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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
August 22, 2023

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, August 22, 2023 at 2:15 p.m. at the 2nd Floor Conference Room, Administration Building, 695 Moores Creek Lane, Charlottesville, VA.

Board Members Present: Jeff Richardson, Lauren Hildebrand, Gary O'Connell, Ann Mallek, Brian Pinkston, Sam Sanders

Board Members Absent: Mike Gaffney

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Deborah Anama, Betsy Nemeth, David Tungate, Jacob Woodson, Jennifer Whitaker.

Attorney(s) Present: Valerie Long.

1. *CALL TO ORDER*

Mr. Jeff Richardson, Secretary-Treasurer, called the meeting to order at 2:15 p.m.

2. *AGENDA APPROVAL*

Ms. Mallek moved that the Board adopt the agenda as presented. The motion was seconded by Mr. O'Connell, and passed unanimously (6-0). Mr. Gaffney was absent from the vote.

3. *MINUTES OF PREVIOUS BOARD MEETING ON JULY 25, 2023*

Ms. Mallek moved that the Board approve the minutes of the July 25, 2023 meeting. The motion was seconded by Ms. Hildebrand, and passed unanimously (6-0). Mr. Gaffney was absent from the vote.

4. *ELECTION OF VICE CHAIR*

Mr. Richardson stated that the position of Vice Chair had been vacant since the departure of Mr. Rogers on July 31, 2023. He stated that a motion, a second, and a vote would be in order to elect a new Vice Chair effective immediately for the term ending April 30, 2024. He opened the floor to nominations.

Mr. Pinkston nominated Mr. Sanders to serve as Vice Chair. The nomination was seconded by Ms. Mallek.

Mr. Richardson asked if there were any other nominations for Vice Chair. Seeing none, he closed the nominations for Vice Chair and called for the vote.

The motion passed unanimously (6-0). Mr. Gaffney was absent from the vote.

Mr. Richardson thanked Mr. Sanders for serving in this role and congratulated him on his recent appointment as City Manager.

Mr. Sanders thanked Mr. Richardson for the opportunity. Mr. Sanders, newly elected Vice Chair, proceeded to facilitate the Board meeting.

5. *RECOGNITION*

There was no recognition.

6. *EXECUTIVE DIRECTOR'S REPORT*

Mr. Mawyer stated that they were very pleased that the local delegate candidate Amy Laufer requested a visit. They gave her a presentation yesterday in the conference room and then drove to the Ivy MUC and the Crozet Water Treatment Plant. He stated that she was very appreciative, had good questions, and seemed to understand their business, so they appreciated her visit. He stated that they invited a number of the elected officials who represented this area to visit them, and they were thrilled that Senator Creigh Deeds had accepted the invitation and would be present next week. He stated that he and Mr. Gaffney would host Senator Deeds and give a similar tour.

Mr. Mawyer stated that under the Strategic Plan priority for Planning and Infrastructure, they continued to work on the large, major piping projects. He stated they were trying to finalize the details on the Rivanna to Ragged Mountain Reservoir Water Pipeline, particularly where they crossed University Foundation property. He stated that they were working with the University on the Ragged Mountain Reservoir to Observatory WTP pipeline project and the final alignment around the Fontaine area. They had a surveyor this week staking out a new alignment because there was a cemetery they had to accommodate. He stated that then staff, along with UVA officials from the Office of the Architect, would walk that route next week and hoped to come to a conclusion on where that pipe could be located.

Mr. Mawyer stated that they had a very good meeting with the Service Authority and City staff about the Central Water Line project last week to review the 60% design documents. During the meeting, they looked at the route in detail and got comments for items to consider. He stated that they were moving forward with that project, and they expected to request construction bids toward the beginning of 2024, and between mid-2024 and the end of 2024, they would start construction depending on how long it takes to get the pipe. He stated that there was an estimated 6- to 9-month delivery process to get water pipes, and if that were to hold true, it would be close to the end of 2024 when they would be breaking asphalt on the City streets along Jefferson Park Avenue Extended and Cherry Avenue on its way to the Free Bridge area.

Mr. Mawyer stated that drought conditions had not been a concern, but that issue was becoming one. He stated that the state still reported that all of the metrics which indicated precipitation levels, groundwater levels, reservoir levels, and stream flow levels were still normal, but he noted that the Sugar Hollow and the Ragged Mountain Reservoirs had stopped overflowing, so

they felt that South Rivanna could be next to stop overflowing. He stated that when it did stop overflowing, staff would begin a modified operational program to utilize more water from the Ragged Mountain reservoir and less water from the South Rivanna reservoir. He stated they established this operational and utilization strategy several years ago, which was differentiated by the time of year.

Mr. Mawyer stated that they were currently in the May to November timeframe, and the key to their operations was the South Rivanna Reservoir and whether it was overflowing. He stated that water which came from the Sugar Hollow reservoir and thru the Moormans River to the South Rivanna Reservoir, if it went over dam into the South Rivanna River, it was out of their system and they could not use it. While the South Rivanna reservoir was overflowing, they maximized use of that water supply. He stated that they took 8 to 10 million gallons per day (MGD) and processed it at the South Rivanna Treatment Plant, while they held the Ragged Mountain Reservoir and production at the Observatory Water Treatment Plant at a minimum. He stated that during this period, they stored water in the Ragged Mountain reservoir and maximized use of the water in the South Rivanna Reservoir before it passed over the dam.

Mr. Mawyer stated that if the South Rivanna reservoir stopped overflowing, they would change operational procedures by using more water from the Ragged Mountain Reservoir, treating it at the Observatory WTP, and taking less water from the South Rivanna Reservoir. He stated that the Ragged Mountain Reservoir was their largest reservoir with about 1.4 billion gallons, and it would take many months to deplete that water supply. They would start using more water from Ragged Mountain reservoir and less from South Rivanna reservoir when they had no flow over the South Rivanna dam.

Mr. O'Connell asked if they had any issues with the Observatory WTP, and where it was construction-wise in being able to make that switch.

Mr. Mawyer stated that they could produce 4 to 5 MGD at Observatory. The plant was not ready to produce 10 MGD maximum capacity yet, but it would be in the next six months or so as intended. He stated that they also had to complete the Central Water Line Project through the City before they could pump more than 5 MGD out of Observatory into the distribution system, so that was another step to be completed before they could fully utilize that treatment capacity.

Mr. Pinkston asked if Observatory WTP was producing again.

Mr. Mawyer stated yes, it had been producing for several months at a rate of 1 to 2 MGD, but was intended to reach full capacity of 10 MGD. He stated that they had to be able to get the water supply from Ragged Mtn reservoir to the Observatory WTP, and the new pipeline between those locations would provide the raw water supply needed. He stated that they had upgraded the Observatory WTP, but would also need to complete the Central Water Line project to utilize the full capacity of the Observatory WTP and get the water into the distribution system. There were two significant piping projects to be completed before they could actually get 10 MGD into the water distribution system from the Observatory WTP.

