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2	RWSA BOARD OF DIRECTORS
3	Minutes of Regular Meeting
4	February 28, 2023
5	A more large state Discourse We to a 19 A 11 'to (DWGA) D 1 CD'
6	A regular meeting of the Rivanna water and Sewer Authority (RWSA) Board of Directors was
/	Devilation Restary, February 28, 2023 at 2:15 p.m. in the Conference Room, Administration
8	Building, 695 Moores Creek Lane, Charlottesville, Va.
9	
10	Board Members Present: Michael Gaffney, Michael Rogers, Brian Pinkston, Ann Mallek,
11	Lauren Hildebrand, Jeff Richardson, and Gary O'Connell.
12	projects. Restarted that they closed around December 1, and a would Bedy be used April when
13	Board Members Absent: None
14	 North Rivarna, Water Prostanent Plants carried the load for the schere sufficiency stern, including the
15	Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Deborah Anama, Betsy Nemeth, David
16	Tungate, Victoria Fort, Michelle Simpson, Jennifer Whitaker.
17	When you would that they devine used to work on major pipting projects including the point.
18	Attorney(s) Present: Valerie Long.
19	Reservoir in Observations Freemetal Plant years fans Els stand mat Mis Galffreys feine sterff
20	1. CALL TO ORDER
21	Mr. Gattney called the February 28, 2023, regular meeting of the Rivanna Water and Sewer
22	Authority to order at 2:16p.m.
23	in history a stated that the map displayed on the state showed a block line of obtained.
24	2. AGENDA APPROVAL
25	Mr. Gattney asked if there were any comments or questions on the agenda from the Board
26	members. Hearing none, he asked for a motion.
27	[Step 10] ongell asjud, sourt the entryre section on the map indiance.
28	Ms. Mallek moved that the Board approve the agenda as presented. The motion was seconded
29	by Mr. O'Connell and passed unanimously (7-0).
30 31	3 MINUTES OF PREVIOUS ROARD MEETING
32	a Minutes of Regular Board Meeting on January 24, 2023
32	Mr. Gaffney asked if there were any comments questions or changes to the Board minutes
34	wir. Garmey asked if there were any comments, questions, of changes to the Board minutes.
35	Mr. Rogers moved that the Board approve the minutes of the January 24, 2023 meeting
36	The motion was seconded by Ms. Mallek and passed 6-0. (Mr. O'Connoll abstained from
30	the vote)
38	
30	A RECOGNITIONS
10	There were no recognitions
40	There were no recognitions.
41	5 EXECUTIVE DIRECTOR'S REPORT
12	Mr. Mawver stated that he had the opportunity to serve on a Litility Management Committee
10	nanel discussion, which met in Chesterfield earlier in the month along with the Assistant
45	Director of the Chesterfield Utilities Department and the Director of the Upprice Utilities
46	Department. He stated that they had questions for the papelists to answer about tonics including
-10	reparament. The stated that they had questions for the patientsis to answer about topics including

- the long-term water supply and what their thoughts were about the issue in the central Virginia 47 area, as well as regional partnerships, water reuse, emergency preparedness, workforce retention, 48 cybersecurity, and other topics. He stated that approximately 40 people attended the meeting as 49 well as many virtual attendees. 50
- 51

Mr. Mawyer stated that their insurance carrier, Virginia Risk Sharing Association, completed a 52 video that spotlighted Rivanna Authorities and how they had reduced reportable injuries by 82% 53 over the last three years. He stated that the video could be viewed online, with a part of the video 54 featuring our Safety Manager, Ms. Liz Coleman. 55

56

Mr. Mawyer stated that the Observatory Water Treatment Plant renovation continued to 57 58 progress. He stated that they closed around December 1, and it would likely be until April when they were able to reopen the water treatment plant, but in the meantime, the South Rivanna and 59 North Rivanna Water Treatment Plants carried the load for the urban water system, including the 60 City and developed areas surrounding the City within the County. 61

62

Mr. Mawyer stated that they continued to work on major piping projects including the South 63

Rivanna Reservoir to Ragged Mountain Reservoir water line and the Ragged Mountain 64

Reservoir to Observatory Treatment Plant water line. He stated that Mr. Gaffney, some staff 65

members, and he were going to meet with the UVA Foundation on Friday to discuss the plans for 66 completing the acquisition of easements to get the pipes built. 67

68

69 Mr. Mawyer stated that the map displayed on the slide showed a black line of obtained easements, and two remaining sections to be acquired from the UVA Foundation. He stated that 70 an acre of property would be acquired on Reservoir Road to build the pump station. 71

72

Mr. O'Connell asked what the orange section on the map indicated. 73

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Mr. Mawyer stated that the orange section was UVA property. 75

