



**RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
June 25, 2024**

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, June 25, 2024 at 2:15 p.m. at Rivanna Administrative Building, (2nd Floor Conference Room), 695 Moores Creek Lane, Charlottesville, VA 22902.

Board Members Present: Mike Gaffney, Lauren Hildebrand, Quin Lunsford as alternate for Gary O’Connell, Ann Mallek, Brian Pinkston, Samuel Sanders

Board Members Absent: Gary O’Connell, Jeff Richardson

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, Jacob Woodson, Deborah Anama, Bethany Houchens, Betsy Nemeth, Victoria Fort

Attorney(s) Present: Valerie Long

1. CALL TO ORDER

Mr. Gaffney called the June 25, 2024, regular meeting of the Rivanna Water and Sewer Authority to order at 2:15 p.m.

2. AGENDA APPROVAL

Mr. Mawyer noted that there was a proposed amended agenda to add items under 8(f) and 8(i) about Drought Monitoring. He stated that although it would be on the Consent Agenda for approval, he would address the matter during the meeting.

Mr. Pinkston moved that the Board approve the Agenda as amended. The motion was seconded by Ms. Mallek and passed unanimously (5-0). (Mr. O’Connell and Mr. Richardson were absent.)

3. MINUTES OF PREVIOUS BOARD MEETING ON MAY 28, 2024

Mr. Sanders moved that the Board approve the minutes of the May 28, 2024 meeting. The motion was seconded by Ms. Mallek and passed unanimously (5-0). (Mr. O’Connell and Mr. Richardson were absent.)

Mr. Pinkston stated that he wished to disclose information for the public record. He stated that his adult daughter, Florence Pinkston, held a paid intern position at the Rivanna Water and Sewer Authority. He explained that she did not reside with him in his household and was not considered an immediate family member according to Virginia State and Local Government Conflicts of Interest Act definitions.

Mr. Pinkston stated that moreover, the actions taken that day did not grant any benefits for him

47 or other immediate family members as defined by the act. He stated that therefore, he believed
48 there was no conflict of interest under the Virginia State and Local Government Conflict of
49 Interest Act. He stated that to exercise caution, he disclosed his daughter's appointment at the
50 Authority and confirmed that he could participate in this meeting fairly and objectively in the
51 public interest. He stated that he had consulted with the Commonwealth's Attorney regarding this
52 matter.

53
54 Statement by Mr. Pinkston:

- 55
- 56 • *I wish to make a disclosure to be recorded in the public record.*
- 57 • *My adult daughter, Florence Pinkston, is currently serving as a paid intern at the*
58 *Rivanna Water and Sewer Authority.*
- 59 • *While she is my daughter, she does not live with me in my household, meaning she is not*
60 *an immediate family member as that term is defined by the Virginia State and Local Government*
61 *Conflict of Interests Act.*
- 62 • *Furthermore, none of our actions today involve an issue or transaction that would*
63 *provide any benefit to me or any other immediate family member of mine, as that term is defined.*
- 64 • *Therefore, it is my understanding that I do not have a conflict of interest under the*
65 *Virginia State and Local Government Conflict of Interests Act, but, out of an abundance of*
66 *caution, I nevertheless wish to disclose my daughter's employment at the Authority, and state*
67 *that I am able to participate in this meeting fairly, objectively, and in the public interest.*

68 69 **4. RECOGNITION**

70 There were no recognitions.

71 72 **5. EXECUTIVE DIRECTOR'S REPORT**

73 Mr. Mawyer stated that he was pleased to have Florence with Rivanna, along with the other
74 interns. He stated that staff would bring the interns to the Board meeting next month and
75 introduce them before their internship was completed, as next month would be their final month.
76 He stated that after six good months focusing on budget matters, it was a pleasure to discuss
77 other topics. He stated that the state recently issued a new statewide drought map, which came
78 out yesterday. He stated that this led to the amended agenda item, which he would address
79 shortly. He stated that before moving on to those items, he wanted to celebrate employee
80 development.

81
82 Mr. Mawyer stated that two employees had obtained their commercial driver's license: David
83 Heintges and Garrett Carver. He stated that the CDL was a state license that allowed them to
84 drive large vehicles such as trucks and tractors on public highways. He stated that they were also
85 ready to celebrate the beginning of a new era in construction. He stated that over the years, he
86 had discussed numerous major CIP construction projects aimed at supporting the community's
87 water supply plan as well as facilities at Moores Creek.

88
89 Mr. Mawyer stated that it was exciting that they now had eight projects ready for construction
90 bidding over the next six months, totaling approximately \$155 million. He stated that these
91 projects included piping from the Ragged Mountain Reservoir to the Observatory Treatment

92 Plant, a new pump station off Reservoir Road, and the Central Water Line project which was
93 approved by the Board in 2022. He mentioned that there were other significant projects at Crozet
94 Pump Stations and building upfits at Moores Creek.

95
96 Mr. Mawyer stated that the team was enthusiastic about these developments. He noted that they
97 had five additional major projects the following next year and two in the 3rd year. He stated that
98 the \$370 million CIP is about to get started. He explained that a major factor driving these
99 projects was to increase the community's water supply.

100
101 Mr. Mawyer stated that one of the upcoming projects involved the Central Water Line. He stated
102 that in 2022 the Board approved extending the route from the Observatory Water Treatment
103 Plant along Cleveland Avenue, Cherry Avenue, and Elliott Avenue to East High Street. He stated
104 that initially, they planned to collaborate with the City Utilities Department on a water line
105 project in E. High Street to minimize costs and traffic impact.

