



**RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
September 22, 2020**

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, September 22, 2020 at 2:00 p.m. via Zoom.

Board Members Present: Mike Gaffney, Dr. Tarron Richardson, Lloyd Snook, Dr. Liz Palmer, Jeff Richardson, Gary O’Connell, and Lauren Hildebrand.

Board Members Absent: none.

Rivanna Staff Present: Bill Mawyer, Katie McIlwee, Lonnie Wood, Jennifer Whitaker, David Tungate, and John Hull.

Attorney(s) Present: Kurt Krueger.

Also Present: Access to the meeting was available via Zoom for members of the public and media representatives.

1. CALL TO ORDER

Dr. Richardson called the September 22, 2020 regular meeting of the Rivanna Water and Sewer Authority to order at 2:15 p.m.

2. STATEMENT FROM THE CHAIR

Dr. Richardson read the following statement aloud: “Notwithstanding any provision in our Bylaws to the contrary, as permitted under the City of Charlottesville’s Continuity of Government Ordinance adopted on March 25, 2020, Albemarle County’s Continuity of Government Ordinance adopted on April 15th, 2020, and Chapter 1283 of the 2020 Acts of the Virginia Assembly effective April 24, 2020, and the Resolution of the Authority authorizing the adoption of procedures for electronic public meetings and public hearings, adopted by the Authority on May 26, 2020, we are holding this meeting by real time electronic means with no board member physically present at a single, central location.

“All board members are participating electronically. This meeting is being held pursuant to the second resolution of the City’s Continuity of Government Ordinance and Section 6(e) of the County’s Continuity of Government Ordinance. All board members will identify themselves and state their physical location by electronic means during the roll call which we will hold next. I note for the record that the public has real time audio-visual access to this meeting over Zoom as provided in the lawfully posted meeting notice and real time audio access over telephone, which is also contained in the notice. The public is always invited to send questions, comments, and suggestions to the Board through Bill Mawyer, the Authority’s Executive Director at any time.”

Dr. Richardson called the roll.

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Ms. Lauren Hildebrand stated she was located at 305 4th Street Northwest in Charlottesville, VA.

Mr. Gary O’Connell stated he was located at the ACSA offices at 168 Spotnap Road, Pantops.

Dr. Lizbeth Palmer stated she was located at 2958 Mechum Banks Drive in Charlottesville, VA.

Mr. Jeff Richardson stated he was located at 401 McIntire Road (Albemarle County Office Building) in Charlottesville, VA.

Dr. Tarron Richardson stated he was located at P.O. Box 991, City Hall, Charlottesville, VA 22902.

Mr. Lloyd Snook stated he was located at 408 East Market Street in Charlottesville, VA.

Dr. Richardson stated the following Authority staff members were joining the meeting: Bill Mawyer (Executive Director), Lonnie Wood (Director of Finance & Administration), Jennifer Whitaker (Director of Engineering and Maintenance), Dave Tungate (Director of Operations), Katie McIlwee (Communications Manager & Executive Coordinator), and John Hull (Software Analyst).

Dr. Richardson stated they were also joined electronically by Mr. Kurt Krueger (Counsel to the Authority).

3. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on August 25, 2020

Dr. Richardson asked board members if they had comments or changes.

Dr. Palmer moved that the board approve the minutes of the previous board meeting. The motion was seconded by Mr. O’Connell and passed unanimously (7-0).

Mr. Mike Gaffney stated his attendance and stated he was located at 3180 Dundee Road in Earlysville, VA.

Mr. Mawyer noted for the record that Mr. Gaffney had a medical procedure and that although he was participating, he was relieved of his chairman duties that day.

4. RECOGNITION

Mr. Jeff Richardson stated this was a joint resolution of appreciation for Dr. Tarron Richardson. He moved to adopt the resolution as he read the resolution aloud:

“WHEREAS, Dr. Richardson has served as a member of the Rivanna Water & Sewer Authority and Solid Waste Authority Boards of Directors since May of 2019; and

“WHEREAS, over that same period Dr. Richardson has demonstrated leadership in water and sewer, solid waste and recycling services; and has been a valuable member of the Boards of Directors and a resource to the Authorities; and

“WHEREAS, Dr. Richardson’s understanding of the water, sewer, solid waste and

93 recycling operations of the City of Charlottesville, the Water & Sewer Authority and the Solid
94 Waste Authority has supported a strategic decision-making process that provided benefits to the
95 customers served by the City of Charlottesville as well as the community as a whole.

96 WHEREAS, the Water & Sewer Authority and Solid Waste Authority Boards of Directors are
97 most grateful for the professional and personal contributions Dr. Richardson has provided to both
98 Authorities and to the community; and

99 “NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water & Sewer Authority
100 and the Rivanna Solid Waste Authority Boards of Directors recognize, thank, and commend Dr.
101 Richardson for his distinguished service, efforts, and achievements as a member of the Rivanna
102 Water & Sewer Authority and the Rivanna Solid Waste Authority, and present this Resolution as
103 a token of esteem, with their best wishes in his future endeavors.