77 Mr. O'Connell asked if there was more legal work to be done related to that.

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76

Mr. Mawyer stated that our Senior Engineer, Ms. Victoria Fort, was working on the terms of the 79 easement with UVA. UVA wanted to confirm how wide the easement would be and to address 80 other issues such as trees that required protection along the way. He stated that the easement 81 extended from Fontaine Research Park to the Observatory WTP. He stated that there had been a 82 number of previous easements acquired from UVA, so it was not a new topic. He stated that with 83 the two new easements from UVAF and with easements from UVA, they would be fully able to 84 proceed into final design and construction. 85

86

Mr. Mawyer recognized Blake Shifflett and Maurice Whitlow, who both obtained their Class A 87 Commercial Driver's Licenses, which allowed them to operate large equipment on the public 88

roads. He stated that a team building event was held to celebrate the Super Bowl that went very 89

- well, with Mr. David Jeffries winning the chili cook-off with his spicy beef chili. He stated that 90
- thankfully, there were no outbreaks of Covid-19 after the event. 91

92

93 Mr. Mawyer noted that next month, the meetings for RWSA and for RSWA would be virtually

94 held over Zoom.95

96 Mr. Gaffney asked if a recording of the utility management committee meeting could be 97 obtained.

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99 Mr. Mawyer stated that he would make it available.

101 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.

104

Ms. Dede Smith thanked the Board for allowing virtual participation in the meeting and for

publishing the meeting in the newspaper. She stated that on the agenda was the Capital

107 Improvement Program for the next five years, which she was interested in. She stated that there

108 was nearly quarter of a billion dollars in the urban system in the next five years, and she would 109 like for a few questions to be answered.

110

111 Ms. Smith asked how many customers were in the urban area and whether or not there had been

an observed increase in the overall drinking volume, which hovered around 10 million gallons
 per day, and had for the last 20 years. She stated that she wondered if there had been any rise yet,

despite all of the population growth and development.

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117

116 Mr. Gaffney closed items from the public.

118 7. RESPONSES TO PUBLIC COMMENT

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

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Mr. Mawyer stated that approximately 130,000 people were served in the urban system; the City had about 50,000 residents who were all included in the urban system, and about 80,000 people were served by the Albemarle County Service Authority in the urban system.

123 124

Mr. O'Connell stated that that number included Crozet. He stated that it was likely around
70,000 served by ACSA in the Urban water system.

127

Mr. Mawyer stated that there were then 120,000 people in total in the urban system. He stated that in regard to water use, it had been relatively constant, and they had not seen a major increase or decrease from the 10MGD usage.

131

Mr. Gaffney asked if they were only talking about residents, and not about businesses or peoplewho did not reside in the area.

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135 Mr. Mawyer stated that included residents and businesses.

136

137 Mr. O'Connell stated that he did not know how the University was counted, but other than the 138 research parks, it was likely to be mostly residential customers.

February 28, 2023

139				
140	Ms. Hildebrand stated that in the City there were about 95% residential customers.			
141	Mr. Gaffney closed responses to public comment.			
143 144	8. CC	ONSENT AGENDA		
145				
146 147	a.	Staff Report on Finance		
148	b.	Staff Report on Operations		
150	C.	Staff Report on Ongoing Projects		
152	d	Staff Report on Wholesale Metering		
153 154 155 156	е.	Approval of Engineering Services – South Fork Rivanna Reservoir to Ragged Mountain Reservoir Pipeline Topographic Survey – Kimley-Horn		
157 158 159	f.	Approval of Betterment Agreement with Victorian Heights, LLC – South Rivanna Reservoir to Ragged Mountain Pipeline, Intake, & Facilities Project		
160 161	g	. Award of Term Contract for Geotechnical, Materials Testing, And Professional Engineering Services – Schnabel Engineering, LLC		
162 163	Mr. Gaffney asked if there were any items a Board member wished to discuss or pull from the consent agenda. Hearing none, he asked if there was a motion.			
165 166	Ms. Mallek moved that the Board approve the Consent Agenda. Mr. O'Connell seconded the motion, which passed unanimously (7-0).			
10/	9 O'	PHED DICINECC		
100	9. 01	Presentation: Introduction of EV24.28 Capital Improvement Droman		
170	a. Presentation: Introduction of FY24-28 Capital Improvement Program Bill Mawyer, Executive Director			
171 172 173	Mr. Mawyer stated that a guiding principle of their strategic plan was to address evolving needs by planning, delivering, and maintaining dependable infrastructure and facilities in a financially responsible manner. He stated that the five-year CIP included 56 projects with a cost of \$326.1M			
174 175	over tl	ne five years.		
176 177 178 179	Mr. Mawyer stated that the program was substantially driven by investment of \$210M in urban systems and major water piping projects, which made up 64% of the CIP. He stated that wastewater projects in the urban system totaled \$58.2M, and non-urban and shared water and wastewater projects that cost \$58.3M.			
181 182	Mr. M plants	awyer stated that the non-urban category would include projects at the water treatment, water storage tanks, and reservoirs serving Crozet, Scottsville, and Red Hill areas of the		

