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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
April 25, 2023

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, April 25, 2023 at 2:15 p.m. at the Conference Room of the Administration Building at 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mike Gaffney, Michael Rogers, Brian Pinkston, Ann Mallek, Lauren Hildebrand, Gary O'Connell, and Jeff Richardson.

Board Members Absent: None

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, Deborah Anama, Victoria Fort, David Tungate, Scott Schiller, Andrea Bowles

Attorney(s) Present: Carrie Stanton

1. CALL TO ORDER

Mr. Gaffney convened the April 25, 2023, regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:15 p.m.

2. AGENDA APPROVAL

There were no comments on, changes to, or questions regarding the agenda.

Mr. Rogers moved that the Board adopt the agenda as presented. The motion was seconded by Ms. Mallek and passed unanimously (7-0).

3. MINUTES OF PREVIOUS BOARD MEETING

a. Minutes of Regular Board Meeting on March 28, 2023 (Virtual via Zoom)

There were no comments on, changes to, or questions regarding the minutes of the meeting held on March 28, 2023.

Ms. Mallek moved that the Board approve the minutes of the March 28, 2023 meeting. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).

4. RECOGNITIONS

There were none.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer recognized four staff members who continued to improve their credentials and the credibility of the Authority. He stated that Alison Henry, who received her Class 1 Water Operator License, was now a dual licensee, meaning that she also had a Class 1 license for wastewater. He stated that Ceara Schwake Lyon had recently received her Class 1 Water

Operator License. He stated that Tyrone Hughes and David Jeffries were in the Maintenance Department, and through the Virginia Apprentice Program and working through Valley Vo-Tech, Mr. Hughes received his HVAC Refrigeration License Level 4, the highest license achievable; Mr. Jeffries received his Backflow Prevention Device Worker Certification.

Mr. Mawyer reported that under the strategic plan priority of planning and infrastructure, the Observatory Water Treatment Plant began producing water yesterday in a small amount and would be increasing in the next few days to 6 million gallons per day, with an expected capacity reached in the summertime of 10 million gallons per day. He stated that Mr. Scott Schiller had been the lead on the project, and Ms. Whitaker and staff had substantially completed the work to this point, however there were a few months of work remaining. He stated that a grand opening for the project would be held later in the year as soon as the plant was ready.

Mr. Pinkston asked if they were tracking the closure at Alderman Road and McCormick Road happening this summer.

Mr. Mawyer stated that yes, they had been invited to a meeting about that project. He reported that they continued to work with UVA and the UVA Foundation on two of the three major pipeline projects, one from Rivanna to Ragged Mountain Reservoir and one from Ragged Mountain Reservoir to the Observatory Treatment Plant, both of which were 36-inch major water pipes of about 13 miles in length. He stated that the details were currently being worked out with the UVA Foundation about the pump station property including architectural approvals and other items.

Mr. Mawyer noted that for those two pipeline projects, there were 19 easements required on 31 parcels, which included 14 private property owners and five public property owners, which were UVA, the UVA Foundation, the Department of Forestry, Albemarle County Public Schools, and the City of Charlottesville. He stated that the efforts to acquire these easements had been successful, and they had acquired all of the private easements at this point as well.

Mr. Mawyer stated that the third pipeline project was the Central Water Pipeline, going from the Scott Stadium area through the City along Cherry Avenue to East High Street and Free Bridge. He stated that the 30% design plans had been completed, as well as a team review with the staff of the City, the Service Authority, and the RWSA. He stated that they were now moving toward the 60% design completion goal, with an advertisement for construction anticipated later in the year. In approximately one year they expected to begin construction on the project. He stated that there would be an extensive community outreach program before the contractor began work.

Mr. Mawyer stated that the Beaver Creek Dam modifications project included the ability to pass additional rainwater through the spillway that protected Beaver Creek Dam, which was a state reservoir dam requirement. He stated that the federal Natural Resources Conservation Services approved a $1M grant to pay for the design services and project administration components of the project, and along with other grant funding previously received would make a total of $1.7M toward this project. He stated that there would be a new spillway going through the middle of the dam, with a new bridge to maintain vehicle traffic on Brownsville Gap Turnpike.

Mr. Mawyer stated that the project was funded through the ACSA as well as this grant. He stated that associated with that, they had to ask the Albemarle County Board of Supervisors and the Thomas Jefferson Soil and Water Conservation District (TJSWD) to approve a Supplemental Watershed Plan Agreement, which staff also requested the RWSA Board of Directors to approve today. He stated that this agreement transferred the sponsors of the project; when the original dam was built, the sponsors were Albemarle County and the TJSWCD, but that sponsorship was to be transferred to the RWSA. The agreement also set forth the funding terms and conditions of that project.

Mr. Mawyer stated that Mr. David Tungate gave a presentation at the Virginia section of the American Waterworks Association at their conference in Richmond. He stated that he discussed the Granular Activated Carbon system and the history and successes they had had with that filtering system, not only from removing disinfection byproducts but also PFAS from water sources. He clarified that Rivanna water had recently been tested and did not have any detection of any PFAS compounds as of February 2023. He stated that the group also participated with the Rivanna Conservation Alliance and an education program about stream water quality, which was attended by Henley and Lakeside Middle School students.