104 “BE IT FURTHER RESOLVED that this Resolution be entered upon both the permanent
105 Minutes of the Rivanna Water & Sewer Authority and the Rivanna Solid Waste Authority.”
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107 **The motion was seconded by Dr. Palmer and passed unanimously (6-0). Dr. Richardson**
108 **abstained from the vote.**
109

110 Mr. Richardson stated on behalf of the RWSA Board, they wanted to take the opportunity to give
111 Dr. Richardson a heartfelt thanks for his service not just to the City and to the community, but to
112 the board.
113

114 Mr. Mawyer thanked Dr. Richardson, recalling their trip to Sugar Hollow and the Blue Hole. He
115 wished Dr. Richardson the best in the future.
116

117 Dr. Palmer thanked Dr. Richardson and the City for approving the easement last month for the
118 waterline from South Rivanna to the Ragged Mountain Reservoir. She expressed her
119 appreciation for his service over the last year.
120

121 Mr. O’Connell thanked Dr. Richardson and wished him luck.
122

123 Dr. Richardson thanked everyone on the board. He stated he had a great time working with
124 everyone.
125

126 Mr. Snook stated although he had many more dealings with Dr. Richardson in dealings with the
127 City than with RWSA, he did not want the moment to pass without his own expression of his
128 thanks for Dr. Richardson’s service to the City as well as to the RWSA Board. He stated he
129 regretted the fact that Dr. Richardson would not be with the board further, and that he understood
130 his decision-making process. He stated he was sorry for the board and wished Dr. Richardson
131 well.
132

133 **5. EXECUTIVE DIRECTOR’S REPORT**

134 Mr. Mawyer stated to continue the recognitions, he wanted to recognize his staff. He stated Mr.
135 Paul Sugg earned his Class II Wastewater Operator’s license. He stated Mr. Sugg came to
136 RWSA from Florida and Michigan, and had been with RWSA since January. He stated Mr. Sugg
137 is an important member of their team, and that he appreciated Mr. Sugg’s efforts in attaining his
138 license.

139

140 Mr. Mawyer congratulated RWSA's Director of Finance, Mr. Lonnie Wood, and Senior
141 Accountant, Ms. Kathy Ware. He stated they again received the Government Finance Officers
142 Association award for the comprehensive annual financial report ending on June 30, 2019. He
143 stated this was about 25 years in a row that Mr. Wood and his staff have earned this award.

144

145 Mr. Mawyer stated under the strategic plan goal of Infrastructure and Master Planning, he would
146 report on the Rivanna to Ragged Mountain Waterline Pump Station and Sediment Removal
147 Facility project. He stated Mr. O'Connell and the Board of Directors of the ACSA renewed its
148 endorsement of RWSA's plan of constructing the pipeline between 2027 and 2033. He stated Mr.
149 O'Connell had several new members on the ACSA board, and that Mr. O'Connell took the
150 opportunity to revisit the project. He stated that the ACSA board endorsed the same schedule that
151 the prior board did, and that it was consistent with the schedule that the RWSA Board had in its
152 CIP.

153

154 Mr. Mawyer stated they made some more progress over the last few weeks as City Council
155 approved easements for four properties near Ragged Mountain. He presented an updated map,
156 noting that sections of the pipeline shown in black or shadowed in black had either been
157 completed or the easement had been obtained. He stated from the Ragged Mountain end, there
158 were two sections (in blue) that were owned by the UVA Foundation. He stated RWSA would be
159 meeting with UVA Foundation soon to move that process forward.

160

161 Mr. Mawyer stated RWSA did have a property at Route 250, just north of the Birdwood line,
162 with one easement completed and a second easement under negotiation.

163

164 Mr. Mawyer stated RWSA completed its discussions with VDOT, and the yellow sections
165 shown on the map were VDOT sections where the pipe was planned to be located in the VDOT
166 right-of-way. He stated VDOT does not grant easements, but RWSA had meetings and sent
167 VDOT a letter stating that we planned to put the pipe in the marked locations on the map. He
168 stated VDOT understood this plan.

169

170 Mr. Mawyer stated RWSA acquired the black section on the map to the north of Barracks Road.
171 He stated Sugarday Farm was shown on the map in green, and that they would acquire easements
172 on that property, as well as behind Albemarle High School and Greer Elementary School. He
173 stated there was also a small green section on the map that has two private property owners near
174 the South Rivanna Water Treatment Plant and Woodburn Road. He stated although the process
175 appeared slow at times, RWSA was making steady progress and would expect to wrap up all the
176 easements and agreements in the near future.

177

178 Mr. Mawyer stated RWSA continued to work with UVA on another project to replace the two
179 existing waterlines from Ragged Mountain Reservoir to the Observatory Water Treatment Plant.
180 He stated they were dealing with UVA in the orange sections on the presented map, and that
181 there was a VDOT area where RWSA had concurrence with the agency. He stated the purple
182 section of the map was a small section of public easement. He stated in green, there were a few
183 private property owners along Reservoir Road that RWSA had yet to deal with.

184

185 Mr. Mawyer stated on this project, RWSA had met with UVA and proposed an alignment of the
186 pipe. He stated UVA offered comments, and that he was feeling confident that they would get
187 this easement completed in the near future as well.

188
189 Mr. Mawyer stated RWSA also attended a meeting about the Beaver Creek Dam and Spillway
190 project, on September 3 with residents of the Beaver Creek Reservoir area. He stated many of the
191 people in that area are farmers, who had concerns about how long Browns Gap Turnpike would
192 be closed during construction of the spillway, which was the main issue. He stated it was a good
193 crowd and a lot of good feedback was received about their concerns.

194
195 Mr. Mawyer stated RWSA will continue to communicate with this group, as well as with the
196 group of people who live on the west side of Beaver Creek Reservoir, where they have a site for
197 a raw water pump station. He stated they are communicating with the Clark Family about the
198 pump station, and that they met with them as recently as the previous Friday about it.

199
200 Mr. Mawyer stated the project was moving forward and progress was being made. He stated
201 RWSA was working with the Natural Resources Conservation Service, which is a federal agency
202 that RWSA is asking to fund 65% of the project. He stated it would be about a two-year process
203 to get the agency to approve RWSA's plan, and so while nothing was yet finalized with that
204 project, it was moving forward in the administrative areas.