106
107 Mr. Mawyer stated that, however, after further investigation, they decided that instead of going
108 along 11th Street to East High Street, the new alignment would include Little High Street, Meade
109 Avenue, and Fairway Avenue before crossing City property near the Rivanna River to connect
110 near E. High St.

111
112 Ms. Mallek asked if it was customary to put lines like this in the floodplain.

113
114 Mr. Mawyer stated that it was not their first choice; however, they were attempting to move as
115 far away from the river as possible. He stated that nevertheless, they had other sewer lines
116 located in the floodplain, which was not uncommon.

117
118 Mr. Mawyer stated that they did a lot of community outreach recently. Mrs. Whitaker, their
119 Director of Engineering and Maintenance, had spoken at several community events. He stated
120 that she spoke at the Places 29 Hydraulic Community Advisory Committee, and she spoke to the
121 Rotary Club. He stated that furthermore, she also represented and participated at the Regional
122 Thomas Jefferson Planning District Commission as they were updating the Regional Hazard
123 Mitigation Plan. He expressed appreciation for her support in providing those communications to
124 the community.

125
126 Mr. Mawyer stated that he would now discuss drought conditions in the area. He explained that
127 the urban water system gets a small volume of water from the North Rivanna Water Treatment
128 Plant via the North Rivanna River, with most of its water from the South Rivanna Reservoir
129 through the Water Treatment Plant, and further from the Ragged Mountain Reservoir to the
130 Observatory Treatment Plant. He stated that these three plants serve the urban water system. He
131 stated they typically get 8 to 10 million gallons per day (MGD) from the South Rivanna
132 Reservoir and 1 to 2 MGD from the Ragged Mountain Reservoir, and a small amount from the
133 North Fork River.

134
135 Mr. Mawyer informed the Board that they were building a new pipe over the next six or seven
136 years that will take water from the South Rivanna Reservoir to fill Ragged Mountain Reservoir,
137 so they would not be taking water directly from Sugar Hollow to fill Ragged Mountain in the

138 future. He stated that Totier Creek Reservoir and Water Treatment Plant served Scottsville,
139 while Beaver Creek Reservoir and Water Treatment Plant served Crozet. He emphasized that the
140 reservoir monitored most closely is the South Rivanna Reservoir. He stated that the image
141 provided showed the face of the dam on June 25 at the South Rivanna Reservoir, with only a
142 slight trickle coming across the top of the reservoir.

143
144 Mr. Mawyer stated that if the South Rivanna Reservoir overflowed, they maximized use of the
145 water in the South Rivanna Reservoir through the South Rivanna Water Treatment Plant,
146 processing 8 to 10 million gallons per day from South Rivanna and only 1 or 2 MGD from
147 Observatory. He stated that when South Rivanna stopped overflowing, they let the water level
148 decline to about a foot down below the top of the dam then they switched operating production
149 to maximize use of water in the Ragged Mtn Reservoir and the Observatory Treatment Plant at a
150 level of 4 to 5 million gallons per day. He stated that they still needed water from the Rivanna
151 Reservoir because until they completed the pipeline from Ragged Mountain to Observatory and
152 the pipeline from Observatory to Free Bridge, they could not get the 10 million gallons a day
153 solely out of the Observatory WTP to meet community demand.

154
155 Mr. Mawyer stated that when they experienced drought problems in 2017, it was due to South
156 Rivanna Reservoir's rapid decline. He stated that Ms. Mallek had informed him that she crossed
157 one of the bridges and noticed how low the reservoir was. He stated that they closely monitored
158 such situations. He stated that recently, they had been discussing what is called a flash drought.
159 He stated that this occurs with extreme temperatures and low rainfall, as described by NOAA.
160 He stated that literature suggests that flash droughts start and intensify quickly, dissipating over
161 periods of weeks and months in contrast to conventional droughts that can last for years.

162
163 Mr. Mawyer mentioned that the 2002 drought lasted approximately 18 months. He stated that
164 however, on June 22, an updated map by the State Drought Monitoring Committee was released,
165 placing most of the state in a drought "watch" category with a warning for the northern and
166 western parts of the state.

167
168 Mr. Mawyer stated that their area had a drought watch with normal groundwater, precipitation,
169 and reservoir levels but a warning regarding stream flows. He stated that consequently, they
170 reviewed the Drought Management Plan that morning with concern over this new state
171 information. He stated that staff came up with a recommendation for the Board, included in the
172 Consent Agenda, which was based on the Drought Monitoring Task Force designation of their
173 area as in a drought watch, along with the fact that the whole state is experiencing flash drought
174 conditions due to extreme temperatures and low precipitation with no precipitation forecasted.

175
176 Mr. Mawyer stated that staff recommended officially declaring a drought watch, which involves
177 voluntary measures to inform people that a potential drought may occur in the future, and they
178 should conserve water where possible. He stated that localities were not asked to implement any
179 water conservation measures at this stage; that occurs during the next stage, known as a warning.
180 He stated that at that point, he would send letters to the City and the County requesting them to
181 enforce their water conservation ordinances.

182
183 Mr. Mawyer stated that hopefully, they would not reach that stage, but streams were dropping,

184 and reservoir levels were decreasing. He stated that currently, they had five reservoirs, three of
185 which were not spilling. He stated that South Rivanna is almost not spilling, while Totier Creek
186 in Scottsville is in the same barely spilling category. He stated that soon, if there is no rain, all
187 five reservoirs will not be spilling. He stated that despite these concerns, he had good news: their
188 three urban reservoirs, Ragged Mountain, Sugar Hollow, and South Rivanna, were 98% full. He
189 stated that South Rivanna was crucial to the situation, as it could drop quickly like in 2017,
190 causing great concern.