Mr. Mawyer stated that the drought monitoring report, Item 8E in the packet, stated that in 2021, they were about 8 inches low on rain, and in 2022, they were 2 inches high. He stated that through March of 2023, it was reported that they were 4 inches low. He stated that today, the state announced a drought watch for Virginia, and the map displaying the drought condition assessment was on the slide. He stated that the state reported that they were five inches low from the beginning of the year, with a net of 11 inches low over the past 28 months. He stated that all reservoirs were at maximum capacity, but they continued to monitor the situation.

Mr. O'Connell asked if reservoir levels declined as they overflowed.

Mr. Mawyer stated that they all were full and spilling right now.

Mr. Pinkston stated that in a number of reports, it had been the case that they were working with the UVA Foundation to gain easements for the large waterline projects. He asked if progress was being made.

Mr. Mawyer stated that they had met with Mr. Tim Rose, head of the UVA Foundation, and had one or two additional meetings with his staff. He stated that acquisition of these easements was moving forward.

Mr. O'Connell asked if there was a joint commitment to be done by June.

Mr. Mawyer stated yes. He stated that the remaining issue was buying land for the pump station for both the Rivanna and Ragged Mountain pipeline projects, as the UVA Foundation had remaining architectural details that they wanted to address in the easement and purchase documents.

Mr. Pinkston clarified that the process was moving forward.

Mr. Mawyer stated yes. He stated that they would continue to update the Board on the matter.

Ms. Mallek asked if they would be signing in June.

Mr. Mawyer stated that was what was requested.

Ms. Mallek asked if the UVA Board of Visitors had to approve the easements.

Mr. Mawyer stated that they did not have to for the Foundation, which had a Board of Directors.

6. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the meeting to the public. He asked speakers to identify their name and where they live, and to keep in mind the three-minute time limit.

Mr. James Bennett stated that he lived at 6430 Sugar Hollow Road in Albemarle County and was speaking on behalf of the Mormon Scenic River Advisory Board. He stated that the Virginia Department of Conservation and Recreation Board was formed in 2022 of volunteer individuals who were approved to serve based on their interest and health of the scenic Moormans River. He thanked the Board for the opportunity to speak to them today as they had last month. He stated that they were concerned that current and proposed water flows in the Moormans River were not aligned with modern biological concepts of the dependence on oxygen and internal temperature of normal metabolism in aquatic animals.

Mr. Bennett stated that all life forms, both aquatic and terrestrial, or land-based, required water to survive, and lack of water lead to dehydration, and ultimately impaired cell function and death. He stated that dehydration develops over days to weeks of water deprivation, and often overlooked was that all life forms composed of dividing cells, but not all bacteria, also required oxygen. He stated that aquatic and terrestrial animals, including humans, ingested oxygen from the air they breathed, while on the other hand, aquatic animals such as diatoms, benthic invertebrates, many other invertebrates, and fish, required oxygen from the water they lived in and depended on a continuous supply of oxygen in their water environments.

Mr. Bennett stated that within seconds of loss of oxygen access, all animal cells shift to metabolism and energy creation that occurred in oxygen absence, or anaerobic metabolism, which worked for 2 to 5 minutes at most, and not days like dehydration due to loss of water. He stated that if oxygen access was not restored, irreversible buildup of lactic acid occurred, and cells died in spite of certain genetic programs activated for survival in low-oxygen or no-oxygen environments, thus, proper river ecology depended on supplying water to prevent dehydration in both aquatic and terrestrial animals, and oxygen for the aquatic animals.

Mr. Bennett stated that ironically, if the water temperature increases, the internal temperatures of aquatic animals also increases as the life forms did not maintain constant internal temperatures as did humans and other mammals, and as their internal temperatures increased, aquatic animals experienced increases in metabolism that required more oxygen at the same time the increased water temperatures were decreasing oxygen solubility. He stated that for these reasons, flows in

biodiversity in complex river systems like the Moormans River must be both continuous and as cold as possible. He stated that it was asked of the Board to consider these biological forces as they proposed flow regimes for the Moormans River.

Ms. Dede Smith stated that she lived at 2652 Jefferson Park Circle in the City of Charlottesville, which made her an urban ratepayer. She stated that she was familiar with the 2008 DEQ permit as it related to releasing natural flow into the Moormans River but was confused by the proposed changes. She stated that when she read that if the reservoir were not spilling, operators would open the release valve and close the valve when spilling resumed. She stated that she immediately was concerned that it would be left open and unmeasured for what sometimes could be a month at a time, typically in a dry season, and there were reports that RWSA typically had to submit to DEQ of very detailed information on natural flow from the gages, the reservoir levels, and how much was released.

Ms. Smith stated that she was concerned that they knew how much they would be releasing and needed to tell DEQ that it was not about natural flow, which for other biological reasons that they had in and of themselves, and that they were not depleting the urban drought protection during a period when it was most vulnerable, when it would be spilling. She stated that she also was confused about how the gage was on the Moormans below the dam, and if they were releasing water above that was unmeasured, how they would know the natural flow if it also was reading what they were releasing.