- 183 County. He stated that non-urban wastewater projects were those serving Scottsville, Glenmore, 184 and Stone Robinson School. Non-urban water and wastewater projects were funded 100% by
- the Albemarle County Service Authority, so those were segregated in their funding and
- expenses. He stated that shared projects could include asset management and information
- technology projects. He stated that this year, a flood resilience study was being performed to
- prepare for changing climate conditions, since most sewer facilities were built near streams in
- low areas, where there may be more flooding in the future.
- 190
- Mr. Pinkston asked what the differences between the completed versus available funding items
 were.
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194 Mr. Mawyer stated that the completed funds were those that had already been paid toward 195 projects that were currently active and included in the \$326.1M total. He stated that the available 196 funding was from bonds or cash for these same projects but had not yet been spent.

- 197
- 198 Mr. Pinkston asked if completed funding included commitment or encumbered funds.
- 199

Mr. Mawyer stated that it was funding already paid for work in progress on projects that had not been completed and were still included in the \$326.1M. He stated that they did not operate on an

annual appropriation basis, but rather if the project was still active, it was included in the five-

203 year CIP, so some of the money included was for those ongoing projects. He stated that they had

grants totaling \$20.6M and \$10.4M was planned to be used from reserves. He stated

approximately \$94M needed to fund the CIP was already available, assuming they received the

- \$17M grant for the Beaver Creek Reservoir dam modification. He stated that new debt was
 estimated to be \$232M.
- 208

209 Mr. Mawyer stated that additional priorities of the FY24-28 CIP included completion of the

210 South Fork Rivanna Reservoir to Ragged Mountain Reservoir Pipeline and Pumping project by

211 2030 rather than 2033. He stated that the reason for this was to enhance the capacity, reliability,

and resiliency of our community's drinking water supply. Extended droughts and more intense

storms were predicted and increasing the water storage capacity would optimize the

- 214 infrastructure to mitigate this concern.
- 215

216 Mr. Mawyer stated that other priorities included provision of additional granular activated

217 carbon treatment capacity at Crozet and Red Hill Water Treatment Plants to enhance drinking

- water quality and serve anticipated growth while utilizing grant funding from VDH, and
- leveraging of partnerships with the City, UVA, and VDOT on drinking water piping projects in
- Emmet Street in order to reduce costs and disruption to the public.
- 221
- Mr. Pinkston asked if there were large water mains on that road and where they ran to and from.
- Mr. Mawyer stated they were coming from the South Rivanna and Observatory Water Treatment Plants. He asked Ms. Whitaker if there were any other locations.

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- Ms. Whitaker stated that there were RWSA water lines from Observatory WTP heading north on
- 228 Emmet Street past Lambeth Field Apartments, which turned into City water mains and that

section was not owned by Rivanna. At Hydraulic Road, the Rivanna water main picked back up.
She stated that part of this project was filling in that gap in RWSA water lines in this corridor
and replacing 50- or 60-year-old cast iron pipes.

232

Mr. Mawyer stated that the final priority of the CIP was to improve drinking water capacity and
reliability in the Route 29 North area with additional river crossings at the South Rivanna and
North Rivanna rivers, as well as construction of the Airport Pump station to strengthen
infrastructure, support growth opportunities, and to allow decommissioning of the North Rivanna

- 237 Water Treatment Plant.
- 238

Mr. Pinkston asked if this was reflective of the work the UVA Foundation was going to do nearNorth Fork.

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Mr. Mawyer stated that there was a phased plan for utility infrastructure to be built as construction at North Fork progressed, so they would coordinate with UVAF to bring capacity to them on these and other projects. He continued that the charge increases for the City would be 9.6% in FY24, 9.7% in FY25, 9.0% in FY26, 9.4% in FY27, and 10% in FY28. He stated that the charge increases for the ACSA would be 13.5% in FY24, 12.4% in FY25, 11.7% in FY26, 11.4% in FY28.

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Mr. Mawyer stated that the charges included \$750,000 in grants awarded by Albemarle County in FY22, the VDH grant for GAC filters in FY23 for \$3.17M, with the FY23-26 grant awards pending, the Federal NRCS grant for BCR for the amount of \$17.4M, and the estimated annual increases in operating expenses. He stated that the rates given would not only support the CIP but the general operating expenses as well.

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Mr. Richardson asked if the outyear increases included the expectation of achieving system redundancy and resiliency. He stated that much of the charge increases were associated with the aggressive and thoughtfully prepared CIP.

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Mr. Mawyer stated that was correct. He stated that they had not yet fully completed the plan from 2002 to increase the water supply in the community, which was why they were proposing to build the Rivanna to Ragged Mountain pipeline as soon as possible to provide additional water for drought protection and future development. He stated that the community would have more capacity, resiliency, and opportunity for growth.

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Mr. O'Connell stated that there were not many communities around the country that had the water supply that they were able to provide their customers, and doing so came at a large cost.