191
192 Mr. Mawyer stated that he recommended that the Board declare a drought watch and issue a
193 public appeal for water conservation efforts. He stated that staff also asked for authorization to
194 move forward with a drought warning, or a drought emergency should those conditions reach the
195 levels before the Board was set to meet again in July. He stated that last year, during the time
196 South Rivanna reservoir stopped overflowing, within 13 days it had decreased by a foot. He
197 explained that due to the geometry of reservoirs, water volume decreases more quickly as the
198 water level declines. He stated that this referred to stage storage curves, which show how much
199 volume of water is present at various elevations.

200
201 Mr. Mawyer stated that his goal was to be proactive and position the community to conserve
202 water and authorize further action if necessary due to sudden drops in stream and reservoir
203 levels. He explained that the Moormans River flows from Sugar Hollow into South Rivanna,
204 with about 8 million gallons a day coming down the river currently. He stated that in contrast,
205 during the major drought of 2002, only 1 million gallons flowed through the river. He stated that
206 in 1995, there was a high recorded flow of around 150-200 million gallons during rainfall.

207
208 Mr. Mawyer noted that they were now near the bottom of the flow range. He stated that 1 million
209 gallons per day was considered a severe drought, while 8 million is their current situation. He
210 explained that about 8 million gallons theoretically came into South Rivanna Reservoir daily,
211 and the community used approximately 12.6 million gallons yesterday. He stated that although
212 there was not a direct correlation between community usage and reservoir levels, it served as a
213 general indicator. He stated that with hot weather causing increased lawn watering and water-use
214 activities, this was their peak water usage period.

215
216 Mr. Pinkston asked if Mr. Mawyer would inform the media or the City of the drought watch
217 status.

218
219 Mr. Mawyer stated that they would inform the City, County, ACSA and the media of the drought
220 watch declaration.

221
222 Mr. Pinkston asked what the next steps would be if the situation worsened.

223
224 Mr. Mawyer stated that a regional drought response and contingency plan was developed over a
225 decade ago. He stated that it included criteria to assess their water supplies and reservoir levels.
226 He explained that a consultant runs a model based on historical precipitation data from the last
227 100 years, predicting rainfall amounts for the next few months and estimating reservoir levels.

228
229 Mr. Mawyer stated that they would ask this consultant to run the model for them. He stated that

230 the drought monitoring committee includes City, County, ACSA, and RWSA, and upon
231 activating the committee, they will initiate discussions. He stated that when the Drought
232 Response Plan's criteria are met or in their judgment necessitated a drought warning, they will
233 send letters to the City and County requesting water conservation ordinance activation. He stated
234 that this process would include additional press updates.

235
236 Ms. Hildebrand stated that they would write a memo to Council, authorizing enforcement of
237 what was stated in the code. She stated that this process had specific procedures to follow.

238
239 Ms. Mallek stated that it may require a special meeting.

240
241 Mr. Mawyer stated that in 2017, they had a special meeting of this Board, which was the only
242 time during his tenure. He stated that he did not want to have another one if he could avoid it. He
243 stated that this was why he wanted to add the reservoir issue to today's agenda for their
244 consideration. He stated that it is currently part of the consent agenda; however, they can pull it
245 for a separate vote if desired. He stated that when acting on the consent agenda, this item will be
246 approved.

247
248 Ms. Mallek stated that she was grateful for addressing the issue since it was her top priority. She
249 stated that people could easily overlook this concern. She stated that the area of focus was in the
250 northwest part of the County where she resided. She stated that they were on the eastern slope
251 and experienced similar dry conditions as those in the northern valley. She stated that streams
252 had run dry, with no water supply.

253
254 Ms. Mallek stated that after conducting her calculations, they were six inches below their
255 expected precipitation for the first half of 2024, in addition to being six inches below their target
256 at the end of 2023. She stated that the only reason they were not in an even more critical situation
257 was due to almost seven inches of rainfall in January. She stated that without that storm, they
258 would be 12 inches beneath their goal. She acknowledged that this situation was indeed very
259 serious.

260
261 Ms. Mallek stated she could not help but become frustrated when she saw people watering their
262 lawns during such a crucial time. She stated that everyone with a well knew their grass had long
263 since disappeared, replaced by dust and dry turf. She expressed her gratitude for seeking pre-
264 authorization for this matter and urged not to delay in taking action. She stated she recalled back
265 to 2003 when they were nine days away from sending the university home due to the reservoir
266 losing two to three feet a day after the students returned in August.

267
268 Ms. Mallek stated that it took weeks and months for the general public to comprehend that this
269 was real, so she implored staff to start preparing early. She stated that she had attended every
270 Board meeting regarding this issue over the past several months and had kept track of it, and
271 would certainly do their part on the radio. She stated that however, they must find a way to
272 capture people's attention. She stated urban water may be well-suited since all that water comes
273 from rural areas, which are interconnected with surface waters.

274
275 Ms. Mallek stated that when there is rain, much of the initial loss goes towards rehydrating

276 stream beds and other areas. She stated that not everything will reach South Rivanna when it
277 rains if they were lucky enough for the first one to be soft and gentle, softening the ground
278 enough so that water may sink in. She stated she had been having nightmares about this situation
279 at her house and wanted to share these concerns with all of them so that everyone took it
280 seriously as well.

281
282 Mr. Mawyer stated that water main flushing was a normal and appropriate water system
283 management technique for both the ACSA and the City. He stated that even during water
284 conservation times the water gets warmer, which causes bacteria in the pipes to grow faster and
285 consume chlorine quicker.

286
287 Mr. Mawyer stated that it makes it more difficult towards the end of their distribution systems to
288 maintain appropriate water quality. He stated that one of the best solutions is to open fire
289 hydrants and flush the system to get freshwater in. He stated that people may be confused about
290 releasing water during a water conservation period, but it served as an appropriate tool that must
291 be used.