Ms. Smith stated that she would listen to the explanation and hopefully would have those questions answered. She stated that the DEQ reports had information about the number of days the reservoir was not spilling. She stated that she was curious about whether the Moormans River Scenic Advisory Committee was talking about taking the dam down once the pipeline was discontinued, because then they would have fully normal flow.

Mr. Gaffney closed the items from the public.

7. RESPONSES TO PUBLIC COMMENT

Mr. Gaffney asked Mr. Mawyer if he had a response.

Mr. Mawyer stated that Mr. Bennett had talked about how much water they released into the river, and since they had a permit in 2008, they had followed the conditions set forth in the permit about how much they released. He stated that those conditions were set by The Nature Conservancy and other environmental groups in the community along with Virginia DEQ. He stated that they would be meeting with the Moormans River Scenic Advisory Committee on May 8 to help them understand what the permit requirements were. He stated that everyone wanted to be protective of the environment, but they also had a charge to ensure they were storing the water for the urban water users to have when needed. He stated that they were up for a DEQ permit renewal, for which new flow measurements procedures had been drafted, and were similar to what they had.

Mr. Mawyer stated that they had to release the quantity of water that came into the Sugar Hollow Reservoir in most cases, so they measured that with a gage below the dam, then used a

hydrologic equation to calculate how much water that was across the entire watershed. He stated that it was approved by DEQ and how they calculated the water that went in the reservoirs the day before, then were required to release the same amount of water the next day if the reservoir was not overflowing. He stated that if it was overflowing, the minimum amount was assumed to be satisfied by the overflow, and they did not have to release additionally.

Mr. Mawyer stated that the DEQ required them to make this adjustment twice per week to see if it was overflowing and how much water they needed to release. He stated that they had offered to the Moormans River group that they would analyze and make adjustments every day, so if the reservoir stopped overflowing, they would release more water. He stated that the previous process was to send out a crew to Sugar Hollow to open and close the valve, but it could now be done remotely through SCADA and camera to see the overflow of the dam.

Mr. O'Connell asked if that had been begun recently.

Mr. Mawyer stated yes.

Mr. O'Connell asked if this went beyond the permit requirements.

Mr. Mawyer stated yes.

8. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Operations

c. Staff Report on Ongoing Projects

d. Staff Report on Wholesale Metering

e. Staff Report on Drought Monitoring

f. Approval of Preliminary Engineering Services – Beaver Creek Raw Water Pump Station and Intake – Hazen & Sawyer Engineers

g. Approval of Beaver Creek Dam No. 1 Supplemental Watershed Plan Agreement (Supplement No. 2)

Mr. Pinkston moved that the Board approve the Consent Agenda. The motion was seconded by Ms. Mallek and passed unanimously (7-0).

9. OTHER BUSINESS

a. Presentation and Vote to Consider Approval: Transfer of Scottsville Drinking Water Infrastructure to RWSA; Jennifer Whitaker, P.E., Director of Engineering and Maintenance

Ms. Whitaker stated that she would discuss how this water system operated and the

rearrangement proposed between the Albemarle County Service Authority (ACSA) and RWSA responsibility areas. She stated that for background, the Scottsville Water System served the Town of Scottsville and the neighborhoods in the immediate vicinity of the town. She stated that it was currently operated jointly by ACSA and Rivanna, with ownership of the system based on the original 1973 Four-Party Agreement and the supplemental documents of 1983, 1989, and 2015. She stated that this agreement stated that RWSA would operate the Totier Creek Reservoir, Scottsville Water Treatment Plant, some limited Piping, and a 0.25MG water tank.

Ms. Whitaker stated that additionally, the current agreement stated that the system transmission and distribution piping, as well as control valves, were operated by ACSA, and there was a second tank of 0.3MG at the Stoney Point neighborhood. She stated that the agreements and protocols are less clear concerning a pump station located on James River Road that was owned by the ACSA but operated daily by the operators at Rivanna. She stated that the pump station controlled the amount of water that moved through the treatment plant and in between the tanks, which set pressures, flows, and a variety of parameters. She stated that relatively recently, Mr. O'Connell had approached them about clarifying the operations and the operating responsibilities in order to provide efficiency in the Scottsville system.

Ms. Whitaker indicated on the screen was a current map of the system. She stated that there was Totier Creek Dam and pump station, a line running north which was the raw-water piping, then to the left was the Totier Creek Treatment Plant and pump station. She stated that there were two raw-water sources, a pump station that could withdraw from the creek, and one that could withdraw from the reservoir. She stated that then, water was treated at the plant, traveling northeast along James River Road and to the RWSA 0.25MG tank. She stated that at that point, there was a co-located pump station that pumped water to the rest of the system, heading north and east to the ACSA 0.3MG tank and all of the piping in between those two tanks was owned and operated currently by ACSA. She stated that there were three valves that controlled pressure zones within the system.

