw water and two samples of settled water, to their lab in North Carolina. He said we got very good results from their process called Actiflow Carb which is the ballasted settlement, plus the introduction of powder activated carbon. Their removal rates were in the neighborhood of 80% removal of TOC. What we saw with that was that without the carbon portion of that process, just the Actiflow ballasted settlement, their numbers were not as good as our conventional alum and settlement process. The carb is really the thing doing the work here. He said they have asked some questions about that; what he wants to investigate further is what possible introduction of PAC do we have in our existing system so that we don't have to expend the money for a new settlement process, when our current settlement seems to be doing the trick; we just need to be able to get the contact time with the carbon that will allow us to reduce the TOCs. Kruger's response was that their system allows for recycling of the powder activated carbon, so you get complete usage of that in your total cost of the PAC and therefore, much less on an annual basis. Mr. Jaeger commented that this is coming from somebody trying to sell equipment so he needs to research this a little further. At face value, that system compared to the other systems is actually giving superior results at a lower capital cost other than the GAC and the PAC, and a lower O & M cost; O&M is in the neighborhood of \$91,000.00 a year. He said he needs to fine tune this a little, they just this morning sent him some more information on actual operational cost for power consumption and some of the other losses for sand and polymer rates and so forth. That number may change some, but he does not think it will be significant enough to skew the results of what we have looked at.

Mr. Jaeger stated that he feels we need to investigate the ability to dose powder activated carbon at some point in the existing treatment process without any other major change to the system. That is really where we will get our benefit in any of these things that use carbon, not truly in their special settlement technique. But, it

may be true that we can't do it as efficiently as they do; we may end spending a lot more in carbon than we do if we use their system. How quickly we can justify the expenditure of the million and a half dollars to retrofit our basins with their system is something we need to determine. Once we get to that point, if that is not the answer, then we need to proceed with pilot tests of the Kruger system, and the ActiFlow Carb, the MIEX system he thinks also would be something we should pilot. He thinks that there is some more we can do with the GAC to determine a better estimate of bed life and then once we know that, he thinks that is all we will need.

Mr. Jaeger mentioned that once they go through the ActiFlow process their turbidity is very high, much higher than what we would have in the way of settled water turbidity. He inquired about that and their answer was that this is typical to the jar test scenario in their lab, where their equipment skews that number. In a pilot program, you would see a settled water NTU or after their process that NTU would be comparable with what you are currently getting out of your sed basin; less than 1 NTU. They say then can solve that problem; it is really just an abnormality of their bench testing.

Mr. Parrott commented that the GAC filters work, we test ran one at Crosstown and we get 70%. It is a lot of work, but with the others, because of their track record, he does not have a track record of how close they stay 60% to 70% removal. He pointed out that this project is just South Fayette; we will also do it at Crosstown. The costs will more than double; the Crosstown plant is rated at 13 MGD.

Mr. Jaeger stated that another option is that we could always start with GAC in the filter, we know it works. The up front cost is a little lower than any of the others and then make a transition in the future if necessary. If it turns out that the bed life is unacceptable, there is no reason we cannot pursue one of these options later.

Mr. Parrott stated that we are passing TOC at South Fayette currently, because the lake has filled back up. Trouble is, Crosstown took a nose dive because we had one month that had 7% reduction instead of 35%, so it messes up the average.

Mr. Ray commented that the ASI numbers look good this month. These are not official DNR numbers, but ASI numbers had filtered TOC at Crosstown of 1.9 and 34% reduction, but we meet the 2.0 criteria with 1.9. At South Fayette we have 40% reduction filtered at 2.1. The plants have gone back to where they were prior to the drought and we have raw higher at South Fayette, so even if we don't meet the 2.0 criteria, at 2.1 we are still at 40% removal. At Crosstown we typically have a lower raw, so if it is 3.5 at South Fayette, 2.9 at Crosstown we typically are just under the 35% removal at that plant, but we typically meet the filtered alternate criteria. Except for the sample we had two months ago from the State that was way off, we are doing well meeting the TOC numbers now.

Mr. Parrott stated that there is nothing we can do operationally that we guarantee any kind of TOC reduction. A while back he had the lab at the Crosstown plant check it every hour. Part of the day it passed, part of the day it didn't. When you do it 48 hours, the flow is the same, the PH is the same, and the chemicals are the same. He said it can be as much difference as day and night. Nothing else has a treatment technique associated with it like Total Organic Carbon does. It is not a real maximum contaminant level. It is just percent and they found out that doesn't work. The bottom line is if we can't pass the TOC's we are not going to pass the trihalomethanes and haloacetic acids that are coming up in 2012.

Mr. Ray commented that even if we meet the TOC's, at the levels we are now we won't pass the THM's and HAA's either. Mr. Parrott said it is going to individual locations instead of average.

Vice Chairman Conner asked if we are thinking about looking at any other processes. Mr. Parrott said we looked at MIOX. Mr. Jaeger explained this is a mixed oxidant treatment process that had some claims for benefits, but when they visited the plant in Coweta County we did not see any benefit in their operation that we thought was worth pursuing. We looked at dissolved air flotation which is a settling process; there is nano filtration which we feel is expensive and hard to operate. Mr. Parrott stated there is a wastewater stream we can't do anything with. Mr. Jaeger said this also has to be pumped to get it through the nano filters.

Mr. Jaeger said the Kruger system has a centrifuge type operation that circulates the water; a mixer helps separate the sand and carbon for recovery. It is not like MIEX.

Mr. Jaeger will have prices for the next phase of this project for the next Water Committee meeting so a recommendation can be made to the Board. He stated that he has been told it is in the neighborhood of \$15,000.00 to do a pilot. They bring in a tractor trailer lab, they bypass and flow through it so you have an on site true pilot program to compare their technology to your water. He does not have a firm proposal in writing.

Mr. Parrott guaranteed that the first proposal works, because we ran the filter for a year, so we know what it will do. Once we get to the point of what we are going to do, we have to get the Department of Natural Resources Drinking Water Program to also approve the change in operation. These are federal guidelines.

Mr. Jaeger stated they feel these processes will help us achieve the future regulations. The short term need is getting the TOC removal in line. By the next Water Committee meeting he will have had more time to investigate whether we can realistically find a way to dose powder activated carbon on its own without changing the settlement process and have the proposals from the systems for the pilot program schedules.

There being no further business, Chairman Pete Frisina adjourned the meeting at 8:45 A.M.

Peter A. Frisina

The foregoing minutes were approved at the regular Water Committee meeting on the 9th day of November, 2009.

Lisa Quick