205

206 **6. ITEMS FROM THE PUBLIC**

207 Dr. Richardson opened "Items from the Public."

208

209 Ms. Hanna Clark stated she was speaking on behalf of the Clark and Riopel families. She stated
210 she was the youngest of the three Clark children, all of who grew up on the land surrounding
211 their home on Mechum Heights Road, or as RWSA knows it as Pump Site 3.

212

213 Ms. Clark stated she wanted to put a face or voice to the names attached to that site. She stated
214 her family hoped that additional consideration would be given to the site selection after hearing
215 from her and learning more about her family and land. She stated the woods around their home
216 are very near and dear to them, and the proposed pump and access roads across their property
217 and near to their house would be devastating to her family.

218

219 Ms. Clark stated her family has met with staff members of the RWSA, and thanked RWSA for
220 the courtesy. She stated they have been professional, responsive, transparent, and seemingly
221 open to considering other options.

222

223 Ms. Clark stated her family believes there is a better option for the pump site that would have
224 less impact on private citizens, the forest and wetlands, water quality, public access to Beaver
225 Creek, and her family. She stated they hoped RWSA would continue to consider alternate
226 locations and methods with all concerns in mind – environmental, monetary, and human.

227

228 Ms. Clark stated if any board members would like to make a trip to Beaver Creek to see the land
229 and meet her family, she would be happy to arrange it.

230

231 Ms. Clark stated she would close by reading a poem by a local writer and friend, Amelia
232 Williams, which was called, "On Beaver Creek." She read the poem aloud to the board.

233
234 Ms. Riley Wyant, NBC29 News, stated she was not sure the topic would come up later in the
235 meeting, or if the board wanted to address it then. She stated she wondered if there would be
236 consideration of doing wastewater COVID monitoring, now that it was working well at UVA.

237
238 Dr. Palmer informed Ms. Wyant that the board typically takes comments but does not answer
239 questions during this period of time.

240
241 As there were some technical difficulties with the meeting, some board members asked for the
242 comment to be repeated.

243
244 Ms. Wyant stated she had seen there were a number of topics on the agenda, and she understood
245 that there was a certain water treatment agreement with UVA and other presentations planned for
246 more wastewater treatment operations. She stated she wondered if, at any point in the meeting,
247 there would be any consideration of doing wastewater COVID monitoring, since it had worked
248 well with UVA, and if this was on anyone's radar.

249

250 **7. RESPONSES TO PUBLIC COMMENT**

251 Mr. Mawyer stated he would first address Ms. Clark's comments. He stated RWSA had met with
252 Ms. Clark and her family several times and as recently as the past Friday. He stated RWSA was
253 trying to fully understand the family's concerns and give them due consideration.

254

255 Mr. Mawyer stated that as RWSA looked at the pump station sites at the Beaver Creek
256 Reservoir, they had started with six sites and then narrowed them down to two. He stated now,
257 they have expanded the number of sites to five to fully address the environmental and cultural
258 elements, constructability, impacts to neighbors, and cost factors for all five of those sites. He
259 stated they have their consultant evaluating these criteria for all the sites.

260

261 Mr. Mawyer stated the pump station itself would be on Albemarle County property, on the west
262 side of the reservoir. He stated some of the concerns were about the need to extend the pipe from
263 the new pump station to the Crozet Water Treatment Plant, which may need to cross private
264 properties. He stated the Clark property was one of the alignments under consideration.

265

266 Mr. Mawyer stated RWSA would reassess the sites. He stated there were some significant cost
267 differences of about 30% more, or \$3-4 million more, for some of the various sites. He stated
268 cost was therefore a factor RWSA was evaluating, adding that this was a project funded 100% by
269 the Albemarle County Service Authority.

270

271 Mr. Mawyer stated he appreciated Ms. Clark's and the Clark Family's concerns and was giving
272 them due consideration. He stated he expected RWSA to complete their evaluation in the next
273 couple months and that likely, he would come to the board in January with some alternatives
274 about possible locations for the new pump station and the pipeline. He noted that when RWSA
275 works with the federal Natural Resources Conservation Service, they still have to get the agency

276 to approve RWSA's locations and designs. He stated they would develop a preliminary plan with
277 the board and will then work with NRCS to finalize it.

278
279 Mr. Mawyer stated Ms. Wyant commented about wastewater for COVID screening. He stated
280 RWSA has been working with researchers at UVA for many months to assist them as they can in
281 providing access to the wastewater system and thus, RWSA was working with UVA in that way.

282 283 **8. CONSENT AGENDA**

284 *a. Staff Report on Finance*

285

286 *b. Staff Report on Operations*

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288 *c. Staff Report on Ongoing Projects*

289

290 *d. Staff Report on Wholesale Metering*

291

292 *e. Approval of Supplemental Water Treatment Systems Study, Design and*
293 *Construction Agreement with UVA*

294

295 Mr. O'Connell asked Mr. Mawyer if he could speak to Item (e) in terms of the purpose of the
296 study and its water treatment.

297

298 Mr. Mawyer stated RWSA had been coordinating with UVA, particularly in some of their
299 medical facilities, for about a year to help them find ways to improve their water management
300 program. He stated the hospitals where RWSA was planning to work are large buildings in
301 which water temperature, disinfection levels, and water age can be a issues. He stated RWSA
302 was following the Center for Disease Control's program on water management and putting
303 together an assessment of UVA's systems to provide recommendations to UVA on its water
304 quality program in those facilities.