Ms. Whitaker stated that the objective of the proposed agreement was to transfer key assets from ACSA to RWSA to accomplish several things, including simplification of operations, and definition of responsibilities. She stated that this would allow for responsibilities similar to that of the urban system. She stated that in this case, RWSA would be responsible for raw-water storage, pumping, and treatment, and finished water pumping, transmission, and tanks. She stated that ACSA would be responsible for finished water distribution, fire flow, and customer service.

Ms. Whitaker stated that the next steps were the final review of transfer documents in April 2023, review and approval of ACSA Board of Directors in May 2023, filing and recording of transfer documents in June 2023, and staff transfer operation and maintenance responsibilities in July and August of 2023. She stated that staff requested approval from the Board of the transfer of Scottsville drinking water system from the ACSA to RWSA and to authorize the Executive Director to execute any required documents.

Mr. Pinkston asked if they anticipated significant maintenance costs to RWSA.

Ms. Whitaker stated that some of the maintenance was being done now, and there were some places with multiple agencies working in the same facility. She stated that they hoped the total cost of operation would come down.

Mr. O'Connell stated that there was an approved ACSA capital project to improve sections of the line that would eventually be transferred. He stated that this fits more logically with how they ran the urban system. He stated that there may be new customers and growth in Scottsville.

Ms. Mallek moved the Board to approve the transfer of Scottsville drinking water system from the Albemarle County Service Authority to the Rivanna Water and Sewer Authority and authorize the Executive Director to execute any required documents. Ms. Hildebrand seconded the motion, which passed unanimously (7-0).

b. Presentation: Urban Water System Permit Update including Releasees from the Sugar Hollow Reservoir; Andrea Bowles, Water Resources Manager

Ms. Andrea Bowles stated that she would be giving an update on the Urban Water System permit, including a description and discussion about releases from Sugar Hollow Reservoir specifically. She stated that the urban system included South Fork Rivanna Reservoir, Ragged Mountain Reservoir, and Sugar Hollow Reservoir, as well as the North Fork Rivanna River intake. She stated that those sources were permitted under a Virginia Water Protection Permit. She stated that the Crozet system was currently being evaluated for the same type of permit, and that Scottsville had an operating permit from VDH.

Ms. Bowles stated that focusing on the urban system, during the water supply planning process, their plan was to increase the capacity and reliability of the urban public drinking water supply by building a dam at Ragged Mountain Reservoir and building a new pipe from South Fork Rivanna Reservoir to Ragged Mountain Reservoir. She stated that once that was finished, the existing pipe from Sugar Hollow to Ragged Mountain Reservoir would be closed.

Ms. Bowles stated that the 2008 DEQ and USACE permits allowed for creation of a new dam downstream of what was the existing lower dam at Ragged Mountain and allowed for building of a pipeline between Ragged Mountain and South Fork Rivanna Reservoirs.

Mr. Pinkston asked for clarification about the new dam downstream of the existing dam at Ragged Mountain.

Ms. Bowles stated that there was a previously existing dam, and the new dam was downstream of that. She stated that they purposefully breached both dams and raised the level of the water. She stated that also included in the permits were the pipeline from Ragged Mountain Reservoir to Observatory Water Treatment Plant and two water pumping stations. She stated that the DEQ permit expired in February 2023, and the USACE permit expires in June 2023. She stated that Rivanna submitted a joint permit application in May 2021, and was granted an administrative continuance by DEQ in August 2022. She stated that they were coordinating with the Army Corps of Engineers and were expecting a 15-year permit extension from them.

Ms. Bowles stated that many modifications had been made to the permit since 2008. She stated that the bottom three that were not bolded on the presentation were separate and did not pertain to Sugar Hollow Reservoir or the Moormans River and did not change anything related to instream flows. She stated that a minor modification was made in December of 2020, which changed the gage that they used to estimate inflows to Sugar Hollow from the Mechums River gage to the Moormans River gage. She stated that a minor modification made in December 2022 modified the definition of "natural inflow" and stream gage used regarding the South Fork Rivanna Reservoir, to more accurately reflect inflows to the reservoir, and also added to the definition of "natural inflow" regarding Sugar Hollow Reservoir to more accurately represent inflows under low-flow conditions.

Ms. Bowles stated that the Sugar Hollow Reservoir was composed of 837 acres owned by the City of Charlottesville. She stated that its dam was built in 1920 as a source of water supply, and the current dam was built in 1947 and upgraded in 1999. She stated that the reservoir was bordered to the north and west by Shenandoah National Park, and private owners to the south. She discussed the history of instream releases from Sugar Hollow Reservoir beginning in 2004, when The Nature Conservancy contracted with HydroLogics to develop instream flow recommendations in the South Rivanna Watershed.

Ms. Bowles stated that the community-wide process included The Nature Conservancy, RWSA, Albemarle County, the City of Charlottesville, ACSA, state, federal, and local regulatory agencies, and other interested parties to develop the instream flow provisions that eventually ended up in the 2008 Urban Virginia Protection Permit. She stated that a VWPP was required for withdrawal of surface waters from waters of the United States. She stated that this process was recognized to be the first of its kind in Virginia and a model for other communities.