Mr. Mawyer stated that they had a term called safe yield, which addressed how much water they

could get out of a reservoir each day during drought conditions. He stated that it was not as meaningful as operational safe yield, which was how much water they could get to the faucets of the customers each day during drought conditions. He stated that the system required water supply, treatment, and distribution facilities, and they had to have all three at the appropriate capacity to maximize the system. He stated that the Rivanna to Ragged Reservoir Pipeline, which would be completed by 2030, would be the capstone project to maximize their water supply, treatment, and distribution system.

Ms. Mallek stated that Mr. Mawyer mentioned that Sugar Hollow reservoir was not spilling, but the continuous flow pipe was running.

Mr. Mawyer stated yes, the minimum in-stream release was being provided, as the permit required.

Mr. O'Connell asked if, given that students were back and use was starting to jump up, along with bad weather, there were any issues anticipated in the next three months absent rain. He stated that the supply levels seemed pretty good.

Mr. Mawyer stated they were at 96% of capacity in the urban system storage, and there was a trickle spilling over the South Rivanna Dam now, but if they did not get rain in a few days, they anticipated that spilling would stop. He stated that they would still have 1.4 B gallons in Ragged Mtn reservoir, although they had to supplement from South Rivanna reservoir and WTP because the Observatory WTP could produce only about 4 to 5 MGD, and the community usage was about 10 MGD. He stated that they would provide 10 MGD from the combined production of the South Rivanna and Observatory WTPs, plus they may be able to produce about 1 MGD at the North Rivanna WTP if there was flow in the North Rivanna river.

Mr. Mawyer stated that as inflow to the South Rivanna Reservoir declined, the North Rivanna River that fed the North Rivanna Water Treatment Plant typically receded and would give them very little water to treat. He stated that they were more dependent on the Ragged Mountain reservoir and the Observatory WTP when they had a less-than-full water storage system. He stated that the South Rivanna reservoir overflowed almost all the time. It had been six years since it stopped overflowing.

Mr. Mawyer stated that they talked last month about the North Rivanna Water Treatment Plant and the PFAS test that detected compounds which exceeded the proposed EPA standards of 4 parts per trillion. He stated that they had gotten one test result back from the lab in Michigan which stated there was no PFAS in the second round of treated water testing, so they restarted the North Rivanna Treatment Plant in July.

Mr. Mawyer stated that they got the test results back from the lab in Indiana that also confirmed there was no detection of PFAS in the treated water. He stated that there were detections in the raw water, but they were less than the 4 parts per trillion standard proposed by EPA.

Mr. Pinkston stated that there was a good article in the Daily Progress last week in which Ms. Mallek and Mr. Mawyer made comments. He asked what the chart on the slide indicated.

Mr. Mawyer explained that they would continue to complete PFAS testing, and as an example, they did an additional round of testing for the Unregulated Contaminant Monitoring Rule (UCMR) 5, where they took samples on August 9 and 10, 2023 and shipped them off for testing. He stated that on their own they would be testing in September. They did quarterly UCMR 5 testing in November and February, and they did their own testing bi-annually. He stated that the point was that they were testing for PFAS almost every month, and it was not just a one-time event that they checked PFAS and found that detection.

Mr. Pinkston asked if they felt the EPA and the state requirements were converging. He stated that the last time they spoke, it seemed that those agencies were trying to figure out what it was they wanted to measure and what the rules would be. He asked if that was still the case.

Mr. Mawyer replied that it was still the case. EPA indicated they would have a maximum contaminant level standard for six of the PFAS compounds by the end of this calendar year.

Mr. Pinkston asked if the state would be doing more testing so staff did not have to ship samples to laboratories located outside of Virginia, or if it would be something they could do in house.

Mr. Mawyer stated that they were looking to see what testing they could do with our in-house laboratory, but the preliminary thought was that it took a lot of resources and dollars to provide that level of testing, which was why only a few labs in the country could do it. He stated that they expected the lab testing technology to improve as the PFAS testing demand increased. He stated that with the UCMR 5, the EPA issued a preliminary report yesterday and stated that there were over 10,000 utilities in the country that were being asked to collect PFAS samples. The initial results stated that 20% had responded, and RWSA was one of them. He stated that the UCMR5 testing program would continue for another year, but from the 20% of utilities that responded, about 8% had PFAS levels that exceeded the proposed EPA standards.

Mr. Pinkston stated that what Ms. Mallek stated in the article was exactly right in that their systems were not prepared to deal with this. He stated that maybe this was not the right time or venue, but he was concerned about if they discovered this in the South Rivanna WTP. He stated they still had the option of using Ragged Mountain Reservoir and the Observatory Treatment Plant if they had to, but he had skepticism about whether the rules were clear enough yet for them to be operationalized for a utility of this size. He stated that clearly this was a safety hazard, and they were talking about something that was one millionth of a one millionth. He stated that it was exquisitely tiny, which was why it was hard to test for. He stated that it was interesting to him that in California the previous combined standard was 70 parts per trillion.

Mr. Mawyer stated that he believed that reference was correct. Several states and utilities in the country used the unofficial standard of 70 parts per trillion for drinking water.

Mr. Pinkston stated that he was worried about false positives or the concept of reliability in engineering or testing consistency, it was not like they were taking hundreds of samples like they did with E. coli. He stated that these were single samples that they were taking and shipping off to some place. He stated that he was not trying to cast doubt, but he was asking what was

credential. He stated that he knew they were going to meet with river basin people in a few weeks. He stated that he had some concerns and felt like they had to be thoughtful as a Board about what happened if they discovered something at South Rivanna WTP and if they just shut off the water.

Mr. Mawyer stated that he shared that concern and that staff had been meeting to talk about these same issues. He stated that one thing that he found out today in an article from the American Bar Association about the proposed new PFAS regulation was that compliance would be based on annual concentrations calculated from four quarterly monitoring samples. He stated that gave them some breathing room, because if they had one sample that exceeded 4 ppt they would not immediately have to shut down a plant and go into an operational emergency, but it would be based on four quarterly samples.

Mr. Mawyer stated that process was consistent with the way that they did disinfection byproduct analysis. He stated they completed what was called a locational running annual average that determined if they were in compliance with the standard. He stated that they had four quarters to take samples and one bad result did not put them in noncompliance, it was an average through four quarters. He stated that it would be good news if that was the way the EPA regulation was finalized. He stated that their plan right now was to continue to research the issue and to monitor what the EPA and Virginia Department of Health were planning.

Mr. Pinkston asked if there was any work being done to canvas the watershed to see if there were sources. He stated that in Roanoke, they were able to find the source of the PFAS.