267

Mr. Mawyer stated that their water quality could be contributed to its source at the foot of the Blue Ridge Mountains. He continued that there was a significant increase to the five-year CIP from last year, in the amount of \$120.3M, which was driven in large part by inflation and scope increases on major projects.

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Mr. Mawyer stated that \$75M of that was attributed to inflation and scope progression, and acceleration of three projects cost \$39.5M. He stated that 17 projects were moved into the FY24-

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275 28 CIP, costing \$6.9M, and six new projects were added for a cost of \$7.7M. He added that six
existing projects were completed, allowing for a decrease of \$8.8M.

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278 Mr. Pinkston asked if the scope definition allowed for increased confidence in the costs.

- 280 Mr. Mawyer stated that estimates were often refined after receiving further involvement and 281 detailed information.
- 282
- Mr. Pinkston asked if there was a 30%-40% increase in the estimated cost of the Central Water Line project.

Mr. Mawyer stated that originally there was an estimate of \$14M which was updated to \$24M
when the project was relocated from the southern loop area to the central area of the City, and
going from preliminary engineering to detailed engineering, the cost increased to \$41M.

- 290 Mr. O'Connell asked if it had been bid yet.
- 291

Mr. Mawyer stated they expected to have construction bids by next year. He continued that the acceleration of the CIP over the 21-year history was affected in the most recent year by inflation and scope.

Mr. Gaffney stated that it would be informative to see how inflation over these same years was compared to the costs of the CIP.

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Mr. Mawyer stated that it was estimated that general construction costs had risen by 20% in the
last year, but it differed between projects. He stated that the long-range 15-year projection
showed \$710M over that time, with the hope that grant amounts would bring the estimates down.
He stated that they hoped to hear by the end of this calendar year about the \$50M in additional
grants that had been applied for, and would continue to look for other grant opportunities.

Mr. Mawyer stated that in future years, they may need additional aeration basins at Moores Creek unless the issue could be solved in the community, because they had been receiving highstrength waste, which created a biological oxygen demand on the system. He stated that there was a regulation on how much of this waste could be released back into Moores Creek, and a study was being done to see what must be completed to minimize strong waste at the treatment plant.

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Mr. Pinkston asked to see the previous slide. He asked if the hope was that this current CIP would be the peak.

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Mr. Mawyer stated that that was the hope. He stated that 2020 was the Covid year when no projects were added in order to keep rates at a 0% increase. He reiterated that the current rate of increase was largely due to inflation and supply chain issues.

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Mr. O'Connell stated that there had not been a period of significant increases since the years 2009 to 2013, which was were largely driven by wastewater improvements.

- 321322 Mr. O'Connell stated that this new increase was similar.
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Mr. Mawyer stated that the CIP supported five water supply reservoirs totaling 3.3B gallons, six water treatment plants with a capacity of 24 MGD, four wastewater treatment plants that processed 15.59 MGD, seven wastewater pump stations, 11 water pump stations, 68 miles of water distribution pipe, 117 valves, 44 miles of wastewater collection pipe, 717 manholes, and a stormwater impoundment of the Lickinghole Creek Basin.

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Mr. Mawyer stated that the major programs and projects included \$48M for upgrading water
 treatment plants; \$100M for reliability and redundancy; \$30M for operations, maintenance, and
 safety; \$43M for regulatory costs, and \$107M for capacity.

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Mr. Mawyer stated that the South Rivanna and Observatory Water Treatment Plant renovations
would be completed in 2023 at a cost of \$43M, followed by the Ragged Mountain Reservoir to
Observatory Water Treatment Plant raw water pipe and pump station that cost \$44M over the
years 2024-2028, the Central Water Line at a cost of \$41M from 2024-2028, the South Rivanna
Reservoir to Ragged Mountain Reservoir raw water pipe proposed at \$80M for the years 2024-2030, and the proposed raising of the Ragged Mountain Reservoir water level for \$2M over the
years 2028-2030.

Mr. Mawyer stated that the proposed timelines for raising the water level in Ragged Mountain
Reservoir would need discussion with the City, because the Agreement stated that they could not
raise that water level until 10 years before the demand equaled 85% of the supply, and they
estimated that would be the year 2035.

346 347 Mr. Pink

Mr. Pinkston asked why that was the case.

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Mr. Mawyer stated that he understood there was concern over the destruction of the Ragged Mountain nature area and the park that surrounded the reservoir, which was owned by the City. He stated that his understanding was that the final agreement included that they could inundate more land but not until it was absolutely necessary, defined by the demand equaling 85% of the supply.

355 Mr. Pinkston asked what the 10 years was.

Mr. Mawyer stated that the Agreement allowed the project to raise the water level to begin 10 years before the demand equaled 85% of the supply.

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- 360 Mr. Pinkston stated that they could be close to that now.
- 362 Ms. Mallek stated that 2025 was when they could be there.
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Mr. Mawyer stated that demand was projected to be 85% of the supply in 2045, so 2035 would

365 give them that ten-year window to complete the infrastructure modifications and grading around 366 the reservoir necessary to raise the water.