Ms. Bowles stated that prior to the construction and initial fill of the expanded Ragged Mountain Reservoir, RWSA voluntarily implemented a release of 400,000 GPD from Sugar Hollow Reservoir when the reservoir was not spilling. She stated that when the Ragged Mountain Reservoir completed its initial fill in 2015, instream flow provisions which mimic natural inflow were required in lieu of the 400,000 GPD release.

Ms. Bowles stated that the minimum instream flow requirements for Sugar Hollow were based on the definition of natural inflow to the Sugar Hollow Reservoir and the total usable storage in the Ragged Mountain Reservoir. She stated that the Moormans River gage was located approximately at the point at which the Moormans flowed into the South Rivanna River. The Mechums River was the location of the previous gage used. She stated that the watershed went all the way up to Sugar Hollow and the North Fork of the Moormans River. She stated that the North Fork of the Moormans River had a gage run by the USGS between 1952 and 1962 but had since been taken out for reasons unknown.

Mr. O'Connell asked if the permit was amended to put the new gage in to be more accurate.

Ms. Bowles stated no. The gage at the Moormans River already existed. She stated that back in 2016, they looked at the gages again and performed an inflow study with consultants who looked at the period of record and tried to find the best data. She stated that it was reported that if they

switched from the Mechums gage to the Moormans gage, it would be a better tool for estimating what was coming into Sugar Hollow. She stated that she could provide this information on the website. She stated that they had had questions from the Moormans River Scenic Advisory Committee about whether they should reinstate a gage above Sugar Hollow Reservoir, and that idea had been broached in 2016 and was not pursued because of the costs.

Ms. Mallek asked what a rough estimate of distance was between the dam at Sugar Hollow and where the Moormans gage was.

Ms. Bowles stated that it was several miles. She noted that the previous gage on the North Fork had a watershed of 11.4 square miles, and the entire watershed of Sugar Hollow was 18 square miles, so if there was a gage placed above Sugar Hollow and used as an estimate, they would also need to estimate the South Fork Moormans River flow as well.

Mr. Pinkston stated that he did not understand why the original gage was in the Mechums River.

Ms. Bowles stated that was the gage used in the original analysis by The Nature Conservancy. It was realized that it was a completely different environment and was the reason why the study was performed. She stated that the study was extensive, and the gage chosen had also been recommended by DEQ and the Virginia Division of Wildlife Resources, which was why they approved of the minor modification. She stated that there were currently three phases for instream flows in the permit, the first phase being what they had to release before the new Ragged Mountain was filled, which was the 400,000 gallons per day, which was built into the permit. She stated that in the current phase 2, they had to release 100% of inflow or 10 MGD, whichever was less, which was the same requirement made in 2004 with The Nature Conservancy.

Mr. Mawyer clarified that when the Sugar Hollow Reservoir was spilling, they assumed it to be at least 10 MGD.

Ms. Bowles stated that was part of the analysis.

Ms. Whitaker stated that if the reservoir was spilling, 100% of inflow was going over the spillway.

Ms. Bowles stated that on April 16, 2023, as an example, the dam was spilling at about 6:30 a.m. She stated that around 12:40 p.m., it had stopped, and by 2 p.m., it was fully spilling and remained spilling through the evening. She stated that the face of the dam could be dry during the day, but it did not mean that they were required to turn the release on. She stated that if Sugar Hollow spilled at all during the day, the minimum release requirements for the permit had been met.

Mr. Gaffney asked if it was possible that the bladder heated up, stopping the water from spilling until the water went into that level.

Ms. Bowles stated yes. She stated that there were engineering dynamics about how the bladder

inflated that made it fluctuate. She stated that nothing had changed with the operation of the bladder system since the new bladder was installed.

Mr. O'Connell stated that the stilling basin that released into the stream would stay full of water even when it was not coming over the dam.

Ms. Bowles stated yes. She stated that there was a time of day when water was not going down the stilling basin to the river, but there were other times of day when it was.

Mr. O'Connell asked if the stilling basin was the original dam from the 1920s.

Ms. Bowles stated yes, and there is currently a bladder on top of the dam now where previously there were gate structures.

Ms. Mallek stated that there used to be an amount of 400,000 gallons continuously distributed into the river and not done only when there was overflow. She stated that while she did not know the exact mechanisms, they could see that there were no living organisms in those pools that were allowed to dry out completely for hours at a time. She stated that the environment was changing, even from five years ago, and to think that it was acceptable five years ago was concerning.

Ms. Bowles stated that 400,000 gallons as a constant flow was not seen as the best option for the river according to The Nature Conservancy and DEQ.

Ms. Mallek asked if that was publicly discussed and when that change happened.

Ms. Bowles stated that occurred when the permit was instituted in 2008 and had not changed since then.

Mr. Mawyer stated that now that they could see the dam's face and open the valve remotely, they were going to release more water because it could be addressed every day rather than twice per week.

Ms. Bowles stated that the release requirements previously required operators to go to the dam and open the valve themselves, and it was stated in the permit that they had to check it twice per week. She stated that they had proposed that when the reservoir stopped spilling, if the water department saw that it was dry at about 6:00 a.m., they would release the amount of water that matched the inflow and would stay open until it overflowed again. She stated that Ms. Dede Smith was correct in that they were not suggesting it remain on consistently but would remain on and adjusted until it began flowing again.