Mr. Mawyer stated that they had been looking for potential sources. Their Water Resources Manager investigated all of the permitted properties in Albemarle County that were licensed for a land application of biosolids as a potential source of PFAS. He stated that there had been no land applications in Albemarle County in the last five years, so they did not think that was the source. He stated that looking in the North Rivanna River watershed, which extends into Greene County, there was a land application in November 2022. He stated that their Water Resources Manager was in contact with DEQ because DEQ issued permits for farms to apply biosolids on their property.

Mr. Mawyer stated that DEQ did report on this particular property because there was an odor complaint, but the report stated that the application was compliant with the setback requirements and there was no apparent runoff of biosolids into streams. He stated that they were currently working up the watershed to see if there were any additional biosolid applications. He stated that the article in the newspaper talked with the Charlottesville Airport about whether they were using firefighting foam, which was a product that contained PFAS.

Mr. Mawyer stated that the fire personnel indicated they had not used a PFAS product since 2005. Also, the airport was not in the drainage watershed of the North Rivanna River, so it would not be a source of PFAS in the North Rivanna River. He stated that Albemarle and Greene Counties were in the watershed of the North Rivanna River. Mr. Mawyer noted that the RWSA reservoirs prohibited swimming, and suntan lotion was known to include PFAS, so they did not suspect that as a source. However, the North Rivanna River was not one of their

reservoirs and swimming was not prohibited in the North Rivanna River. He stated that Chris Green Lake also flowed into the North Rivanna River and was an area that had swimming, so it could be a potential source. He stated there were a myriad of potential sources. It could be furniture treated with PFAS that had been dumped into a gulley and rain was washing it into a stream.

Mr. Pinkston stated that it seemed that they were addressing his concern, which was that they had a plan if they discovered this. He stated that it seemed the science was in flux, the rules were in flux, and even though this was clearly an issue, he would agree with the Daily Progress article that they needed a practical perspective.

Mr. O'Connell stated that it was important to note that in many of the national articles many systems around the country had not done anything to address PFAS, but RWSA had Granular Activated Carbon (GAC) in their system for a long time. He stated that it had been in our system for a different purpose, but its whole purpose was to remove any kind of contaminant that could get into the water supply and to keep it out of their public drinking water. He stated that was the treatment of choice for PFAS at any level, particularly at higher levels. He stated that a lot of utilities around the country had not been willing to spend the money because it was really expensive to put GAC in place, but he believed they would see a lot of utilities adding a GAC system over the next couple of years.

Mr. O'Connell stated that they were a step ahead of where most utilities were, which added a barrier to any kind of PFAS that would be occurring. He stated that the most recent test showed there were no detectable levels in finished water. He stated that they were looking to ramp up GAC to a higher level in Crozet, and likely in the future they would be looking at that in other places. He stated that they had a barrier in place already, which had not gotten into the news and media very well. He stated that whatever the tests showed, the treatment solution was GAC, which they already had.

Mr. Pinkston stated that it sounded like they might need more GAC for our system.

Ms. Mallek stated that the GAC material was consumed faster with greater usage.

Mr. Mawyer stated that they had a consultant completing lab testing to determine how long the water needed to be in contact with the GAC in order to remove PFAS, which was called empty bed contact time. He stated there was one standard to remove disinfection byproducts, which came from chlorine disinfection, and that removal period was about 14 minutes. He stated that the initial test results indicated that to remove PFAS they needed 21 minutes of contact time, which would require more GAC vessels in order to treat PFAS at the same volume of water per day. He stated they had this test going on, and would be planning their next CIP and whether they needed to add more GAC vessels, maybe coming to the Board next spring with projects to add more GAC to their treatment system.

Mr. Mawyer stated that they applied for an emerging contaminant grant in 2022, which was federal BIL dollars, and they received $3.17 M through the Virginia Department of Health, which was being applied at the Crozet WTP for additional GAC facilities. He stated that they

reapplied in the second year for a grant of $16 M and would continue to seek federal dollars to help them add more GAC vessels and treatment to their system. He stated that they would look for additional testing laboratories to see if they could find some closer than Michigan or Indiana. He stated they had staff looking at what they would have to do to be capable of providing in-house PFAS testing.

Mr. Mawyer stated that they also were going to look for temporary GAC equipment in case they needed to have it brought in to supplement their own treatment facilities, such as at Crozet where there was no backup water system. He stated that the Crozet, Scottsville, and Red Hill systems were independent, so if they had a high PFAS detection at those locations there would be a challenge. They were working to find temporary, emergency GAC equipment similar to emergency generators or air conditioners. He stated that regarding water distribution, they could not shut down the South Rivanna Water Treatment Plant and provide enough water to the urban system.

Mr. Mawyer stated that they could minimize production at South Rivanna WTP and maximize at Observatory and North Rivanna WTPs, but they would have to continue to use South Rivanna WTP to provide fire protection and sanitary purposes. He stated that they were exploring if they could bring in a water distribution system or bottled water as an example. He stated that they had already researched where they could distribute bottled water within their water service areas and what vendors they might contract with in order to be ready.

Mr. Mawyer stated that they would carefully monitor the raw and treated drinking water should there be approval of the proposed EPA standards. He stated that staff were working on the strategies they could think of to prepare them for any potential water testing that indicated PFAS, and they were going to be testing almost every month. He stated they were working to be prepared.

Ms. Mallek stated that having been digging around in this for a long time, she knew it was really hard to keep composure, because there was danger, and when they had danger, they wanted to do something about it. She stated that from all of the meetings she had been to with the EPA about this, multiple federal agencies were working on this and with each other, and the USDA was digging very deeply into this right now, and there was supposed to be some guidance coming out in the next month about the use of sewage sludge, because it was found to be very severely and directly affected in two different states on opposite sides of the country.

Ms. Mallek stated that all of the different utility representatives in these meetings were saying to stop production of PFAS, and to not get after utilities if they were going to allow more and more of this stuff to be dumped into water sources. She stated that everyone understood that, so there was not an overreaction to say, and it was absolutely right, that they were going to deliberately go into this and do the best that they could to be prepared. She stated that she was so joyful of that joint meeting where they put in the Granular Activated Carbon, which was expensive but less expensive than had they done all the other things and then had to do this, so she always considered that to be a plus.

Ms. Mallek stated that there would be a whole federal approach about the producer paying

because utilities could not pass it along to ratepayers. She stated that people who had been making profits off of this product for years would have to figure out a way to do this. She stated that there were many people at many different levels who were all there to help Mr. Mawyer and staff here, which was why they had to be connected with them.

7. *ITEMS FROM THE PUBLIC*

Mr. Sanders asked if there were any members of the public who wished to speak.