367 Ms. Mallek stated that was true so long as it did not stop raining. 368 369 Mr. Rogers asked if there would be an escalation of funds required for that project to raise the 370 water level. 371 372 Mr. Mawyer stated that it would be in the amount of \$2M. 373 374 Mr. Gaffney stated that was the total project cost. He asked what that percentage was for the 375 376 City. 377 378 Mr. Mawyer stated that it was 20%. He stated that it included raising the water level in the 379 reservoir, but the pipeline to feed the reservoir was proposed to be accelerated, so the cashflow could be required sooner. He stated that it did impact their charges, and the City shared 20% of 380 381 that cost. 382 383 Mr. O'Connell asked how much more capacity the 12-foot height increase would yield. 384 385 Mr. Mawyer stated that it would increase storage capacity 700MG, which was 50% more water than what was currently held at Ragged Mountain. 386 387 388 Mr. O'Connell stated that the political agreement was to build the dam facility at the full height, but they still had 12 more feet for water storage to be used at a later date. He stated that there was 389 an attempt to put in place a formula that would make it automatic, but given what had happened 390 over the last ten or 12 years, the formula would not work and the water level was not going to be 391 increased when this Ragged pipeline would be built. There was not a trigger for construction of 392 the pipeline in the Agreement, it would happen when the Rivanna Board approved the schedule. 393 394 Ms. Mallek stated that the cost escalation they were seeing would likely not decrease, so the 395 sooner the larger projects could be accomplished the better off they would all be. 396 397 398 Mr. Mawyer stated that as part of the climate action initiatives of the City and the County, it was Rivanna's part to provide adequate water supply for the community. 399 400 Ms. Mallek stated that that element was not mentioned as much in 2009 as much as it should 401 have been. 402 403 Mr. Gaffney stated that a local photographer showed him a photograph of the Sugar Hollow 404 405 Reservoir in 1978, when it was just mud. 406 Mr. Mawyer asked if that was due to drought. 407 408 Mr. Gaffney stated yes. 409 410 Ms. Hildebrand stated that from a technical standpoint, it made sense to align raising the water 411 412 level as the pipeline was being finished.

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- 414 Mr. O'Connell stated that the expansion of the Observatory Water Treatment Plant and
- 415 connection to the Ragged Mountain Reservoir gave the ability to serve the entire urban system if
- the South Rivanna side failed, so there was ultimate redundancy for emergencies and droughts.
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418 Mr. Pinkston stated that he would be interested in understanding more about raising the water

level if it were time to consider it, and if there was an action by Council necessary, what would

be involved. He stated that it was important to base these decisions on climate change, and if they were to have another drought of record when some of the larger projects had been

- completed, but they did not yet have more capacity at the Rivanna Reservoir and the upgrades to
- the Observatory, but did have the Ragged Mountain completed, he would like to know what their
- 424 situation would be.
- 425

Mr. Mawyer stated that they had improved the water supply system by about 900MG, because Ragged Mountain Reservoir had increased in storage capacity from 500MG to 1.4BG and could increase to 2.1BG with the extra 700MG after raising the water level. He stated that based on 10MGD of typical usage, they have 90 additional days of supply now, and would have an additional 70 days of storage when the water level is raised. He stated that they could treat the additional water supply at Observatory, but they would have difficulty getting major amounts of water out of Observatory until the Central Water Line was constructed.

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Mr. Pinkston stated that he applauded the attempt to bring forward the schedule by three years
for the \$80M major connecting link. He stated that at the same time, he was concerned about the
approximate 1/3 of the budget increase that was due to scope definition of existing projects as
well as inflation, and with 10% year-over-year, that was exponential growth in rates.

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Mr. Mawyer clarified that those rate increases were in the charges to the City and the ACSA, but may or may not be reflected in the charges to retail customers.

441

Mr. Pinkston stated that there was an actual escalation that they had to face of the projects that
were already undergoing, versus the escalation of schedule acceleration of the South Rivanna to
Ragged Mountain raw water pipe.

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Mr. Gaffney stated that Mr. Pinkston had asked what would happen if they received another drought of record. He stated that the drought of record was a two-year period.

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Mr. Gaffney stated that without a pipeline, they were currently structured so that they would use
the South Fork Rivanna Reservoir until it got to a level at which they had to utilize Ragged
Mountain. He stated that when South Fork did not refill because no water was coming in, but
they were piping it from Sugar Hollow, resulting in Sugar Hollow getting low and subsequently
Ragged Mountain going down. He stated that a six-inch rain would fill South Fork, and if they
had the pipe, they could put 25MGD into Ragged to fill that reservoir instead of putting only
3MGD from Sugar Hollow.

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Mr. Pinkston stated that he appreciated and understood the plan. He stated that his perspective was from risk management, which was that if they did not accelerate this at three years, they had more of a chance of having water supply challenges, but on the other hand it was a significant
expenditure on top of the other projects.