Ms. Mallek asked if there was an answer as to why, if one were on the North Fork of the Moormans River and saw that it was 4 or 5 inches deep and 6 feet wide, yet below the dam where they should have more water because of the inflow from the South Fork of the Moormans River, they would see that it was 12 inches wide and not moving at all. She asked where the water was going.

Ms. Bowles stated that no water had been taken out of Sugar Hollow Dam since December 5, so it was not going to the Ragged Mountain Reservoir and they had not moved any water. She stated that whatever was coming in was going out somehow, whether it was going through the surface water system or into the groundwater and flowing under the ground, there were processes happening, and Rivanna was not making changes or taking any water at this time.

Mr. O'Connell stated that evaporation and trees contributed to this.

Ms. Mallek stated that it was a large amount to be disappearing from 0.25 miles away.

Ms. Bowles stated that Sugar Hollow Reservoir was the designated raw-water source for the Ragged Mountain Reservoir, and the transfer pipeline from Sugar Hollow supplied about 3 MGD to Ragged Mountain when there is an adequate water supply in Sugar Hollow Reservoir. She stated that the minimum instream flow release requirements of our permit were met at all times, including during transfers, and seasonal operating transfer strategies were developed by staff and presented to the Board in 2017 to provide additional protections for the water level in the Sugar Hollow Reservoir.

Ms. Bowles indicated the Sugar Hollow Reservoir, the Sugar Hollow Reservoir to Ragged Mountain Reservoir outfall pipe, and the Ragged Mountain Reservoir on the presentation.

Mr. Mawyer stated that there would be 12 additional feet of water added to the Ragged Mountain Reservoir for a total normal pool elevation of 683 feet.

Mr. O'Connell asked if the tower was built in anticipation of that.

Mr. Mawyer stated that was correct. He stated that they had to modify the gates and grading around the reservoir to add the additional 12 feet, which was a 50% increase in the amount of water at Ragged Mountain Reservoir. He stated that 1.4B currently was held, and with the additional 700M, there would be 2.1B gallons.

Ms. Bowles added that all of the impacts to streams and wetlands between the 671 feet and 683 feet had been accounted for, permitted, and mitigated in their current mitigation plan. She stated that there were two operational transfer strategies as to whether South Rivanna was overflowing or not, and looking at the top green square, if South Rivanna was overflowing, they could transfer 3 MGD, but they were putting a limit on the Sugar Hollow Reservoir level and not take any more water when Sugar Hollow Reservoir reached 19 feet below to top of dam. It has been taken all the way down to 37 feet below to top of dam, which is allowable by the permit. The operational strategy would mean they could not transfer any more water to Ragged Mountain Reservoir if Sugar Hollow was down 19 feet, only during the winter, and during the summer, no greater than 10 feet.

Ms. Mallek asked for clarification that Ms. Bowles was referring to 10 feet down from the top of dam.

Ms. Bowles stated yes. She stated that for community outreach, RWSA was currently meeting with the Moormans River Scenic Advisory Committee on May 8 at the Sugar Hollow Reservoir to review the release of water procedures. She stated that the "Flow Measurement Design Plan and Operations Manual" was currently under revision to reflect Minor Modification 4. She stated that a public meeting to discuss the draft report would be held on May 16, 2023 at the Crozet Library at 3:00 p.m., and after public comment was received, the revised report must be submitted to DEQ prior to August 22, 2023. (This meeting has been postponed to a later date.)

Ms. Bowles stated that they had reapplied for the Virginia Water Protection Permit which was currently under review by DEQ. She stated that in response to comments offered by the Moormans River Scenic Advisory Board, RWSA would reduce the time to begin the flow release from three days to one. She stated that the release requirements were regulated by the Virginia DEQ and its VWP permit.

c. Presentation: Moores Creek Wastewater Master Plan Update; Scott Schiller, P.E., Engineering Manager

Mr. Scott Schiller stated that he would provide a summary on the Moores Creek Wastewater Facilities Master Plan. He stated that for the master plan, the objectives were to understand the specific challenges of the Moores Creek Wastewater Facilities, provide trigger-based master planning, and identification of near and long-term CIP projects. He stated that the Moores Creek Advanced Water Resource Recovery Facility provided wastewater treatment for urban area public utility customers of the City of Charlottesville, parts of Albemarle, and the community of Crozet for a population totaling approximately 130,000.

Mr. Schiller stated that the plant capacity was to treat 15 million gallons per day with a peak flow of 45 million gallons per day. He stated that hydraulic capacity was 85 million gallons per day, including inflow and infiltration from a 2-year storm. He stated that flow projections were required to be updated every five years by the Wastewater Projects Cost Allocation Agreement of 2014. He stated that the initial construction of the Moores Creek facility was in 1958, a much smaller facility than today's, followed by 1977 and 1979 expansions, which largely laid the footprint for the current facilities on the north and south side of Moores Creek.