Mr. Woodson stated that there was one online commentor, Dede Smith.

Ms. Smith stated that she did not anticipate speaking but saw that they had water demand on their agenda. She stated that listening to this conversation was absolutely fascinating because there had been history with the raw water quality in their urban system. She stated that back in the 1920s when the system was deemed too small, the Virginia Department of Health at that point, more than 100 years ago, did an analysis of where the cleanest raw water was, and they stated basically of all the sources that they still identified, the only clean raw water in the system was the Moormans River.

Ms. Smith stated that this analysis was then done again in 2013 under the latest community water plan, and again, the Virginia Department of Health came back and stated that they only had one clean raw water source, which was the Moormans River. She stated that they should keep using their cleanest raw water supply. She stated that back then, PFAS was not even an issue, but now that it was an issue, it was a big deal. She stated that on top of that, during the community water supply conversation, a few really fascinating things came up. She stated that one was that the Nature Conservancy's plan, which they implemented, minus the 9-mile uphill pipeline, was to make Ragged Mountain big enough to supply the whole system with water in a drought with time to refill.

Ms. Smith stated that there was no putting dirty water into Ragged Mountain, and the whole point of Ragged Mountain was that it was the only clean, raw water they had and it had no PFAS because it was from the very top of the watershed. She stated that the other fascinating thing that came up during the conversations about the community water supply was that they had very large sources, or aquifers, in western Albemarle in the mountains. She stated that no one wanted to talk about this because the entire Albemarle presence on Rivanna water was to protect that area, but there were very large, clean water sources in those mountains, and that was a study that she was happy to forward to anybody.

Ms. Smith stated that it was why Nestlé, one of the most corrupt organizations in the world, invested $1M in the Nature Conservancy's Piedmont plan, because they were very interested in those aquifers in the mountains. She stated that she did not think they got anyone to agree to work with them, but that stated, she wanted them to please keep those things in mind. She stated that PFAS would only become a bigger problem, and the only way to really combat it reasonably was to use the cleanest water they had as their raw water source. She stated that she did not expect them to actually do that but she appreciated their time.

8. *RESPONSES TO PUBLIC COMMENTS*

Mr. Sanders asked if Mr. Mawyer had a response to public comment.

Mr. Mawyer stated he did not.

9. *CONSENT AGENDA*

a.Staff Report on Finance
b.Staff Report on Operations
c.Staff Report on CIP Projects
d.Staff Report on Administration and Communications
e.Staff Report on Wholesale Metering
f. Staff Report on Drought Monitoring
g.Approval of Engineering Services – Crozet GAC Expansion Phase 1 – Short Elliott Hendrickson, Inc.
h.Approval of Engineering Services – Observatory Water Treatment Plant – Expansion and Rehabilitation Project – Additional Construction Phase Services – Short Elliott Hendrickson Inc.
i. Approval of Engineering Services – Beaver Creek Raw Water Pump Station and Intake – Hazen and Sawyer

Mr. O'Connell moved that the Board adopt the Consent Agenda. The motion was seconded by Ms. Hildebrand.

Mr. O'Connell asked if it was correct that the financial report in the consent agenda was the year-end report.

Mr. Mawyer stated that was correct.

Mr. O'Connell stated that there was a $1.5M deficit.

Mr. Mawyer stated that was correct.

Mr. O'Connell asked if Mr. Mawyer could talk about the plan that would deal with that.

Mr. Mawyer stated that next month they would have a year-end results presentation that would go through the details, but they had to look at each cost center where the deficit occurred and they went to the reserves for each of those cost centers, and that was where they funded the deficit. He stated that more to Mr. O'Connell's' question was how they tried to prevent these exceedances from happening in the future, and they were reviewing their FY24 and proposed FY 25 budgets and to find ways to mitigate the exceedances. He stated that a lot of the exceedances were in chemicals that they bid annually to be competitive and get the lowest price, and the bids were about 60% higher last year, so they had to absorb that cost increase in FY 23.

Mr. Mawyer stated that they also had completed a lot of unbudgeted work for their information technology program including IT security, and they spent $500,000 on implementing those enhancements over the last year. He stated that those were two of the larger issues that drove the

deficit. He stated that they bid out the chemicals in June 2023 and the prices were slightly lower, so they were pleased with that, but were trying to work between having affordable rates to the two customers and funding the necessary programs. He stated that he had discussed this issue with staff, and that it would not be as simple as adding $2.5M to the FY 25 budget. He stated that Mr. Wood would return next month with a presentation.

Mr. O'Connell asked if that would be regarding strategies for dealing with it as well as the sources to cover the debt.

Mr. Mawyer stated yes.

Mr. Sanders asked if there were any other questions about the consent agenda. He called for the vote.

The motion passed unanimously (6-0). Mr. Gaffney was absent from the vote.

10. *OTHER BUSINESS*

a.Presentation: Urban Water Supply and Demand Review

Jennifer Whitaker, Director of Engineering and Maintenance

Ms. Whitaker stated that she would be presenting a review of the urban drinking water supply and demand study. She stated that much of the analysis she would be discussing had been done between 2018 - 2020. She stated that the urban water system supply consisted of three main reservoirs. She stated the Sugar Hollow Reservoir, located at the foothills of the Blue Ridge Mountains near Shenandoah National Park, had approximately 339 MG of storage.

Ms. Whitaker stated that the South Fork Rivanna Reservoir was located in the central part of the County and held 883 MG, and the Ragged Mountain Reservoir held 1.44 BG. She stated that the current storage capacity in the three reservoirs was 2.6 BG, and all served the urban system, including the City of Charlottesville, UVA, and the urban ring of Albemarle County. She stated that in addition, they had a small North Fork Rivanna River intake that had a small water treatment plant. She stated that they would talk more about the future disposition of that plant, but it was supplied by a small river that was in the process of drying up as they spoke, and if they did not get some rain, would likely be dry.

Ms. Whitaker stated that the urban area included the City of Charlottesville, UVA, and the urban ring north up Route 29 and east and west along Route 250. She stated that they had three key water treatment plants in the urban system, one being the South Fork Rivanna Water Treatment Plant, which was rated to produce about 12 MGD, the Observatory Water Treatment Plant, which was in the middle of being upgraded to an anticipated 10 MGD at the end of this year, and the North Rivanna Water Treatment Plant had a rated capacity of 2 MGD and usually produced a little under 1 MGD. She stated that the North Rivanna Water Treatment Plant was anticipated to be decommissioned in 2026 and the demand would be shifted to the South Fork Rivanna Water Treatment Plant. She stated that overall, they had 24 MGD of treatment capacity.