305

306 Mr. Mawyer stated there was a confidentiality agreement UVA asked RWSA to execute. He
307 stated this was due to UVA's medical facilities, with the patient services having privacy
308 requirements under the HIPAA Privacy Act and, as well, they are private waters system within
309 the UVA buildings. He stated they plan to execute the agreements with the board's approval.

310

311 Mr. Mawyer stated there would be a three-phased approach, which would involve studying the
312 existing conditions within the facilities and making recommendations. He stated then, if
313 necessary, they could construct supplemental water treatment systems within those buildings to
314 help obtain water management enhancements.

315

316 Mr. Mawyer stated UVA would be sponsoring all the costs, including RWSA's, for this project.
317 He stated if RWSA does install additional equipment, they would likely come back to the board
318 with an operating agreement that they would operate the equipment for UVA in the future. He
319 stated since RWSA has licensed water operators, they felt it most appropriate that it was their job

320 and skillset to run any supplemental water treatment systems in conjunction with the City
321 utilities as well as with Mr. O'Connell and the ACSA for their customers.

322

323 **Mr. O'Connell moved that the board approve the Consent Agenda. The motion was**
324 **seconded by Dr. Palmer and passed unanimously (7-0).**

325

326 **9. OTHER BUSINESS**

327 *a. Presentation: Water and Wastewater Treatment Facilities and Processes*

328 *Director of Operations, Dave Tungate*

329

330 Mr. Mawyer introduced Mr. David Tungate, Director of Operations, and explained that Mr.
331 Tungate runs all the water treatment plants and wastewater plants as well as the laboratory that
332 analyzes all the samples RWSA takes from both of those systems. He stated they would give the
333 board an informational overview of those facilities and treatment processes.

334

335 Mr. David Tungate stated in summary, he would talk about drinking water and wastewater.

336

337 Mr. Tungate stated with regards to drinking water, in some respects, RWSA's tasks were simple.
338 He stated they protect the raw water supplies and quality in the reservoirs. He stated they pump
339 this water from the reservoirs to the water treatment plants, and treat the water to exceed the safe
340 drinking water standards. He stated these are standards set forth by the EPA, which RWSA is
341 required to meet.

342

343 Mr. Tungate stated that after the water is treated, it is pumped into the distribution system to
344 meet their daily water demands. He stated they are then tasked to maintain the distribution
345 system water quality. He stated they maintain the systems in the urban area, Scottsville, Red Hill,
346 and Crozet as well as the water quality within those systems.

347

348 Mr. Tungate stated there were five reservoirs: the South Rivanna Reservoir, behind Walmart on
349 Route 29; the Sugar Hollow Reservoir in the Sugar Hollow Recreation Area, in the northwest
350 corner of the County; Ragged Mountain – the newest and largest reservoir – located just north of
351 I-64, inside the City; Beaver Creek Reservoir in Crozet; and Totier Creek Reservoir in
352 Scottsville.

353

354 Mr. Tungate stated with their five reservoirs, there were also six water treatment facilities
355 maintained by RWSA: South Rivanna, which is the largest facility at a capacity of 12 million
356 gallons per day (mgd) and which is currently under renovation; the Observatory facility, which is
357 on UVA grounds, with a capacity of 7.7 mgd and also under renovation; the North Rivanna
358 Treatment Plant, located north of the airport, which intakes from the North Fork Rivanna River
359 rather than from a reservoir; Crozet Water Treatment Plant at a current capacity of 1 mgd, which
360 has a renovation project underway that will take the capacity of the plant up to 2 mgd; a facility

361 in Scottsville, at 0.25 mgd; a well field RWSA maintains in the Red Hill area, which serves 7-8
362 homes and Red Hill School, with a designed capacity of 6,000 gallons per day.

363

364 Mr. Tungate stated they staff all the facilities in the water department with 26.4 full-time
365 employees.

366

367 Mr. Tungate stated on the wastewater side, the largest wastewater treatment plant was where
368 some of the staff attending were currently located, which was the Moores Creek facility,
369 permitted for 15 mgd. He stated they have a wastewater facility in the Glenmore subdivision,
370 east of Charlottesville near Keswick, which is permitted for 0.381 mgd. He stated they have a
371 wastewater facility in Scottsville that has a two-tiered permit and that 99% of the time, they are
372 at less than 0.1 mgd, (100,000 gallons). He stated they operate a small wastewater treatment
373 package plant at the Stone Robinson School, which is permitted for 6,000 gallons per day.

374

375 Mr. Tungate stated all the wastewater facilities were staffed with 16 full-time employees on the
376 wastewater side.

377

378 Mr. Tungate presented some aerial photos of the water treatment plants. He indicated in the
379 upper left corner of the slide is the North Rivanna Water Treatment Plant. He stated moving
380 geographically to the south was the South Rivanna Plant, which is the largest water facility. He
381 stated the next picture on the slide was the Observatory Water Treatment Plant on the grounds of
382 UVA. He indicated on the slide to the Crozet and Scottsville facilities, and to the Red Hill well
383 field south of Charlottesville (off 29 South).

384

385 Mr. Tungate stated RWSA makes water at all the facilities 365 days a year and several can
386 operate 24/7. He stated they like to think that their customers have no idea what the raw water
387 quality is from day to day because the finished water quality stays the same. He stated that day
388 was a particularly bad one at South Fork Rivanna Reservoir, where they had an extremely high
389 rainfall amount and very high turbidity, and they could see (in the picture on the screen) what the
390 raw water quality was like that day. He stated again, no matter the raw water quality, RWSA has
391 to meet the same drinking water standards from the EPA.