Mr. Schiller stated that in 2005, they added an influent screen building, in 2009 they had enhanced nutrient removal improvements, and in 2010, they had pump station improvements. He stated that in 2012, there were digester improvements, then in 2013 they began the new Rivanna Pump Station and Rivanna Interceptor Tunnel, followed by odor control improvements in 2016. He stated that the considerations for master planning were flow rates, constituent loading, mechanical, electrical, structural, pipe infrastructure, regulations, and market conditions. He stated that uncertainty was associated with the conditions of wet weather, regulations, and market conditions.

Mr. Schiller stated that challenges to address through the master planning process were increasing flows and loads, non-process space deficiencies, aging infrastructure, a tight site plan, an evolving regulatory landscape, and uncertainty in the regulatory and economic landscapes. He stated that the aging infrastructure examples included holding pond overflow, digester roof, the

primary building, holding ponds, and EQ basin.

Mr. Schiller stated that the non-process space deficiencies included the extensive personnel growth over the 45 years of operations, personnel spaces such as locker rooms and break rooms, small and large parts storage, offices, meeting space, and computer network, laboratories, line break and equipment storage, and parking for personnel and RWSA fleet vehicles.

Mr. Schiller stated that they were also anticipating increasing flows due to projected population increases. He stated that projected 2070 flows had decreased due to the inflow and infiltration reduction efforts of RWSA, the City and ACSA.

Mr. Mawyer clarified that large, urban areas often had combined sewer systems for both wastewater and stormwater to be treated, and if it rained enough, the untreated water would be released into the river because there was insufficient capacity to store it to be treated.

Mr. Pinkston asked if the wastewater and stormwater systems were owned by the City and the County.

Mr. Mawyer stated yes. The County's wastewater system is owned by the Albemarle County Service Authority.

Ms. Mallek asked for clarification about the 45 MGD peak and the bypasses. She asked if this was when there was lots and lots of inflow.

Mr. Schiller stated yes. He stated that a normal capacity was about 15 MGD, and recognizing that there was a storm event, there was a step feed treatment process.

Ms. Mallek asked if that was partial treatment.

Mr. Schiller stated that they bypassed the primary clarifiers and send it to a different section of the aeration basins. He stated that because of the diluted nature of the flow, they could still meet the treatment requirements with bypassing parts of the plant.

Ms. Mallek asked if the initial step was bypassed.

Mr. Schiller stated yes, but the next steps were followed. He stated that anything above 15 MGD was diverted to holding ponds, and as the storm receded, it was sent back to the head of the plant for treatment.

Ms. Hildebrand stated that if they did not do so, it could wash out the processes and their bugs.

Mr. Schiller stated that the loading was the strength of the wastewater, measured in pounds per day for various constituents, and the biological oxygen demand (BOD), total suspended solids (TSS) and ammonia (NH4) were the three measured loads. He stated that the BOD had increased substantially, to the point that in 2021 they exceeded the trigger for the 17.5 MGD upgrade and expansion project. He stated that the level went back down below the trigger threshold in 2022,

but it had been a good indication that they needed to look at load more than flow in this regard.

Mr. Pinkston asked what the cause of the increase was.

Mr. Schiller stated that it was an indication of an increase in industrial discharges. He stated that BOD was an indicator of organic strength of wastewater.

Ms. Mallek asked if there were large industrial wastewater dischargers in the area.

Mr. Schiller stated that there were a few, but not many. He stated that they were undertaking a sampling program to better understand the issue. He stated that there were a number of restrictions at the Moores Creek site, including the creek running through the middle of the site and its resulting buffer requirements and flood plain requirements. He stated that there were developments on either side and critical slopes, both managed and preserved. He indicated the proposed long-term planning site plan on the screen. He stated that there would be a lot of rotation of projects and ensuring that all was accounted for in utilizing the tight space of the site in the long-term planning period.

Mr. O'Connell stated that the long-term planning period was 30 to 55 years.

Mr. Schiller stated that was correct. He stated that the intent for the master planning process was for it to be triggered by certain data being collected, and there were to be two triggers, one for "when" something was due to happen within a planning period, and "if" triggers for uncertainties in potential regulatory, wet weather, and economic landscapes through the long-term planning period. He stated that planning should include project footprints on site plans for build-out conditions.

Mr. Schiller stated that they came up with four main strategies for the master plan's roadmap. He stated that there was a liquids strategy, solids strategy, sustainability, and energy roadmaps. He stated that these roadmaps would serve as a reference as the planning period continued into the future. He stated that as a result of those analyses and condition assessments, major near-term projects were listed and included the 17.5 MGD plant expansion, mechanical thickeners, replacement of digesters, removal of solids handling facilities, and relocation of biogas facilities.

Mr. Schiller stated that these were all projects that would be scheduled based on triggers, and those estimated timelines for the triggers were provided with each project. He stated that major long-term projects for the years 2040-2080 included the ammonia and phosphorous removal, PFAS treatment/GAC, 20 MGD expansion, 90 MGD hydraulic expansion, and facilities to remove contaminants of emerging concern.

Mr. Schiller stated that the next step was to look at near-term projects and decide which were of most concern. He stated that the 17.5 MGD capacity expansion and mechanical thickening projects were high priorities and would need to be followed through soon. He stated that they were currently undergoing a sampling program to better understand the source of some of the higher BOD and how it could be better controlled, and that information would help them understand what further treatment procedures and facilities were needed at their plant.