Ms. Whitaker stated that the water supply was regulated in the Commonwealth through the

Virginia Administrative Code, Chapter 780, which required local water supply planning designed to ensure adequate and safe drinking water was available and to promote conservation. She stated that in 2001 and 2002, there was an 18-month drought of record in central Virginia, and prior to that the drought of record was in the 1930s. She stated that this sparked a ten-year long water supply planning process, which looked at over 32 alternatives, and ultimately the community selected to drink local and stay within their protected watershed.

Ms. Whitaker stated that the community water supply plan came to fruition, was adopted in 2012, and included several projects. She stated that one of the projects was the larger replacement dam for the Ragged Mountain Reservoir, where there had been two dams built there previously, one in 1885 and one in 1908. She stated that the new dam was completed in 2014 and met the needs of both dam safety and water supply. She stated that the next project is a larger raw water line from South Fork Rivanna to Ragged Mountain Reservoir.

Ms. Whitaker stated that they talked about this extensively in the last few meetings, and it was originally scheduled to be constructed between 2027 and 2035, and now they were planning between 2023 and 2030. She next stated that renovation of the South Rivanna and Observatory Water Treatment Plants was under construction and nearing completion. She stated that the last project was replacing the original 1920s pipeline that ran from Ragged Mountain to Observatory. She stated that this is an infrastructure renewal project as well as a capacity project, and that was planned for 2024 through 2028.

Ms. Whitaker stated that there were three key documents to talk about when discussing water supply, and one of them was the Ragged Mountain Dam Project Agreement, which was the master plan that allowed all of the utilities and government agencies to agree on how to proceed with the community's Water Supply Plan. She explained that it was a cost agreement, and they could see the cost split for each portion of the project between the City and ACSA on the slide, with slightly different cost splits depending on each project. She stated that it was important to note that there were key qualifiers in that agreement, stipulating that the raising of Ragged Mountain dam an additional 12 feet was in the design and construction of the project, but raising the water level would not happen until the supply hit 85% of demand.

Ms. Whitaker stated that there was a proposal to come forward soon to potentially change that limitation. She stated that the second item was that the agreement required them to complete bathymetric studies every 10 years, which were topographic surveys under the water of the reservoirs. These allowed staff to view sediment depths, topographic features, and how the riverbed morphology was changing in the reservoirs.

Ms. Whitaker stated that they also had two environmental permits that allowed them to execute this whole program, one through the U.S. Army Corps of Engineers, and a second through VDEQ. She stated that they were under administrative continuance for both permits. She stated that they had been getting fairly good feedback on the submitted permit renewals so far and did not expect any huge regulatory problems.

Ms. Whitaker stated that the next few slides came directly out of their 2020 study. She stated that on the left of the slide shown, there was a chart from the completed bathymetric surveys of how

much usable water they had in the reservoirs. She stated that in the third column, it added up to 2.6 BG. She stated that historically, they did not do bathymetric surveys very often, but now that the technology had progressed, they could get a survey crew out on the reservoir and generate topography relatively quickly. She stated that by doing this once every 10 years, they could create trends and understand what volume changes were going on in the reservoir.

Ms. Whitaker stated that on the right-hand side of the slide, there was a graph showing the historical bathymetric surveys for the South Fork Rivanna Reservoir. She stated that it could be seen that from the 1960s through 2010, they had a steady decline of usable volume in the South Fork Rivanna Reservoir. She stated that it was originally designed for an even steeper decline and was expected to silt in at some point.

Ms. Whitaker stated that what they were seeing in the last couple of surveys was that the siltation seemed to have leveled off. She stated that it could have happened for a couple of reasons, including that a natural body of water could find an equilibrium, and/or that the large 2018 storm had created significant scour out of the reservoir, which may have contributed to less sediment. She stated that they would be interested to see what the next bathymetric survey showed them for volume.

Mr. O'Connell asked if it would be completed again in 2030.

Ms. Whitaker stated that the bathymetric survey would be done in 2028 and included in the 2030 supply and demand study. She stated that they were staggering implementation so the surveyors did not have to do every reservoir all in one summer, because sometimes the weather did not cooperate. She stated that the next item, as Mr. Mawyer alluded to earlier, was the safe yield versus the operational safe yield. She stated that historically, when they talked about how much water they had, they had always talked about safe yield. She stated that it was a historic measurement that had been used in the Commonwealth for the better part of 70 years, primarily because most water systems in the Commonwealth only had one reservoir.

Ms. Whitaker stated that when they started looking at complex systems that interacted like theirs did, with three reservoirs, three plants, river intake, and moving water from one place to another, it got pretty complicated to try to figure out what that yield was, and they came up with a system to measure it that accounted for the limitations of piping, treatment plants, conveyance of nature, rainfall, and hydrology. She stated that they had developed an operational yield for the system, which measures what could be produced and delivered to customers.

Ms. Whitaker stated that the graph on the slide indicated that in 2020, the operational yield was 12.8 MGD, and when they improved the plants, because the plants were a key limiting factor, they would see the operational yield go up. She stated that the Central Water Line and the other piping projects contributed to that available water supply go up. She stated that it showed that there was a steady decline based on sedimentation in the South Fork Reservoir, so they could see the water supply going up and slowly going back down over time.

Ms. Whitaker stated that now that they knew what they had for supply, the other curve they needed to look at was the population forecast in order to see what demand may be in the future.

She stated that every 10 years they did a full water supply study with a safe yield analysis, population projection, and demand analysis. She stated that they were able to meet over the course of about two months with the regional agencies, including Weldon Cooper Center, the Thomas Jefferson Planning District Commission, the Albemarle County Office of Community Development, the City Neighborhood Development Services Department, and UVA Facilities and Architect Offices, along with the utility agencies as well to gather projection information.

Ms. Whitaker stated that they looked at the long-term forecast, what future development plans looked like, what UVA was planning, and they tried to incorporate all of that into a population and demand forecast for the community. She stated that the chart displayed on the slide came out of their 2020 report and was what they anticipated their designated service area to be over time. She stated that it was not a measurement of population but was the designated service area that included UVA, the City, and portions of the County based on comprehensive planning and other work.

Ms. Whitaker stated that the two graphs on the slide were meant to be illustrative. She stated that they only went to 2018 because that was where they stopped when they did the study, but what they showed was that the per capita unit demand for their community had dropped dramatically in the last 25 years. She stated that typically, when estimating water historically, they would see per capita use of 110 or 120 gallons per day. She stated that their community typically operated at 60 gallons or 65 gallons per person per day, which was among some of the lowest water usage rates in the entire country at this point. She stated that as they talked about conservation, there were absolutely additional opportunities, but they were at a very low usage rate compared to much of the rest of the country.

Ms. Whitaker stated that the next graph indicated that UVA was the largest single customer in the system, with a historically higher water demand. She stated that UVA had done a lot of work on the system to bring their per capita, per student, per person rate down. She stated that the number of people served at UVa was still going up, but the demand was going down. They believed that in 2035, they would start to see a climb in the curve with more people and more uses, so the demand would rise as well.