392

393 Mr. Tungate stated on the drinking water side, RWSA's main concerns were giardia and
394 cryptosporidium. He presented a picture of a giardia organism, which is immobilized with
395 chlorine. He presented another picture, this time of two cryptosporidium cysts. He stated that
396 another part of the treatment process, filtration, which removes of the cryptosporidium cysts.

397

398 Mr. Tungate stated this presentation was meant to highlight some of the things RWSA does. He
399 stated they produce drinking water and talk to their employees every day about the steps and

400 precautions they take that provide for the safety and wellbeing of the community, which RWSA
401 takes very seriously.

402

403 Mr. Tungate stated the next slide would step through the South Rivanna plant. He stated on the
404 left was the South Rivanna Raw Water Pump Station, located at the South Rivanna Dam. He
405 presented a picture of a series of high-service raw pumps, which pump the water from the
406 reservoir up to the plant.

407

408 Mr. Tungate stated as the water comes from the raw pump station, it first comes into the mixing
409 basin, where they add and mix raw chemicals together. He stated the water then goes through a
410 faster-speed rapid mix area. He stated it goes into the flocculators (of which there are three), and
411 that the rate of mixing is faster the closer they get to the mixing basin, as the water flows from
412 the top area shown on the screen to the bottom area. He stated mixing slows down as it gets
413 towards the effluent (or exit) side of the flocculator.

414

415 Mr. Tungate stated the water then moves into a series of six sedimentation basins, which operate
416 in parallel. He stated the basins allow the heavy flocculated particles a place to settle.

417

418 Mr. Tungate presented a slide depicting heavy floc particles. He stated these were particles that
419 came together and pass into the sedimentation basins. He stated the goal of sedimentation basins
420 is to settle out the solids. He stated the picture was taken looking down, noting that the cloudy
421 area was clear water on top of the clouds of floc that were settling into the sedimentation basins.

422

423 Mr. Tungate stated the next slide was an overview of the South Rivanna facility. He stated there
424 is a main filtration plant, and the water goes through the sedimentation basins through the filters,
425 then travels to the GAC building. He stated after the water goes through the GAC contactors and
426 then finished water chemicals are added. He stated the water then mixes in the chlorine contact
427 tank, which allows the chemicals to mix and become uniformly distributed. He stated it is then
428 pumped out into the distribution system.

429

430 Mr. Tungate stated the bottom left corner of the slide showed some of the pumps that are used to
431 push the sodium hypochlorite (bleach solution) that is used in the disinfection process through
432 the treatment plant. He stated at the top of the slide was a picture of the filter press building,
433 which he would discuss later.

434

435 Mr. Tungate presented a picture of the pumps that RWSA uses to move the potable water from
436 the plant into their system and into people's homes. He stated these were four large high-service
437 pumps at South Rivanna that are used to pump the water into the system.

438

439 Mr. Tungate stated they had talked about GAC, noting that they use two forms of carbon in the
440 water treatment process. He presented a picture that showed two vials. He stated the vial on the
441 left contained powder-activated carbon (PAC), which is very fine, almost flour-like material. He
442 stated this material gets added in the treatment process as a slurry. He stated it is slurried in and
443 fed into the water treatment process, and is a one-time use.

444

445 Mr. Tungate stated the vial to the right was granular-activate carbon (GAC). He stated there was
446 a project that finished in 2018 where RWSA added GAC vessels to all of their facilities. He
447 stated the GAC is about the size of Grape Nuts and that this is not a one-time use. He stated this
448 material lasts anywhere from 12 to 24 months, depending on the water quality.

449

450 Mr. Tungate presented a picture of South Rivanna, noting that he circled the application point in
451 the mixing basin for PAC. He stated it is fed into the water as it is processed through the plant,
452 and then the carbon settled out in sedimentation basins and is removed from the water and
453 disposed of. He stated PAC is a one-time use.

454

455 Mr. Tungate presented a picture of South Rivanna inside the GAC facility, where there are eight
456 contactors. He stated each contactor holds 40,000 pounds of GAC.

457

458 Mr. Tungate stated there are five facilities with GAC contactors, including South Rivanna (the
459 largest facility), with eight contactors and 320,000 pounds. He stated there is 8 mgd of treatment
460 capacity through the contactors but at South Rivanna, the plant has the ability to produce 12
461 mgd. He stated not all of the water, at that point, can be processed through the GAC, which was
462 an optimization measure RWSA took because they did not need all of the water to be treated
463 with GAC.

464

465 Mr. Tungate stated at the Observatory Water Treatment Plant, there is a capacity of 7.7 mgd. He
466 stated when the treatment plant is finished with its upgrade, it will be a 10-mgd facility. He
467 stated the contactors will be expanded there as part of the project, with the ability to treat up to 6
468 mgd. He stated it will have the same treatment capacity as South Rivanna relative to total
469 capacity at Observatory. He stated they will be able to do 10 mgd through the plant, but will be
470 able to treat 6 mgd through the GAC contactors.

471

472 Mr. Tungate stated the North Rivanna facility has one 40,000-pound contactor and a capacity of
473 1 mgd. He presented information on the slide for Scottsville and Crozet as well.

474

475 Mr. Tungate asked the board if they had any questions about GAC.

476

477 Mr. Gaffney asked Mr. Tungate if he could talk about how the water that does not go through the
478 GAC mixes with the water that does.

479

480 Mr. Tungate explained that RWSA, on an instantaneous basis, has the ability to determine how
481 much water goes through the GAC and how much does not. He stated after the GAC treatment,
482 the water mixes together, then they add the finished water chemicals (corrosion inhibitor,
483 fluoride, and chlorine) to the water before it goes out into the system. He stated they are able to
484 determine how much goes through GAC and GAC bypass.