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Mr. O'Connell stated that the same question was asked at the budget committee, and his

- 463 conclusion was that it was a minimal increase because of the way that Rivanna funded their464 projects.
- 465
- Mr. Gaffney stated that the project had begun in 2002 and was yet to be completed.
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Ms. Mallek stated that although recent amounts of rain had been increasing, there had been 468 notable periods of light rain or drought, which was concerning because people were not focused 469 on conservation, assuming that the rain would come soon. Ms. Mallek stated that in the years 470 preceding the 2002 drought of record the rainfall dropped from the typical 35-40 inches to 16-20 471 inches and then 11-12 inches in 2002. She stated that the County was 9 days away from stopping 472 the issuance of building permits and UVA was 9 days away from sending students home, which 473 would have been a dramatic impact on our local economy. She stated that the impacts on the 474 economy of a critically low water supply would be as bad as the impacts of the worst of the 475 Covid-19 pandemic. She stated that the impacts of population growth were not fully recognized 476 in their discussions about water supply. Ms. Mallek stated that Rivanna has been thorough and 477

thoughtful in their planning, and she was very supportive of the detail and direction of the plans so that people could continue to live in the County.

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- Mr. Mawyer stated they had calculated it would be a 0.6% increase in Rivanna's FY 24 charge to the City to accelerate the pipeline project.
- 483
- 484 Mr. Richardson asked if the acceleration was for three years.
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- 486 Mr. Mawyer stated yes.
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488 Mr. Richardson stated that there were capacity issues such as staff resources, undergoing 489 multiple projects at the same time, and the optimal time to take on additional debt.

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Mr. Mawyer stated that they would be taking on more debt sooner than initially planned, but that was weighed against the 25 years since the last drought, and wanted to maximize the

493 infrastructure as planned.

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Ms. Mallek stated that in the newspaper this week was information about the Roanoke Reservoir, specifically that the contamination they were dealing with used up the capacity of the GAC than

they thought it would, so the amount of PFAS spiked to 35 parts per trillion. She asked if there

may be a need to be speed up that regeneration in their own community.

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500 Mr. Tungate stated that they managed their GAC inventory now focusing on organic carbon 501 removal, so if their primary contaminant of concern transitioned to PFAS, they would have to

502 come up with a new regeneration model.

503

504 Ms. Mallek asked if that would necessitate faster regeneration due to the increased use.

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506 Mr. Tungate stated that was the current thought. He stated that they would have to come up with 507 a model to transition and regenerate the GAC based on the rate of adsorption of the PFAS 508 contaminant.

509

510 Mr. Mawyer stated that they regenerated the GAC media, which was a process to ship the media 511 to a facility to have the contaminants removed and then the GAC was returned to be used again.

- 512 He stated that they had to add some new GAC during this regeneration process.
- 513

Mr. Mawyer continued that in addition to the water projects, they were doing other related
projects such as the Airport Road water pump station and piping, MC 5kv electrical upgrade
system at Moores Creek, the South Fork Rivanna River crossing, the GAC filters for Crozet and
Red Hill Water Treatment Plants, the renovation and addition to the administration building, and
the Beaver Creek Dam, pump station, and piping modifications.

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Mr. Mawyer stated that for Beaver Creek, they were to replace the spillway to meet Virginia dam
safety standards, replace the raw water pump station, intake, and pipe to the Crozet Water
Treatment Plant. He stated that the spillway was a proposed labyrinth spillway with a bridge.

- 523
- 524 Ms. Mallek asked how the spillway was oriented in relation to the dam water. 525

526 Ms. Whitaker stated that the water would be adjacent to the labyrinth, with the concrete spillway 527 chute below the labyrinth. Our spillway chute would be straight and not angled as in the 528 example shown.

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Mr. Mawyer stated that the Emmet Street Water Line Betterment Program was another project to
be completed in this CIP and included multiple piping projects to be completed in concert in
order to reduce costs and impacts to the public.

533

Mr. Mawyer stated that the FY24-28 CIP supported the mission and goals of the RWSA. He
concluded that the objectives of the CIP were to maintain their drinking water and wastewater
infrastructure to provide reliable services which complied with or exceeded regulatory
requirements and, to complete the Rivanna Reservoir to Ragged Mountain Reservoir Pipeline
and pumping project by 2030 rather than 2033.

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540 Mr. Mawyer stated that the other objectives were to provide additional GAC treatment capacity 541 at Crozet and Red Hill WTPs, to leverage partnership with the City, UVA, and VDOT on 542 drinking water piping projects located on Emmet Street, to improve drinking water capacity and 543 reliability in the Route 29 North area, and to complete the CIP in an environmentally protective 544 and financially responsible manner.