Ms. Whitaker stated that they had an operational yield, which was indicated on the graph with gray bars, when plotted against demand, it showed that they had adequate water supply through 2060. She stated that their supply and demand were expected to be equal in 2060. She stated that they typically planned improvements at the 85% level, because it takes a long time to build improvements and obtain permits needed. The 85% point is 2045.

Ms. Whitaker stated that the plan to increase water supply included first construction of the Ragged Mountain to Observatory Pipeline and Pump Station, which was shown in brown on the bottom of the map on the slide. She stated that this project replaced 100-year-old pipes and infrastructure and increased raw water capacity to the Observatory Water Treatment Plant.

Ms. Whitaker stated that the next project was the Central Water Line, which was the dark blue line on the map. She stated that it connected all of the water plants, tanks, and the finished water system. She stated that the purple line going north to south on the map was the South Rivanna to

Ragged Mountain Pipeline. The final project is the ultimate raise of the pool by 12 feet at the Ragged Mountain Reservoir.

Ms. Whitaker stated that the next graph was displaying the same data of supply and demand crossing at 2060 at 13.7 MGD. She stated that what happened to their yield and supply when they built the South Rivanna to Ragged Mountain Pipeline gave them a large jump in 2030 to provide more yield, availability, and capabilities to supply water and respond to droughts and emergencies. She stated that similar to the conversations about PFAS earlier, there was a question about how they kept the system functional and running if they had to shut a plant down. She stated that they had to plan for experiencing a drought that was worse than the drought of record, which was likely due to climate change. She stated that they had to ask how to do that and what it looked like, and the graph indicated that it carried them through the planning period past 2070.

Mr. Richardson asked where the projection of the Observatory's capacity of 10 MGD per day was represented in the graph.

Ms. Whitaker stated that part of that was built into the initial jump when renovation of the plants was finished in 2023. Because they could get more into the plants than out of the plants, the Central Water Line would be built on the same schedule as the Ragged to Observatory pipeline. She stated that part of the increase was built into the increase to 15.1 MGD, and part of it was built into the increase to 18 MGD.

Mr. Richardson asked if those two things combined got them to 18 MGD.

Ms. Whitaker stated yes. She stated that the last graph showed that the yield raised to 21.5 MGD, and that value included not only the pipeline and the other projects they had talked about, but also raising the normal pool level 12 feet at Ragged Mountain. She stated that once they had the larger pipeline in place, they could operate that entire system as one unit. At that point, the entire community water supply plan as it was envisioned would be completed and give them full flexibility and redundancy throughout the system. She stated that this was what the ultimate plan would provide.

Ms. Whitaker summarized that they had adequate supply, and the current plan took them well past 2060, however one of the things they must be thinking about was that severe droughts were on the horizon for most of the United States and most likely their community as well. She stated that they had designed our water system to be prepared for the drought of record, and it was likely that they would see conditions more severe in their lifetimes. She stated that part of advancing these projects was being prepared and having the redundancy and resiliency in the system to address more severe conditions and water supply requirements.

Ms. Whitaker stated that the pipeline work that they had underway now looked to be completed by 2030, both raw and finished water, and the staff were working on those projects right now. She stated that the existing Ragged Mountain Dam would allow them to add another 700 MG of storage when they raised the normal pool an additional 12 feet, and would give them a 50% increase in storage at that reservoir. She stated that there was a Ragged Mountain Dam Project

Agreement modification that may be presented to the City Council, the Service Authority, and RWSA in the future that would allow them to implement this increase in the water storage volume at the Ragged Mtn reservoir earlier than what was in the original agreement.

Mr. Sanders asked what the projected timing was to be on the amendment.

Mr. Mawyer replied that Ms. Long was working with the City Attorney and the ACSA Attorney to go over the terms, and as soon as that was completed, they would request Mr. Sanders to consider taking the request to Council. He stated that they hoped within several months they would be ready to consider the amendment to the agreement.

Ms. Mallek asked if 339 MGD was the safe yield for Sugar Hollow.

Ms. Whitaker stated that it was the usable volume. She stated that all reservoirs had a section at the bottom that they did not consider usable due to a variety of reasons, so the usage storage in Sugar Hollow was 339 MGD.

Ms. Mallek stated that was the 20 MGD difference between 50 years ago and now. She asked if that was used as their primary source, how long would it would last considering what they were using now.

Ms. Whitaker stated that the pipe connection between the Rivanna and Ragged Mtn reservoirs was the key. She stated that they were limited in how much they could transfer from Sugar Hollow into Ragged Mountain to about 3 MGD. She stated that Sugar Hollow reservoir had a steep watershed, so it did refill quickly, but it did need rain to refill, so in a drought it would drain and they would have to use all three reservoirs to supply drinking water to the community.

Ms. Mallek stated that Sugar Hollow could not provide enough water by itself.

Ms. Whitaker stated no, it could not do it by itself.

Ms. Mallek stated that even the South Fork Rivanna Reservoir could not provide enough water by itself. She stated that it filled very fast and fell very quickly when it stopped raining.

Mr. O'Connell asked if the one action that would need to occur was the amendment to the Ragged Mountain agreement, and the rest of the items they talked about were in the CIP with plans on when they were going to happen.

Mr. Mawyer stated yes. He stated that all of the infrastructure plans were in place, they just needed agreement on the amendment to the Ragged Mountain Dam Project agreement to allow them to fill Ragged Mountain reservoir sooner. He stated that the dam was already built to take on the additional 12 feet and 700 MG, but they needed agreement from the Council and Boards to fill the reservoir as soon as possible rather than waiting until the demand equaled 85% of supply. He stated that they wanted to fill it now and have maximum water storage capacity for the community.

b.Presentation: Wastewater Facilities Review

David Tungate, Director of Operations and Environmental Services

Mr. Tungate stated that the presentation was showing an aerial view of the Moores Creek Advanced Water Resource Recovery Facility. He stated that there are four wastewater treatment facilities that RWSA operates in Albemarle County. He stated that the upper left one was the Moores Creek facility, which was the largest facility and rated at 15 MGD in treatment capacity, on the right was the Stone Robinson Elementary School Wastewater Treatment Plant, and the bottom right was the Glenmore Water Resource Recovery Facility, which serves the Glenmore subdivision and the Rivanna Village area east of Charlottesville. He stated that we also manage the Scottsville Wastewater Resource Recovery Facility that serves the Town of Scottsville.