485

486 Mr. Tungate stated GAC was put into to ensure RWSA's compliance with the new disinfection
487 byproduct rule. He stated they found that they were able to optimize the use of the GAC and still
488 exceed the disinfection byproduct rules. He stated it has been a learning process as RWSA
489 brought these online and looked at the results in the distribution system, while communicating
490 with both their customers (City and County) and talking about the performance. He stated they
491 meet on a quarterly basis to discuss distribution system water quality.

492

493 Mr. Tungate stated this was a benefit, moving forward, as they had been treating all the water
494 they could through the contactors, but they have been able to change that.

495

496 Dr. Palmer stated they had talked a lot about the benefits of the new pipeline from South Fork to
497 Ragged Mountain and Observatory Hill. She asked if he could mention the operational benefits
498 with respect to reducing the amount of carbon that they will have to use when they can move the
499 water from Ragged Mountain back down to South Fork, having the sediment being removed
500 from whatever kind of sediment trap they put in at South Fork to begin with.

501

502 Mr. Tungate stated Ragged Mountain Reservoir is the largest, at over 1.4 billion gallons. He
503 stated the water that is in Ragged Mountain was transferred from Sugar Hollow Reservoir with a
504 pipeline, and so it is not as susceptible to rain events like South Rivanna Reservoir. He stated as
505 a rule, the water in Ragged Mountain is cleaner, turbidity-wise, than South Fork, and so it is
506 possible they would be able to transfer water on a heavy precipitation day from Ragged
507 Mountain to South Fork and take advantage of the water that is not as impacted by rain events.

508

509 Mr. Tungate stated to offer some perspective, with the rain the area had a couple weeks earlier,
510 South Fork Reservoir got about 40-50 NTUs, and anyone who looked at it could see it was
511 muddy and discolored. He stated it took more effort for RWSA to treat it, and that there was
512 more sediment to deal with from the process. He stated the system was designed to do that, but
513 that it was much less effortless at Observatory where, after the big rain event, they still only had
514 3-4 NTUs, and so the raw water was never impacted by the rain events at Observatory.

515

516 Mr. Tungate continued his presentation. He stated once they settle out all the solids at the South
517 Rivanna Water Treatment Plant, they accumulate them in clarifiers and add polymer to it. He
518 presented a picture of the top of a filter belt press, explaining that they take a thick sludge that

519 looks almost like peanut butter, and run it through a belt press. He indicated to a picture showing
520 two belts coming together and squeezing the water out, leaving behind a dry product that has 22-
521 23% solids. He stated this is a dry cake product that RWSA hauls to Moores Creek AWRRF to
522 dispose of it with the residuals.

523
524 Mr. Tungate stated the more turbidity and the more solids there are in the raw water, the more of
525 this product they make from SRWTP and that therefore, there is an advantage to having raw
526 water supply that is not as impacted by rain events at South Rivanna.

527
528 Mr. Tungate stated on the water side, RWSA carries out a lot of testing and has to meet standards
529 established by the EPA. He stated they have to submit all their information to the Virginia
530 Department of Health on the tenth day of the month following the completed month (e.g. on
531 October 10, September reports are due).

532
533 Mr. Tungate stated the reports have to include a lot of information, not limited to the daily
534 volume of water pumped from each facility into the plant and how much they produce and send
535 out to the system. He noted there is sometimes a difference between how much they bring from
536 the source and how much they put into the system.

537
538 Mr. Tungate stated they have to keep very accurate records on the amounts of chemicals they
539 use. He stated they have filter turbidity information and online instruments throughout the plant
540 that keep track of turbidity, water temperatures, and pH throughout the process. He stated they
541 provide their calculations for disinfection, which takes care of things like giardia. He stated they
542 collect total coliform results in the urban system, Crozet, Scottsville, and Red Hill, which are all
543 submitted as part of their monthly report to the Virginia Department of Health.

544
545 Mr. Tungate concluded the water portion of the presentation and asked if there were questions.
546 Hearing none, he moved onto the wastewater portion.

547
548 Mr. Tungate stated at RWSA, they cover everything up to the tap and everything from the drain
549 backwards. He stated their largest facility located on the map on the screen was the Moores
550 Creek facility, which is where their offices are. He stated they have a very small facility (at 6,000
551 gallons per day) located at the Stone Robinson School, just east of the Moores Creek facility on
552 Route 250. He stated just south of that is the wastewater treatment plant in the Glenmore
553 subdivision, and the new Rivanna Ridge area being developed off Route 250. He stated there is a
554 facility in Scottsville that serves the Town of Scottsville.

555
556 Mr. Tungate presented an aerial photo of the Moores Creek facility and indicated to the location
557 of the administrative building. He indicated to the location of the band screens, whereas the

558 sewage comes into the plant from two pump stations, it comes up to the screens to remove the
559 inert material from the wastewater so that they do not have to be handled throughout the plant.

560

561 Mr. Tungate indicated on the photo to the grit removal system, noting this was a new system in
562 the last five years. He stated depending on the duration of a rain event and how heavy it is, they
563 do get some grit that washes in. He stated the removal system captures the grit, with the idea to
564 keep it out of the system.

565

566 Mr. Tungate stated depending on the situation and the flows, there are two equalization basins
567 located just outside the parking lots. He stated the idea is that when it rains, the flows tend to
568 pick up at the Moores Creek plant, although it was not a linear progression. He stated as the
569 flows come up, they tend to store sewage in the equalization basins while they are setting up the
570 plant for a high flow event.