545

Mr. Mawyer concluded that the FY24-28 CIP contained 56 projects and a total of \$326.1M. He
stated that they had drafted four or five CIPs to find the most optimal and affordable plan. He
stated that the debt service was about 50% of their operating budget, which he would be
presenting next month, and would result in an overall estimated charge increase to the City of
9.6% and to the ACSA of 13.5% in FY24. He stated that no action was requested of the Board

today, and this information would be presented in May after the public hearing as a request forapproval of the CIP and the operating budget.

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b. Presentation: Unregulated Contaminant Monitoring Rule 5 & Permanganate Update David Tungate, Director of Operations

557 Mr. Tungate, Director of Operations, stated that there are a series of steps to establishing new 558 National Primary Drinking Water Regulations. The first step is a requirement from the Safe 559 Drinking Water Act amendments of 1996 that the Environmental Protection Agency publishes a 560 Contaminant Candidate List (CCL). This list is published every five years and it is a list of 561 currently unregulated contaminants which may pose risks to human health in drinking water. 562

563 Mr. Tungate stated that the second step of the regulation process was that the EPA must choose 564 no fewer than five contaminants from the CCL to determine whether to regulate them with a 565 National Primary Drinking Water Regulation. The third step was the issuance from the EPA of 566 the list of no more than 30 unregulated contaminants to be monitored by Public Water Supplies 567 in the form of the Unregulated Contaminant Monitoring Rule (UCMR).

568

569 Mr. Tungate stated that the Contaminant Candidate List 5 was published in November 2022 with 570 66 individual chemicals, three groups of chemicals, and 12 microbes. The three chemical groups 571 were cyanotoxins, or chemicals produced by blue green algae; disinfection by-products (DBPs), 572 or chemicals produced during water treatment process when organic matter combined with a 573 disinfectant like chlorine; and per and poly fluoroalkyl substances (PFAS), or a class of synthetic 574 compounds used to make products resistant to water, heat, and stains. There are more than 4,000

575 PFAS compounds used since the 1940s.

576

577 Mr. Tungate stated that Chemical Contaminant Candidate List 5 included 23 unregulated DBPs 578 and PFAS contaminants that met certain carbon-fluoride structures, and 13 microbes. He stated 579 that RWSA will begin sampling for UCMR in May 2023.

580

Mr. Tungate stated that usually, these water quality monitoring rules systems only applied to 581 large public water systems because these large systems have the financial ability to pay for these 582 tests. However for UCMR5, the EPA would choose 800 randomly selected small public water 583 systems that served less than 3,000 people, all medium systems that serve between 3,300 and 584 10,000 people and all large water systems that service more than 10,000 people. This was done 585 586 in order to get a UCMR 5 samples from all sizes of public water systems, He stated that their own systems were over 10,000 people except for the Red Hill and Scottsville systems. 587 588 Mr. Tungate stated that there were only two approved laboratory methods for PFAS analysis, 589

590 533 and 537.1. Together both of these methods will be able to test for 29 PFAS compounds. He 591 stated that out of the 30 contaminants allowed to be on the UCMR 5 list, 29 of them are PFAS

and the other contaminant is Lithium. He stated that the minimum reporting levels for PFAS

were 0.002 micrograms/L, or 2 parts per trillion.

594

595 Ms. Mallek asked if both tests could be used to accurately report the 29 PFAS.

596

597 Mr. Tungate stated that between both tests, all 29 would be able to be analyzed. He stated that 598 water samples were collected after the final step in the water treatment process, which was the 599 entry point to the distribution system. He stated that the samples were going to be collected 600 quarterly for one year at our five surface water treatment plants and every six months for one 601 year at Red Hill because it was a groundwater system. He stated that sampling analysis costs 602 were approximated to be \$23,000, and that Scottsville and Red Hill systems were included in the 603 sampling program for parity with all of our water treatment systems.

604

Mr. Tungate stated that due to the pervasive nature of PFASs, RWSA samplers must avoid wearing clothing or boots containing Gore-Tex material or fabric softeners, avoid using cosmetics, moisturizer, or insect repellants, and must use PFAS-free sunscreens. He stated that this was meant to avoid potential contamination and subsequent false PFAS detections in the water sample.

610

611 Mr. Tungate stated that the samplers must also only use ballpoint pens for labeling PFAS sample

bottles and must wash their hands and immediately put on nitrile gloves at each sampling

location. He stated that field reagent blanks were also provided to measure the PFAS

614 contribution from the sampling environment, personnel, and shipping conditions. 615

Mr. Tungate explained that the lab would submit PFAs-free water to each sampling site and it would be used to create blanks at every sampling location. He displayed images of the sample containers on the slide. He stated that there would be seven individual bottles for each sample location. He summarized that the data gathered from the UCMR 5 would help EPA regulators determine the prevalence of unregulated contaminants in drinking water, which may eventually lead to additional Primary Drinking Water Standards.