292
293 Mr. Pinkston asked if the item before the Board was a revised and amended drought management
294 report that was included in the consent agenda along with the request for Board action to declare
295 the drought watch.

296

297 Mr. Mawyer confirmed that was correct.

298

299 **6. ITEMS FROM THE PUBLIC**

300

301 Dede Smith stated that she had a few points regarding the director's report. She stated that
302 regarding the changes to the Central Water Line, she was unhappy with the Board's decision to
303 go through residential areas of the City. She noted that Mr. Sanders and his predecessor were
304 eager to do this along with Mr. Pinkston. She stated that they had quickly called for a motion to
305 take it through the City, which she thought was inappropriate.

306

307 Ms. Smith pointed out the winding nature of the route shown in the picture was an unsuitable
308 factor, and now the route had been changed again, going through more residential
309 neighborhoods. She stated that her question for the Board was about the outreach taken to those
310 new neighborhoods. She stated that she wanted to know if they were aware of what's coming
311 their way. She emphasized that this was a significant issue for City residents.

312

313 Ms. Smith stated that her second point concerned the comments about water flow. She stated that
314 she agreed with declaring a drought watch, but she pointed out that only the Moormans River
315 was mentioned as a contributor to the Rivanna. She stated that she did not hear any mention of
316 the flow in the Mechums River. She explained that the average flow in the Moormans was about
317 10 million gallons in a normal area, and it was 100 to 200 million gallons in the Rivanna. She
318 stated that she did not understand that, as the urban was way downstream of that.

319

320 Ms. Smith stated that she had sympathy for Ms. Mallek and the other well-users in the northwest
321 part of the County. She noted that their situation was much higher up in the watershed, and while

322 it might be a Rivanna issue, it was not necessarily relevant to the urban system. She stated that
323 her third point was regarding the purpose of keeping the South Fork Rivanna Reservoir if it did
324 not help during droughts for more than a certain number of days. She asked what this specific
325 number of days was and how long it took them to face issues during dry periods.

326

327 **7. RESPONSES TO PUBLIC COMMENT**

328

329 Mr. Mawyer stated that thus far, they have not discussed the change in the Central Water Line
330 route with the neighborhoods along Little High Street. He stated that they will do so shortly. He
331 stated that they are still conducting engineering and subsurface investigations to confirm that this
332 will be the final route. He stated that after they put the project out for bids and secured a
333 contractor, they will communicate with all of the neighborhoods along the entire route from
334 Observatory WTP to Free Bridge. When they have the contractor who will complete the work,
335 they can better answer any questions neighbors may have about when work will occur in their
336 area.

337

338 Mr. Mawyer stated that once they have a contractor under contract, they will provide updated
339 information to all the neighborhoods they previously spoke with, including Fry's Spring, and
340 meet with them to discuss the project's details. He stated that they initially talked to these
341 communities a few years ago, and it has taken them this long to prepare for bidding. He stated
342 that construction is expected to begin next year. He stated that when they have a contractor on
343 board, they will reach out to those residents again.

344

345 Bethany Houchens stated that the Mechums, Moormans, North Fork, and South Rivanna rivers
346 were in the 25th percentile regarding flow condition, indicating a low flow situation currently
347 being experienced. She stated that the rolling average for the Mechums River over the last seven
348 days was 9.6 million gallons per day. She stated that for the Moormans, it was 6.5 million
349 gallons a day; for the North Fork, it had 10.3 million gallons daily; and South Rivanna recorded
350 16.8 million gallons in the past seven days.

351

352 Mr. Mawyer stated that they may have misled Ms. Smith regarding the use of South Rivanna
353 reservoir. He explained that they still depend on the South Rivanna Reservoir as their primary
354 water supply source for the urban area. He stated that even after implementing an optimization
355 strategy utilizing more water from the Ragged Mountain reservoir, they continue to withdraw 5
356 to 7 million gallons per day from South Rivanna reservoir as the primary water supply, an
357 amount greater than what they would withdraw from Ragged Mountain reservoir. He stated that
358 under normal circumstances, most of the water for the urban area comes from the South Rivanna
359 reservoir.

360

361 **8. CONSENT AGENDA**

362

363 *a. Staff Report on Finance*

364

365 *b. Staff Report on Operations*

366

- 367 c. *Staff Report on CIP Projects*
368
369 d. *Staff Report on Administration and Communications*
370
371 e. *Staff Report on Wholesale Metering*
372
373 f. *Staff Report on Drought Monitoring – Amended*
374
375 g. *Approval of FY24-28 and FY 25-29 Capital Improvement Plan Amendment – Rivanna*
376 *Pump Station Restoration*
377
378 h. *Approval to Amend Professional Engineering Services Work Authorization – Central*
379 *Water Line Project – Michael Baker International*
380
381 i. *Request for Authorization to Declare a Drought Watch, Warning, or Emergency*

382
383 Mr. Gaffney stated that the Board would pull Items (f) and (i) for discussion. He asked if there
384 were any other items Board members would like to address.
385

386 Ms. Mallek requested to pull Item (c) from the Consent Agenda. She stated that regarding
387 number 14 found on page 40, she would like to know more about the definition of "current
388 status" as it pertained to the Schenks Branch.
389

390 Mr. Mawyer stated that they had been working with County staff regarding the easement across
391 County property for the Schenks Branch wastewater pipeline. He stated that they needed to
392 schedule another meeting with them, which was on their agenda. He stated that Ms. Hildebrand
393 mentioned that the City was interested in moving forward with its section of the project. He
394 stated that it had been a long-standing project, and they would bring their team back together
395 with the County to discuss potential solutions.
396