571

572 Mr. Tungate explained that the picture was not as recent as was two weeks earlier, since the
573 sediment in the equalization basins had been removed as part of the holding pond cleanout
574 project.

575

576 Mr. Tungate stated the photo showed the primary clarifiers, which were part of an odor control
577 project completed a couple years earlier. He stated these were covered and include an odor
578 control scrubber, which removes much of the odors out of the primary treatment.

579

580 Mr. Tungate indicated on the photo to the biological treatment aeration basins, where the
581 majority of the nutrient removal occurs. He stated there were four secondary clarifiers pictured
582 as well as holding ponds, where water is stored during a high-flow event. He stated the Moores
583 Creek plant is permitted to do 15 mgd and when they have very high-flow events where the plant
584 cannot process the water, there are a couple things they do. He stated they enter into a step feed,
585 which is a high-flow hybrid approach to treating wastewater. He stated they also store some of
586 the water in the holding ponds and as the flow goes down, they bring it back through the plant.

587

588 Mr. Tungate presented another picture, which was taken in December 2019. He stated there was
589 water in both the ponds pictured and that currently, there is a project underway to clean out the
590 ponds. He stated the pond closest to the facility (the westernmost pond) has been cleaned and
591 was down to concrete. He stated the material was moved over to the east pond and just that
592 morning, they began hauling out the material. He stated they will clean out both the holding
593 ponds.

594

595 Mr. Tungate presented a picture of a part of the plant visitors see upon arrival. He indicated to
596 the road and the bridge there. He stated there were two pieces of equipment in the photo that
597 would be removed: the lime silo (which was used when they had a plate frame press), and in-

598 plant clarifiers. He stated they are not using either and expect to remove them, per the CIP, in
599 future years.

600

601 Mr. Tungate stated they have five anaerobic digesters. He stated the ball seen in the picture was a
602 methane sphere where methane is stored. He stated most importantly, there are UV channels at
603 Moores Creek, which is what they use to inactivate the coliform bacteria before water is returned
604 to Moores Creek. He indicated on the photo to the location of the outfall.

605

606 Mr. Tungate stated there are two sewer pump stations at Moores Creek. He stated the Moores
607 Creek Pump Station is located near the entrance of the plant, and that the Rivanna Pump Station
608 had been located outside their property but was recently located, through a CIP project, onto the
609 property.

610

611 Mr. Tungate presented a map that showed the sewer sheds for the wastewater pump stations at
612 the plant. He stated the area Rivanna Pump Station serves was marked on the map in yellow. He
613 stated this area consists of the northside of Charlottesville, past the airport, up nearly to Greene
614 County and drains to the Rivanna Pump Station.

615

616 Mr. Tungate stated the Moores Creek Pump Station serves the south half of the City of
617 Charlottesville and, importantly, it receives sewage from the Crozet area. He stated the map
618 showed four green boxes with the notation "PS" and four pump stations, which pump the sewage
619 from Crozet to the gravity line, which ends up coming to the Moores Creek Pump Station. He
620 stated they maintain four pump stations on Route 250 that bring the Crozet sewage to the Moores
621 Creek facility.

622

623 Mr. Tungate presented a close-up photo of the band screens at Moores Creek. He stated as the
624 sewage comes into the Moores Creek and Rivanna Pump Stations, they have diminutors, which
625 can be thought of as large garbage disposals that grind up everything coming in. He stated some
626 of the inert materials can then be captured by the screens.

627

628 Mr. Tungate presented a picture of the material which, after the screens are cleaned, gets
629 dewatered and compacted. He stated it comes out of the pictured chutes and then goes to a
630 dumpster to be disposed of. He stated the inert material is removed from the treatment system so
631 that RWSA does not have to handle it again.

632

633 Mr. Tungate presented pictures of the grit removal system. He indicated to the cyclones, which
634 separate the heavier solids (grit) out of the wastewater. He stated the solids remain, and then the
635 wastewater can continue to move on.

636

637 Mr. Tungate presented a photo of the grit after it had been removed. He stated after putting the
638 system online for the first time, they found that the grit included cellphones, pagers, and all kinds
639 of things that were sitting in sewers for a number of years.

640
641 Mr. Tungate presented pictures of the primary clarifiers. He indicated on the photo to the air
642 handling lines, which take the odors off the top of the clarifiers. He stated this was the next step
643 in the process (after sewage pump stations, band screens, and grit removal) where the sewage
644 comes into the two primary clarifiers, where the solid settles out and the cleaner sewage
645 continues on to aeration basins.

646
647 Mr. Tungate stated the odor control for the primary clarifiers is done by a large air scrubber that
648 removes the odor from the air.

649
650 Mr. Tungate stated the biological treatment was what most people think of when thinking about
651 wastewater treatment plants. He stated this is where much of the nutrient removal occurs. He
652 stated there are five aeration basins at Moores Creek. He stated the picture on the screen showed
653 bubbles from the aeration. He stated they put air into the water and that the amount of air
654 depends on the season, water temperatures, and what is happening at the plant. He stated it does
655 change seasonally and, at times, monthly.

656
657 Mr. Tungate stated once the sewage goes through the aerators to the biological treatment, there
658 are secondary clarifiers that capture sludge and keep clear water running through the system. He
659 noted that not all four secondary clarifiers were not usually kept in service.

660
661 Mr. Tungate stated that after secondary clarifiers the water is pumped to the sand filters, which
662 further remove impurities in the water to make it clearer so it can then put the water through the
663 UV channels. He stated the UV channels are high-intensity UV lightbulbs, and that not all the
664 channels are used at once. He stated they have backups in case something goes down for
665 maintenance. He stated the cleaner and clearer the water is, the more effective the UV system is.