622

Mr. Tungate stated that establishing the presence and concentrations of these chemicals in public water systems across the United States was one part of the process. The other part of the process was establishing the concentration of the chemicals that causes adverse impact on humans. The other consideration is the practical matters of how to treat the water to the new levels and how public water systems can pay for it; not all systems were forward-thinking and had the resources to treat the chemicals.

629

Mr. Pinkston clarified that the point of this testing was to see how much of the chemicals were out in the environment.

632

Mr. Tungate stated yes. He stated that RWSA currently tests for PFAS in our water and

wastewater systems every six months, and they questioned each time if the contributions of
PFAS were from the environment or directly in the water. He stated that the EPA was trying to
determine what was a true positive sample and what was introduced from the environment after
the sample was taken.

638

640

639 Mr. Pinkston asked if these were possible carcinogenic materials.

Ms. Mallek stated that these had been officially declared carcinogenic chemicals.

642			
643	Mr. Pinkston asked if this was the issue currently occurring in Roanoke.		
644			
645	Mr. Tungate stated that the area affected was Spring Hollow reservoir in the Western Virginia		
646	Water Authority system.		
647			
648	Mr. Pinkston asked if there was a specific source of the PFAS.		
649			
650	Mr. Mawyer stated that the source was a business that cleaned industrial equipment, and their		
651	rinse water was getting into the river which was pumped to the reservoir.		
652			
653	Mr. Gaffney asked if any of our raw water was tested by Rivanna.		
654			
655	Mr. Tungate stated that yes. We tested raw water as well as finished water for PFAS to assess		
656	any contribution from internal operations. He stated that the UCMR 5 will require testing of only		
657	finished water.		
658			
659	Mr. Gaffney asked if there had ever been a test performed at the landfill.		
660			
661	Mr. Mawyer stated that they tested their raw water, finished water, and landfill leachate as well.		
662	He stated that the leachate that came out of the landfill cells was brought back to be treated at		
663	Moores Creek, so if PFAS was going out of the treated wastewater, that was one of the potential		
664	sources.		
665			
666	Ms. Hildebrand stated that in that case, it was not in their drinking water supply.		
667			
668	Mr. Mawyer stated that Moores Creek is not in our drinking water watershed, although the Ivy		
669	MUC is within the watershed of the South Rivanna Reservoir.		
670			
671	Mr. Tungate stated that the next item he would discuss was the Carus Chemical's facility fire and		
672	permanganate production status. He stated that Carus Chemical was the largest domestic		
673	provider of potassium and sodium permanganate, providing more than 50% of the supply in the		
674	United States. It is used as a strong oxidizer and a secondary water treatment chemical for the		
675	removal of dissolved iron and manganese as well as taste and odors in drinking water. He		
676	indicated the top righthand image on the slide of the immediate application of permanganate, and		
677	the lower righthand image of 30 minutes after the application of permanganate, noting the color		
678	change from pink to brown.		
679			
680	Mr. Tungate stated that on January 11, 2023, Carus Chemical had a fire at its permanganate		
681	production facility, and due to the fire damage, the company was unable to fill any orders for 90		
682	days, which had led to a national shortage of potassium permanganate and sodium		
683	permanganate, and were expected to begin permanganate production again by April 1, 2023.		
684			
685	Wir. I ungate stated that the bulk sodium permanganate tank at South Rivanna held 5,500 gallons,		
686	and their typical usage from January through April was 10 gallons per day, and May through		
687	December had a usage of 30 gallons per day. He stated that the increased usage was due to the		

- warmer water in the summer that required more treatment.
- 689

Mr. Tungate stated that the current inventory was 5,000 gallons, equal to seven months of product. He stated that they had been successful in leveraging relationships with other wholesale permanganate suppliers to maintain the inventory. He showed an image of the four new GAC vessels added at the Observatory Water Treatment Plant.

694

Ms. Mallek stated that soot from large fires could be carried downwind into different states, and acid rain had been a historical problem in the area. She asked if there were tests available to test for constituents from the fires in Ohio and Illinois.

698

699 Mr. Tungate stated that they could test for those, as it was a simple process. He stated that the 700 prevailing winds from Ohio could go north and not south toward Virginia.

701

Mr. Mawyer stated that part of the CIP included additional capacity of chemical products needed
so that if a catastrophe arose, they would have adequate supplies and their facilities would not be
under stress to have consistent product deliveries or from a lack of treatment availability.

705

Mr. Tungate stated that prior arrangements had not been efficient in regard to truck deliveries,
but they now had much better supply systems.

708

709 Ms. Mallek stated that she appreciated planning ahead.

710

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

Mr. Mawyer reminded the Board that the meeting next month would be held virtually.

714 11. CLOSED MEETING

There was no reason for a closed meeting.

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726

12. ADJOURNMENT

At 3:41 p.m., Mr. Pinkston moved to adjourn the meeting of the Rivanna Water and Sewer
 Authority. Mr. Rogers seconded the motion, which passed unanimously.

721 Respectfully submitted,

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Mr. Jeff Kichardson Secretary - Treasurer