397 Ms. Mallek stated that she thought the issue had been resolved several years ago.
398

399 Mr. Mawyer stated that he provided the data to County staff, but he had not been informed that
400 they had finalized it with the Board of Supervisors. He stated that he believed they had a
401 proposed route, an easement drafted, and all necessary paperwork prepared. He stated that they
402 just needed consensus on these matters.
403

404 **Mr. Pinkston moved that the Board approve the Consent Agenda. Ms. Mallek seconded the**
405 **motion, which passed unanimously (5-0). (Mr. O’Connell and Mr. Richardson were**
406 **absent.)**
407

408 **9. OTHER BUSINESS**

409

- 410 a. *Presentation: Sugar Hollow Reservoir Gate Restoration Update*
411 *Victoria Fort, P.E., Senior Civil Engineer*

412 Victoria Fort, Senior Civil Engineer, stated that she would give a short report about the present
413 situation concerning the Sugar Hollow Dam Rubber Crest Gate and the progress of alarm system
414 implementation. She stated that she would provide an overview of what the rubber crest gate is
415 and discuss its history and functioning. She stated that she would also talk about the incident on
416 January 17, 2024, the post-event actions taken by the staff, and then delve into the siren system
417 discussion and any questions.

418
419 Ms. Fort stated that the Sugar Hollow Dam has a five-foot tall inflatable rubber crest gate, which
420 they also call a rubber bladder. She stated that it is an air-filled five-foot-tall gate that helps
421 control the water level in the reservoir. She stated that in the provided picture, one can see the
422 five-foot-tall rubber gate and the concrete section of the dam. She stated that the rubber gate is
423 mounted on this concrete section. She stated that in the photo, the water level is about five feet
424 down from what they consider normal pool, which is the top of the gate.

425
426 Ms. Fort stated that the original bladder was installed in 1999 after removing the original crest
427 gates, which were a series of eight metal gates across the top of the dam that were manually
428 operated. She stated that these metal gates were damaged in a 1995 storm and replaced with the
429 rubber bladder gate system. She stated that in 2021, this rubber bladder system was replaced with
430 an in-kind system, which is essentially the same as the initial installation in 1999. She stated that
431 this new system impounds about 69 million of the 367 million gallons of water stored in the
432 reservoir, or just under 20%.

433
434 She explained that the crest gate operates via automated controls on site and is monitored
435 remotely 24/7 by their staff.

436
437 Ms. Fort stated that on January 17 of this year, around 7:00 a.m., the gate malfunctioned and
438 began to rapidly deflate and release approximately 70 million gallons of water downstream in
439 just under an hour.

440
441 She stated that staff arrived on site about the same time that emergency services did, around 8:25
442 a.m., to determine the cause of the issue, attempt to get it back online, and to assess if there were
443 any remaining hazards to the public. She stated that staff quickly determined that the cause was
444 an air coupling on the airline that supplies the bladder that had become detached, likely due to
445 very cold temperatures overnight.

446
447 Ms. Fort stated that repairs were made within a few minutes and the bladder was put back in
448 operation by about 9:00 a.m. She indicated that the picture on the right shows the bladder during
449 the event. She stated that there is a camera trained on the bladder at all times, so they were able
450 to see footage from the event. She noted that there was snow on the ground due to a few inches
451 of snow in the days preceding and overnight temperatures down in the teens. She stated that they
452 believe this was a contributing factor.

453
454 Ms. Fort stated that in the days and months that followed, staff made significant efforts to
455 understand the event and take measures to prevent its recurrence. She stated that they first
456 documented everything that took place during the event and put all this information into an
457 After-Action Report. She stated that this information gathering including obtaining photos of the

458 area downstream, drone surveillance footage, a physical recon of the area downstream, logs of
459 internal and external communications, and communication with emergency services and
460 members of the public. She stated that all of this information is in the report completed in April.

461
462 Ms. Fort stated that they also made numerous improvements to the mechanical systems, which
463 are ongoing. She stated that immediately after the event, they made the repair. She stated that the
464 air coupling that came apart can be seen on the right of the slide; this is the air inflation line with
465 pressure fittings and pipe clamps. She stated that they added additional pipe supports and clamps
466 to keep these fittings in place as a preventative measure.

467
468 Ms. Fort stated that their engineering consultant inspected the system on February 2 to determine
469 whether it was safe for continued operation, which they confirmed it was. She stated that they
470 provided recommended modifications that could be made to the air piping to add security and
471 resiliency to the system. She stated that they are in the design phase for those modifications,
472 which they expect to complete in the fall of this year.

473
474 Ms. Fort stated that the change involves replacing couplings with a flanged system instead of
475 pressure couplings. She stated that regarding the bladder decommissioning, members of the
476 public inquired about whether it could be removed for months of the year or permanently. She
477 stated that however, due to storage contribution concerns, they were not yet comfortable risking
478 a reduction in the water supply. She stated that they will complete the South Rivanna to Ragged
479 Mountain Pipe over the next several years, providing another opportunity to revisit the issue.
480 She stated that they would also reassess the necessity of keeping the bladder in operation year-
481 round or permanently when the bladder reached the end of its service life around 2040.

482
483 Ms. Fort stated that they have replaced the camera for improved nighttime visibility and
484 surveillance. She stated that they have reviewed existing SCADA alarms, enabled additional
485 alarms, and set up text alerts for staff if certain bladder-related alarms were triggered. She stated
486 that lastly, they were working on installing a tailwater sensor to monitor downstream conditions
487 at the dam. She stated that they hoped to get the tailwater sensor installed sometime this fall.