Mr. Tungate stated that wastewater staff considers the Moores Creek facility to have two sides, the "wet side" and the "dry side". He stated that displayed on the slide was the wet side, closest to I-64, and toward the back was the Administration Building where we are currently located. He stated that the band screens are the first equipment to process the water on the "wet" side. The next step is a grit removal system. The water then flows through two pipes to the primary clarifiers. The primary clarifiers were covered in a recent odor control project, is the first wastewater treatment process. The odor control scrubbing tower is adjacent to the primary clarifiers and treats the foul air form the primary clarifiers. The aeration basins are the next stop, and it is the location where the majority of the biological treatment occurs. He stated that the image showed two of the four secondary clarifiers.

Mr. Tungate stated that the solids or "dry" side of Moores Creek has three primary digesters that break down the sludge from the "wet" side. He stated that the gas generated from breaking down the solids in the sludge are stored in the secondary digester with a floating dome roof. The methane was piped over to be stored in the methane gas sphere or used in the boiler for heating the water to supply the temperature for the digesters. The digested solids are stored in the sludge storage digester, after being in the digesters for approximately 15 days. The sludge is then pumped to the solids handling building where a centrifuge de-waters the sludge. He stated that at the top of the photograph were the UV channels, which were used to disinfect the water, then they had their outfall on Moores Creek.

Mr. Tungate stated that Moores Creek has two influent pump stations. One of which, Moores Creek pump station, was located near the entrance to the Moores Creek facility. The newer of the two influent pump stations, Rivanna pump station was built adjacent to the new facility at Woolen Mills. He stated that of the two pump stations, Moores Creek and Rivanna, the Rivanna Pump Station was the largest and served everything north of the northern half of the City of Charlottesville, including all of the urban area around the City. It was indicated in yellow on the map shown on the slide. He stated that the Moores Creek Pump Station served the southern half of the City as well as Crozet. He stated that there was not another wastewater treatment plant in Crozet, but there were a series of four pump stations that pumped the sewage from Crozet to the Farmington area, where it then traveled by gravity to the Moores Creek Water Treatment Plant.

Mr. Tungate stated that the sewage gets pumped from the two influent pump stations, Moores Creek and Rivanna, to the band screens. Each of the influent pump stations have large grinders

that make any solids small enough to be pumped. stations to He showed a small plastic bag with material from the band screens. This material gets hauled off from a dumpster to be disposed of in a landfill. A typical year will see approximately 600 yards of this material each year.

Mr. Tungate stated that they also had grit removal system, which removed the heavier insoluble material out of the sewage that came into the plant. It is an important step as this type of insoluble material takes up valuable space in the wastewater treatment plant. . He stated that RWSA wastewater department hauled away approximately 300 yards of insoluble grit every year. After the band screens and grit removal system, the water then flows to the primary clarifiers, which was the first stage of sludge and grease and oil removal. He stated that they had been covered as part of the odor control project.

Mr. Tungate stated that the pipes seen on top of the basin were what was taking the air to the odor scrubbing system, which he then displayed a photograph of on the slide. The next slide showed Crozet Pump Station 4 at Route 240 and Route 250. The pump station is on the left and the new Flow Equalization Tank is on the right. The Flow Equalization Tank temporarily stores higher flows of sewage, and when the sewage flows drop off, the Flow Equalization Tank empties back to Crozet Pump Station 4.

Mr. Tungate noted that RWSA has an odor control system at three of their four Crozet pump stations. Crozet pump station odor control costs about $400,000 per year.

Ms. Mallek asked if that was an introduction of some chemical in that spot or a filter.

Mr. Tungate stated that it was a chemical; they feed a combination of Bioxide and Hydrogen Peroxide to keep the odors down. He stated that the next photograph displayed the aeration zones at Moores Creek aeration basins, which is where nitrogen was converted to nitrogen gas through the biological treatment. He stated that after the aeration basins, the water went to the secondary clarifiers for the final stage of sludge removal. Secondary clarifiers allow the sludge to settle to the bottom and the clear water on top is decanted and taken over to the gravity sand filters and ultimately put back in to Moores Creek. He stated that gravity sand filters removed small particles to increase the effectiveness of the UV lamps. The sludge that accumulates in the secondary clarifiers is pumped to the digesters.

Mr. Tungate stated that Moores Creek has a series of UV channels that disinfect the wastewater just before it is released back to Moores Creek. He stated that after the sludge has been in the digesters for 15-20 days, it is moved to the solids handling building. This building contains two centrifuges that dewater the sludge by spinning it very fast. The water is returned back to the front of the plant, and the solids were then captured as biosolids. He stated that in 2022, Moores Creek generated approximately 14,000 tons of biosolids, and they paid to have those hauled to Waverly, Virginia to McGill Environmental, where it was made into a commercially available compost product. He stated that they paid for both the hauling and disposal at McGill Environmental in Waverly Virginia.

Mr. Tungate stated that regarding nutrients, RWSA has a permit to operate the Moores Creek Advanced Water Resource Facility and were allocated 282,994 pounds of Nitrogen and 18,525

pounds of Phosphorous for the year. He stated that this report is in the consent agenda for the Board of Directors every month. He stated that the monthly allocation for Nitrogen was 25,583 pounds and for Phosphorous was 1,544. The monthly discharge for July 2023 was 10,114 pounds of Nitrogen and 713 pounds of Phosphorous.

Mr. Tungate stated that for July of 2023 , the wastewater department was at 43% of their monthly allocation for Nitrogen and 46% of their allocation for Phosphorous, and for the year they were at 23% and 17% respectively. He stated that this is a part of their nutrient credit trading program, so when they overperformed and had allocated nutrients left, they could sell them on the exchange for money. He stated that for 2022, it was about $50,000 and in years past it had been between $80,000 to $100,000. He stated that it depended on the value of the credits and who needed those credits.

Mr. Tungate stated that the wastewater plant performance testing was done monthly with compliance reports sent to the Virginia Department of Environmental Quality. He stated that dissolved oxygen and pH were tested daily, total suspended solids and ammonia were tested five times per week, Escherichia coli bacteria was tested for seven times per week, total Phosphorous and total Nitrogen are tested twice per week, and chemical biological oxygen demand was tested four times per week.

Mr. Tungate stated that the Moores Creek septic receiving station processed approximately 9 million gallons of septage per year and about 7,000 deliveries each year.

Mr. Pinkston asked what the source of that septage was.

Mr. Tungate stated that it came from local, decentralized wastewater systems.

Mr. Pinkston asked if they were from port-o-johns.

Mr. Tungate stated yes, but they were mostly from residential septic tanks.

Mr. Mawyer clarified that they were from rural septic tanks where people were not connected to a public sewer system.

Ms. Mallek asked if septic customers were paying sufficiently to cover costs.

Mr. Tungate stated that they did a cost-of-service study in December 2022, and found that it was paying for itself.