666
667 Mr. Tungate presented a slide about the discharge to Moores Creek. He stated the top photo
668 showed the sewage just after UV treatment, and the bottom photo showed the water going back
669 to Moores Creek, when then flows to the James River and the Chesapeake Bay.

670
671 Mr. Tungate presented a photo of one of the two centrifuges at Moores Creek. He stated they
672 dewater solids from the digesters after 10-14 days in the digester. The thick sludge (which has
673 the consistency nearly like peanut butter) which is put through the centrifuges.

674

675 Mr. Tungate stated the biosolids can be mixed with the water treatment plant residuals and are
676 hauled to Waverly, Virginia to McGill Environmental, where they are made into commercially
677 available compost. He stated the photo on the screen showed dewatered sewage sludge.

678
679 Mr. Tungate stated the trip to McGill is made anywhere from 10 to 15 times per week. He stated
680 the contracted hauler hauls between Monday and Friday. He stated RWSA owns the trailers
681 pictured on the screen and haul anywhere from 20 to 30 tons per load. He stated RWSA has a
682 private contractor and have bid out their hauling services, so the contractor pulls the trailers for
683 them and drives 120 miles one way to Waverly.

684
685 Mr. Tungate presented a slide with data from the August operations report. He stated from the
686 wastewater side, RWSA was regulated by how many pounds of nitrogen and phosphorus they
687 can put into the James River and Chesapeake Bay. He stated the state annual allocation is
688 282,000 pounds of nitrogen and 18,000 pounds of phosphorus. He stated taking those numbers
689 and dividing them by 12, they arrive at their average monthly allocations.

690
691 Mr. Tungate stated the third column on the chart showed how much they actually put in to
692 Moores Creek in August. He stated they were allowed to put in 23,000 pounds and put in 4,300
693 pounds, which was 19% of what they could put in. He stated the last column showed the Year-
694 to-Date performance, noting that importantly, the allocations they do not use are sold on the
695 nutrients exchange.

696
697 Mr. Tungate stated in August, RWSA received a check from the nutrient exchange in the order
698 of \$80,000 to \$85,000. He stated it was important for RWSA to stay efficient to get high nutrient
699 removals because there is a cost benefit to that. He stated the Nutrient Exchange sells credits to
700 other wastewater utilities in the James River Watershed. He stated those facilities are not as good
701 as RWSA and needs those nutrient credits. He stated because RWSA does a good job in
702 removing the nitrogen and phosphorus, they are able to sell those to people who cannot do it as
703 well. He stated it was about \$80,000 to \$100,000 in benefits to the revenue stream each year,
704 depending on flows.

705 Mr. Tungate stated the next slide demonstrated that RWSA does on the wastewater side for
706 testing. He stated on the wastewater side at Moores Creek, there are tests that must be performed
707 on a daily basis, including dissolve oxygen, pH, total suspended solids and ammonia (five times
708 per week), E. Coli (four times per week), total phosphorus and total nitrogen (two times per
709 week), and chemical biological oxygen demand (once a week).

710
711 Mr. Tungate stated there were multiple checks and balances in the process, both on the water
712 side and wastewater side, as well as multiple reports that are filed. He stated there are stories in
713 the water and wastewater industry of managers not meeting the rules, cooking the books, and
714 getting caught, and that this is something RWSA takes very seriously. He stated there are

715 multiple levels of checks and balances at RWSA to be sure this doesn't happen. He stated there
716 are many layers that go into their work.

717

718 Mr. Tungate stated the final photo in the presentation was one taken at night of the Moores Creek
719 facility, from a drone.

720

721 Mr. Tungate asked if there were questions.

722

723 Dr. Palmer asked if the final picture was taken after the lights had been changed.

724

725 Mr. Tungate replied that the lights had not yet been changed.

726

727 Dr. Palmer asked if she could see the slide about tests. She asked Mr. Tungate if he could talk
728 more about the weekly chemical biological oxygen demand test.

729

730 Mr. Tungate replied that this test takes a look at how they are treating the water and what the
731 quality is before it goes back into Moores Creek to be sure they removed all the materials so they
732 are not creating a demand in the receiving stream. He stated in the past, there would be sewage
733 effluent that would then consume the oxygen in the receiving stream, and so they have to
734 maintain that.

735

736 Mr. O'Connell stated this was a great tour with many good pictures.

737

738 Mr. Gaffney stated he knew the water in Moores Creek is tested just before the water from the
739 treatment plant goes in. He asked how the water they put into Moores Creek compares to the
740 existing water there.

741

742 Mr. Tungate replied that on the water side, they do raw water sampling before they do any of the
743 treatment, and that there are usually high loads of coliform bacteria in any body of water or
744 moving stream in Virginia. He stated he could not recall offhand the information of Moores
745 Creek prior to their discharge but that depending on the day, their discharge is likely cleaner than
746 the receiving stream. He stated the amount of coliform bacteria of non-point source pollution in
747 surface waters in much of the U.S. is usually very high, with runoff from dogs and the like.

748

749 ***10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA***

750 There were no other items.

751 ***11. CLOSED MEETING***

752 There was no closed meeting.

753

754 ***12. ADJOURNMENT***

755 **At 3:26 p.m., Dr. Palmer moved to adjourn the meeting of the Rivanna Water and Sewer**

756 **Authority. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).**

757

758 Respectfully submitted,

759

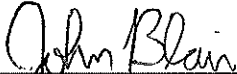
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761

762

763

764



Mr. John Blair
Secretary - Treasurer