488
489 Ms. Fort stated that they had done a lot of work with emergency response and public notification.
490 She stated that they had meetings with the Charlottesville/University/Albemarle Emergency
491 Communications Center, Albemarle County Fire Rescue staff, and with the National Weather
492 Service to understand what transpired during the event from the viewpoint of emergency
493 responses. She stated that they also discussed regional capabilities and those of the National
494 Weather Service to notify the public in an emergency like this or a more catastrophic event in the
495 future.

496
497 Ms. Fort noted that they have a tabletop exercise planned for October, which would include
498 emergency services, local administrators, their regulators through the state Department of
499 Conservation and Recreation, internal staff, and other participants. She stated that this would
500 allow them to train on the Emergency Action Plan related to a couple of their high hazard dams.
501 She stated that they were also conducting outreach to area residents to encourage them to opt into
502 the CUA 911 Emergency Notification System.

503

504 Ms. Fort stated that they were developing an audible warning system or siren system to
505 immediately notify areas downstream of the Sugar Hollow Dam. She stated they were
506 coordinating with VDOT regarding the potential installation of high-water flashing signs at roads
507 and bridges, which are prone to flooding and located downstream of the dam. She stated that
508 additionally, they were exploring educational opportunities and planning to put signage in the
509 valley below the dam to alert both residents and visitors who may not be familiar with the fact
510 that there is a dam and the associated risks.

511
512 Ms. Fort stated that they had conducted community engagement since the event. She stated they
513 held public meetings at the White Hall Ruritan Club on February 1 and March 14, where they
514 shared information, answered questions, and gathered feedback from community members
515 downstream of the dam. She stated that they also held a meeting with a smaller group of
516 representatives consisting solely of downstream residents.

517
518 Ms. Fort stated that the group is part of a small working team, and they first met with them on
519 May 8, planning to meet every few months as they work through additional improvements at the
520 dam. She stated that there was ongoing coordination with other community groups such as Trout
521 Unlimited and Camp Sugar Hollow with a focus on the January 17th event and potential
522 educational opportunities.

523
524 Ms. Fort stated that regarding an audible warning system, it would be used in case of a
525 catastrophic failure or malfunction of the dam. She stated that it is particularly effective for
526 notifying people in heavily used recreational areas. She stated that they had gathered information
527 by meeting with Fairfax Water and Howard County, Maryland to discuss their implementation of
528 siren systems within their communities.

529
530 Ms. Fort stated that Fairfax Water has a siren system they use to warn residents of a “sunny day”
531 breach of the Occoquan Dam. She stated that this high hazard dam is for water supply in Fairfax
532 County and specifically uses the siren system for sunny day breaches, not wet weather events.
533 Ms. Fort stated that coordination with the town of Occoquan downstream has been established.

534
535 Ms. Fort stated that Ellicott City, which is part of Howard County, Maryland, has developed a
536 comprehensive flood warning and resiliency plan following high-profile fatal flood events in
537 2016 and 2018. She stated that they provided valuable feedback on developing a system.

538
539 Ms. Fort mentioned that they are currently gathering cost information, schedules, and pulling
540 together what a project would include.

541
542 She stated that operational parameters will need to be established and worked through. She stated
543 that this plan may also serve as a good model for rolling out siren systems at the Ragged
544 Mountain Dam, South Rivanna Dam, and Beaver Creek Dam, which are also high hazard
545 facilities. She stated that staff would begin the study and design work in the second half of this
546 year, with implementation likely occurring in 2025.

547
548 Ms. Fort stated that there were some considerations for designing the system, such as under what
549 scenarios would a siren system be employed. She stated that for example, would they only look

550 at a sunny day failure or malfunction, or would they also want to include a failure during a heavy
551 rain event. She stated that they would also consider if the siren should be triggered automatically
552 or require manual activation by operations staff. She stated that the decision could affect
553 response time and the deciding matrix on whether an emergency reaches the level of need in the
554 warning system.

555
556 Ms. Fort stated that additionally, they would consider how much inundation area they expected
557 to cover with these audible alarms, such as only the areas minutes downstream of the dam or the
558 entire inundation area. She stated that this will impact the number of siren poles needed and
559 other factors. She stated that they should further consider how this system would affect the
560 community, including educating them on appropriate actions when the siren sounds and where to
561 find more information.

562
563 Ms. Fort stated that another consideration was whether these systems should be installed at all
564 high-hazard facilities. She stated that lastly, they must consider funding options, including if
565 there are grant funds available for this effort. She stated that this process is still in development,
566 and she wanted to provide an update on its status. She stated that as they continue working
567 through the process, they will provide further updates.

568
569 Mr. Gaffney asked about the height of the water above the bridges when the bladders deflated.

570
571 Ms. Fort stated that the first bridge, which was the one closest to the dam, experienced
572 overtopping. She stated that unfortunately, they were unable to determine the exact extent of the
573 overtopping because there was not a gauge nearby. She stated that the nearest gauge was located
574 at Free Union Road. She stated that however, she confirmed that water had overtopped the
575 bridge for a brief period. She stated that residents captured videos of the event, and the debris
576 provided evidence of where the water had reached.

577
578 Ms. Mallek stated that it was astonishing to see how lawn chairs and other belongings
579 disappeared from people's properties, only to be found later at a height of 8 feet above the on
580 road.

581
582 Ms. Fort stated that they conducted downstream reconnaissance afterward and since there was
583 snow, it allowed them to visibly determine where the water level had reached before it melted.
584 She stated that they have drone footage capturing the entire area.

585
586 Mr. Pinkston stated that it was quite interesting how some municipalities differentiated between
587 sunny days and wet weather events. He asked about why someone would choose only one or the
588 other. He stated that he believed that it seemed logical to have both types of alarms in place. He
589 asked if the different messaging came across as something significant.