He stated that regarding the wastewater treatment plants, RWSA has four wastewater treatment plants with 16 wastewater operators who worked in the wastewater department. He stated that nine operators were assigned at the Moores Creek facility, which was their largest facility and was staffed 24/7, 365 days per year. He stated that the operators worked 12-hour shifts and changed at 6:00 a.m. and 6:00 p.m. He stated that the Glenmore Wastewater Treatment Plant was staffed four hours a day, 365 days per year, with one operator each day, so they had two shifts of operators each week to cover all seven days.

Mr. Tungate stated that at the Scottsville Wastewater Treatment Plant, was staffed 4 hours per day, 365 days per year. He stated that the Stone Robinson Wastewater Plant treated about 7,000 gallons per day when school was in session and was staffed one hour per day, 365 days per year. He stated that typically one operator per day did each of these three County facilities. He stated that they had relief operators in both the water and wastewater departments who were licensed Class 1 Operators who were flexible and able to run any of the wastewater treatment plants and were available to work if a co-worker called in sick or was on vacation. He stated that they had three management staff; a manager, assistant manager, and a supervisor, and each of these are Class 1 Operators.

Mr. Tungate stated that RWSA is proud of the accomplishments of their wastewater operation staff in gaining licenses. He stated that of their 16 wastewater operators, seven of them were Class 1, five of them were Class 2, two were Class 3, and there were two unlicensed trainees right now. He stated that passing the certification exams and obtaining a license gave the operator a 7% raise for each license. Each operator has to qualify for certification exams with a combination of education and hands-on experience to be allowed to take certification exams. These exams and certifications are organized by the Virginia Department of Professional and Occupational Regulation. He stated that many new hires had college degrees, which allowed them to move forward faster through the licensing and certification process.

Mr. Tungate stated that the industrial waste pretreatment program's purpose is to protect the sewer collection system and the processes in the wastewater treatment plants by having sewer discharge limits. He stated that it was a requirement by the EPA and Virginia DEQ. He stated that the Virginia DEQ regulated the wastewater side of their business and the Virginia Department of Health regulated the drinking water side of the business.

Mr. Tungate stated that the pretreatment program looks at fats, oils, and greases, and ACSA sent out a mailer about the Fats Oils and Greases (FOG) Program in the last 12 months. He stated that a pretreatment program will also look at heavy metals, nutrients, pH limits, and chemical biochemical oxygen demand as well. He stated that significant industrial users was a topic that RWSA were exploring it with both City and County staff. He stated that categorical industrial use would include metal finishing and semiconductor manufacturing, which they did not have a lot of in this area, and non-categorical industrial users were those who discharged more than 25,000 gallons per day or had the potential to adversely affect their treatment process.

Mr. Tungate stated that sewer users with processes that discharged products of concern were restaurants, breweries, wineries, soft drink bottling facilities, and food preparation facilities. He stated that they had three significant industrial users (SIUs) that they were monitoring in the pretreatment program. He stated that these were Virginia Diodes, Inc, Mikro, and Northrop Grumman, and each were required to submit a semi-annual report for the periods ending in June and December of each year. He stated that they currently had a project to identify sewer users with processes that discharge products of concern.

Mr. Tungate stated that Biochemical Oxygen Demand (BOD) measured the amount of oxygen consumed by aerobic bacteria in a water sample at a specific temperature over a specific period

of time. Carbonaceous Biochemical Oxygen Demand (CBOD) represented BOD from carbon-based compounds only. He stated that BOD was food for bacteria, the bacteria utilized oxygen when they consumed the BOD, and as oxygen is depleted from the water, it can cause an issue for any aquatic organisms. He stated that the higher the BOD or CBOD in waste, the lower the dissolved oxygen was in the stream, which could cause issues for aquatic organisms.

Mr. Tungate stated that CBOD testing was done in the lab right below them, and they did this as part of their SIU investigation with the City and the County. He stated that the testing process involves taking an initial dissolved oxygen reading, then removed nitrogen bacteria from the sample so there was only CBOD present, then the sample remained at 20 degrees Celsius for five days in an incubator. He stated that after five days, they took another dissolved oxygen reading and took the difference between those two dissolved oxygen readings to calculate the CBOD levels.

Mr. Tungate stated that the slide shown was a portion of the operating permit for Moores Creek. He stated that they could see on the CBOD limit on the permit and the monthly average could not exceed 9 mg/L and the weekly average could not exceed 14 mg/L. He stated they were required to do one 24-hour composite CBOD test per week. RWSA wastewater department has automatic samplers to collect the water samples every day. He stated that the Moores Creek aeration basins had a CBOD treatment capacity of 34,900 pounds per day, and in 2022, their average CBOD concentration was 24,000 pounds per day. He stated that the master plan stated that if the daily average of CBOD increased to 31,700 pounds over three consecutive months, possible expansion would be needed in the aeration basins to treat the CBOD.

Mr. Tungate stated that the wastewater department budget for FY 2024 was $21.5M. He stated that it included $10M for debt service, $4.3M for central support including Finance, IT, HR, Engineering, Maintenance, and Lab services, $1.7M for employee salaries, and $1M for wastewater treatment chemicals. He stated that also included $1.1M for operations and maintenance, $1.2M for odor control and biosolids disposal and trucking, $1.2M for communication lines, IT, miscellaneous supplies, and professional services, and $0.98M for utility costs including electricity and natural gas. He stated that in FY 2023, they treated 3.4 billion gallons of wastewater at the cost of $3.11 per 1,000 gallons of wastewater.

Ms. Mallek asked if the CBOD exceeding 31,700 pounds would be due to population growth or something else.

Mr. Tungate stated that they were investigating that now. He stated that they suspected there was contribution to the CBOD from certain industries in their area and they were investigating to determine where that strong waste was coming from.

Mr. Mawyer asked Mr. Tungate to explain why they would be concerned about heavy metals in the wastewater system.

Mr. Tungate stated that it would have an effect on the quality of their biosolids they sold to McGill Environmental, and it would affect the viability of their microbes utilized in the treatment process. Metals could kill off the microbes in the aeration basins.

Ms. Mallek stated that the more strong waste that was there, the more those were going to get through and impact someone's drinking water downstream.

Mr. Tungate stated they were attuned to this and had online instruments that gave them a clue and cued them in if there was a problem.

11. *OTHER ITEMS FROM BOARD/STAFF NOT ON THE AGENDA*

There were none.

Mr. Mawyer thanked Mr. Sanders for serving as Vice Chair and running the meeting, as well as his appointment as City Manager. He stated that he looked forward to his future years of assistance.

12. *CLOSED MEETING*

There was no reason for a closed meeting.

13. *ADJOURNMENT*

At 3:46 p.m., Mr. Sanders adjourned the meeting of the Rivanna Water and Sewer Authority.

Respectfully submitted,

Mr. Jeff Richardson
Secretary - Treasurer