Mr. Schiller stated that inside of their toolbox was also the potential for some pretreatment system by dischargers and for surcharges for strong waste levels greater than domestic wastewater. He stated that as the schedule indicated, if BOD loading projections were accurate, the facility would need to be in operation by 2036, meaning that they must begin in 2029, so they were trying to fine-tune that scheduling and move forward with where it needed to be.

Mr. Schiller summarized that the intent of this wastewater master planning process was to develop a list of near-term and long-term projects that they could plan for and build into their procedures based upon growth in the community and regulatory enhancements and regulations. He stated that there would be improvements to the plant largely related to the increase in capacity to 17.5 MGD in 2036, the 20 MGD treatment capacity in 2060, and a pretreatment program or strong waste surcharge may potentially be necessary in the near term. He stated that the costs for these facilities would be strategically integrated into the CIP budget to maintain reasonable charges.

Mr. O'Connell asked if the pretreatment program would be implemented before the others listed.

Mr. Schiller stated that was correct.

Mr. O'Connell asked if the investigation currently underway was to determine the type and level of pretreatment.

Mr. Schiller stated yes, it was to better understand what to do about it.

Mr. Mawyer stated that the question was who should treat the strong waste, dischargers or Rivanna, and if there should be a strong waste charge.

Mr. Pinkston stated that there may be sources of strong waste that were causing peaks in the treatment capacity.

Mr. Schiller stated that was true, and there may be other fluctuations as well, which was why they were investigating it to fully understand those external forces as well as the internal measurements for BOD to ensure those were correct.

Mr. Gaffney asked how they tested for the BOD levels.

Mr. Mawyer stated that ideally, they would capture the waste as it came out of a building as a sample from a nearby manhole.

Mr. O'Connell asked how often this was tested.

Mr. Tungate stated that collection system sampling was performed daily for a 7-day period at manholes adjacent to the facilities with composite samplers. He stated that the samplers collected a certain amount of liquid every 15 to 30 minutes to make a daily composite sample.

Ms. Mallek asked if this was a continually ongoing process after the first round.

Mr. Tungate stated that they were sampling three times for businesses considered the top 10 contributors of BOD waste, so they had one more round to go and were not repeating any businesses yet.

Ms. Mallek asked if there was any entity that currently had a pretreatment requirement, which was a standard in other communities.

Mr. Mawyer stated that there were three industrial businesses that have a pretreatment permit, but not for BOD, rather for metals and other materials.

Ms. Mallek asked if someone had a change in their process such as adding a washing facility, was there a permitting authority to make sure that they were required to give information about such a process change before it began.

Mr. Mawyer stated that every new entity in the system had to report what they would be discharging. He stated that no other monitoring was done unless there was reason to, but the evolution of the program may include a change in that part of the monitoring process.

Mr. Schiller stated that there was a development review process with the City and the County, where new developments as they came in or changed facilities submitted plans, and they were reviewing those procedures to see if they could get a heads-up on some of those changes.

Ms. Mallek asked if they included residential and commercial types.

Mr. Schiller stated yes, and it included small industry as well.

Ms. Mallek stated that these industries could be responsible for contamination of entire reservoirs, such as the Spring Hollow Reservoir in Roanoke being contaminated by a single company.

Mr. Pinkston asked how long the master plan took to execute.

Mr. Schiller stated it was approximately one and a half years to complete the master plan including the supplement to the original master plan, which included the 2016 and 2020 projections. He stated that the supplement was necessary to show the significant difference in peak flows.

Mr. Pinkston asked if this was a living document.

Mr. Schiller stated that this document would be analyzed as part of the annual CIP planning, including the roadmaps, the triggers, and then they would engage with a consultant as needed for a substantial update.

Mr. O'Connell stated that every five years, the wastewater was a part of this as well.

Mr. Pinkston asked for clarification.

Mr. Schiller stated that there was a wastewater cost allocation program that was used as part of the billing process, so they had to determine the flows and their origin in order to determine percentages.

Ms. Hildebrand stated that this was a great plan.

Mr. Richardson stated that in the last budget season, the County began looking at the process of street-sweeping in the area where the County meets the City, and residents in the urban ring stated that it was clear where the City swept the streets and where the County did not. He stated that Mr. Lance Stewart began this program in April 2023, and in the first in the first three days, they swept 22 lane miles of road and collected 10.8 tons of debris that otherwise would have washed into the stormwater system and streams.

10. OTHER ITEMS FROM BOARD/STAFF NOT ON THE AGENDA

Mr. Mawyer stated that next month, there would be public hearings on both the RWSA and RSWA budgets to conclude the budget season.

11. CLOSED MEETING

There was no reason for a closed meeting.

12. ADJOURNMENT

At 3:58 p.m., Mr. O'Connell moved to adjourn the meeting of the Rivanna Water and Sewer Authority. Ms. Mallek seconded the motion, which passed unanimously (7-0).

Respectfully submitted,

Mr. Jeff Richardson
Secretary - Treasurer

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April 25, 2023