590
591 Ms. Fort stated that in a wet weather event, people are likely to receive warning of an
592 approaching large storm system. She stated that in some cases, preemptive action can be taken at
593 reservoirs when a significant storm is anticipated. She explained that there are other ways to
594 warn individuals as well. She stated that they would not engage in activities like fishing or
595 swimming during heavy rainfall.

596
597 Ms. Fort noted that the immediate hazard at Sugar Hollow and downstream areas would be
598 reduced during wet weather due to fewer people being present. She stated that if they were there,
599 concerns about cell signal or being in the river would arise. She stated that in such situations, the
600 CUA 911 system would still be employed if it appeared that the dam was struggling with
601 excessive water inflow during an extreme wet weather event.

602
603 Mr. Pinkston asked if they would receive an earlier forewarning in that case.

604
605 Ms. Fort stated that yes, there would be prior notice given, allowing for alternative methods of
606 sharing the warning. She stated that the scenario at hand entailed a surprising, abrupt,
607 devastating, instantaneous, and impending breakdown.

608
609 Mr. Gaffney stated that he had run multiple times on Sugar Hollow while training for marathons,
610 starting at 6:00 am, even during winter months. He stated that it could have been a disaster if
611 people were out there running, and an unexpected incident occurred. He stated that people also
612 run in the rain.

613
614 Ms. Fort stated that she was at Sugar Hollow a few days prior to this meeting with their regional
615 engineer from DCR. She stated that the engineer asked if she saw the kayakers on the river, and
616 she mentioned it was January. She stated that he replied that they were crazy for being on the
617 river after recent rainfall. She explained that people use the river for recreation year-round. She
618 stated that unexpected sunny day failures or malfunctions are the biggest concern, but they
619 would consider including any type of failure as they move forward with siren system planning.
620 She stated that the other challenge she heard from Ellicott City is that during rain, it was noisy,
621 which could make an audible warning system less effective than on a bright, sunny day. She
622 stated they would need to design the system differently and still rely on alternative means of
623 disseminating information.

624
625 Mr. Pinkston stated that one of the positive aspects of the situation was that they had taken the
626 initiative to examine other dams within their system and determine what could be suitable there.
627 He asked if staff had any idea about the authorities of this size or those with similar numbers of
628 dams. He asked if there was something from the Water Works Association or someone else who
629 could provide information on standard announcements like these, or if it was more of a case-by-
630 case basis.

631
632 Ms. Fort stated that each case should be treated individually due to differences in topography, as
633 the contours of the valley below Sugar Hollow vary greatly from those downstream of Occoquan
634 and those found in Howard County. She emphasized that there was a need for a system tailored
635 to the specific location. She stated it was not customary to have such systems at every facility.
636 She stated that as a result, this would be beyond what states or federal agencies typically demand
637 for a high-hazard facility.

638
639 Mr. Pinkston asked if there was a standard protocol at all.

640
641 Ms. Fort stated that if there were guidelines, she would definitely look for them during the design

642 process. She stated that she was unaware of any standard requirements.

643
644 Mr. Mawyer stated that they needed to determine whether this may become the new norm. He
645 stated that in retrospect, they may consider that they did need to have alarm systems in place at
646 all of the dam locations.

647
648 Mr. Pinkston stated that he appreciated that when incidents like this occurred, there was an
649 immediate response to learn from the situation and apply the lessons more broadly across their
650 system.

651
652 Ms. Mallek stated that risk aversion was crucial in the situation, and everyone was quite
653 fortunate. She asked if they already had a script for ECC. She stated that if so, it would be an
654 ideal place for callers to receive consistent information when they were anxious. She stated that
655 when people were anxious on the phone, it could be difficult to hear what the ECC representative
656 was saying.

657
658 Ms. Mallek stated that from a training perspective, she emphasized that their message needed to
659 be accurately incorporated into the script so that callers were aware of this opportunity and
660 avoided ad-libbing.

661
662 Ms. Fort stated that in response to the question, they had pre-written scripts for their operations
663 staff to use in the Emergency Action Plan. She stated that these scripts provided the correct
664 wording and amount of information under various scenarios. She stated that they had been
665 collaborating with ECC to develop templates for CUA 911 messages and pre-determined
666 polygons for where those messages should be sent.

667
668 She stated that although ECC had templates for various scenarios within their system, they may
669 not have anything that was specific to a dam related event. She stated that they were actively
670 working with them to improve this aspect.

671
672
673 *b. Presentation: Rivanna Pump Station Submergence: Causation Report*
674 *Jennifer Whitaker, P.E., Director of Engineering and Maintenance*

675 Jennifer Whitaker, Director of Engineering and Maintenance, stated that she would attempt to
676 strike a balance between technical details and providing an overview of the emergency event at
677 the Rivanna Pump Station earlier this year. She requested feedback if her explanation needed
678 adjustments. She stated that as a brief reminder, the Rivanna Pump Station is located on Moores
679 Creek's plant site and was constructed in 2017.

680
681 Ms. Whitaker stated that it consists of a wet side and a dry side. She stated that in the two dry
682 side pump rooms, there are three pumps each: two large pumps and one small pump, totaling six
683 pumps. She stated that the station has a total pumping capacity of 53 million gallons per day,
684 receiving wastewater from approximately 66% of the urban area. She stated that they lift water
685 about 110 feet to bring it into the headworks of the Moores Creek plant, which is just outside this
686 Administrative building.

687

688 Ms. Whitaker stated she would begin by summarizing the events of January 9 as they were
689 known in real-time. She stated that as they progressed through this presentation, she would also
690 reveal what they now know caused some of these events. She stated that on January 9, rain
691 started at around 6:00 a.m., and by 10:00 a.m., it had become significant, leading to increased
692 pumping to accommodate rising wastewater flows. She stated that at approximately 3:30 pm, the
693 collection system became full of wastewater.

694
695 Mr. Pinkston asked what the collection system was.

696
697 Ms. Whitaker stated that it was the entire sewer system which led to this facility.

698
699 Mr. Mawyer stated that it included the piping from a house to the sewer main in the street, to the
700 wastewater main pipes that led to the facility.

701
702 Mr. Pinkston asked if there was capacity remaining.

703
704 Ms. Whitaker stated yes. She stated that they have very large diameter pipes coming to the plant,
705 and they usually had about 10 million gallons per day of flow consistently. She stated that these
706 pipes were designed for wet weather flow, which means they could handle much higher flow
707 rates created by infiltration of rainwater. She stated that there was typically excess capacity in
708 these pipes. She stated that as it rained and flows increased, this capacity was consumed. She
709 emphasized that this was an important issue that arose as these events unfolded. She stated that it
710 was not until around 3:30 p.m. on that day that the system's capacity became full or was
711 completely consumed.

712
713 Ms. Mallek asked if between 10:00 a.m. and 3:00 p.m., the normal stormwater drop-inlets into
714 the wastewater system were not significantly affected by the rain, as 3 inches of rain is not
715 considered substantial.

716
717 Ms. Whitaker clarified that 3.5 inches of rain is considered a two to five-year storm. She stated
718 that the river responded as if it were a ten-year storm, which is intriguing considering the
719 location of the rainfall. She stated that there was not a direct piping connection between the
720 sewers and the stormwater system. She stated that wastewater systems experience something
721 called inflow and infiltration, so over time during wet weather events, it causes an increase in the
722 flows within the system.

723
724 Mr. Mawyer stated that due to cracks in pipes or manholes, rainwater would enter the wastewater
725 system. He stated that it was not intended, but they must take this factor into account.

726
727 Ms. Whitaker stated that the next event took place around 3:45 p.m. when several pumps
728 malfunctioned, causing alarms via SCADA for the operators. She stated that consequently, the
729 operators went to the pump station and descended into the wet well to reset the pumps. She
730 stated that while examining the wet well side, they observed the aluminum covers in the wet well
731 were in place, which were there for odor control.

732
733 Ms. Whitaker stated that since there was no water above the covers, everything seemed normal

734 despite the rain and high flows. She stated that by 4:58 p.m., a sump pump high level alarm
735 activated in Pump Room #1. She stated that initially, this alarm went unnoticed due to numerous
736 alarms during storm events at the facility. She stated that given the size of the plant and the
737 complexity of the alarms during a storm event, the sump pump high alarm was found after the
738 fact.

739

740 Mr. Pinkston asked if that alarm indicated that water had reached a high point.

741

742 Ms. Whitaker stated that the alarm indicated that water was in the dry side of the pump station.
743 She stated that it told them that during that time period, water was in the dry side of the pump
744 station, although they were not aware of this fact at the time. She stated that analyzing the
745 situation retrospectively, they now know it to be true.

746

747 Ms. Whitaker stated that they also believed that pressure in the collection sewer system was high
748 enough to lift off several manhole lids (normally locked down with cam locks). There was
749 enough pressure to discharge them from their normal location. She stated that around 5:37 p.m.
750 that day the SCADA alarm began prompting some odd occurrences at the pump stations. She
751 stated that by that time, flows had increased significantly, and operators started visiting all key
752 pump stations at the plant.

753

754 Ms. Whitaker stated that at 6:00 p.m., they discovered 16 feet of water above the covers on the
755 wet side and 5 feet of water in pump rooms, with water rising rapidly in stairways and pump
756 rooms. She stated that by about 6:10 p.m., additional staff were notified, and crews began
757 mobilizing to address the issue. She stated that it was almost midnight when staff went into
758 Riverview Park to assess the status of the river. She stated that the river was flooded well into the
759 park and up to the playground within Riverview Park.

760

761 She stated that on the next slide, she would like to talk about the event in four phases. She stated
762 that she intended to touch on the first two phases quickly, as they had talked fairly extensively
763 about the work done to date. She stated that phase one was constructing the initial 10 mgd bypass
764 system, trying to get into the station to offload some of the flow elsewhere in the plant, and to
765 stop overflows in Riverview Park.

766

767 Ms. Whitaker stated that during this phase, they installed a force main connection, constructed
768 multiple bypass pumps, diverted flow partially through the plant to Moores Creek Pump Station,
769 addressed sewer system overflows in the community, gained access to wet well covers, which
770 took several weeks, and removed a broken valve at the headworks that limited their ability to
771 respond. She stated that during that time period, they constructed a 10 million gallon per day
772 bypass operation. She stated that during this same period, they began constructing the full 55
773 million gallons per day bypass.

774

775 Ms. Whitaker stated that these photographs showed what was going on during that time period.
776 She stated that one can observe from the images that it was quite cold, and they experienced
777 several storm events with rain and snow. She stated that regarding the second phase, it involved
778 constructing a 55 MGD bypass. She stated that in this phase, staff installed two 36-inch force
779 main headers, modified connection structures, added extensive worksite fall protection for staff

780 safety, and constructed seven bypass pumps.

781
782 Ms. Whitaker stated that this phase was completed on February 14. She stated that she would
783 now focus on the third phase, which was investigation. She emphasized that they did not wait for
784 the entire process to conclude before taking action. She stated that as soon as the flow was
785 controlled, they began the investigation to find out the cause of the issue. She stated that from
786 January to June, they did a variety of things, and the photographs on the slide depicted some of
787 those actions.

788
789 Ms. Whitaker stated that they had to make the facility safe to enter, so a self-contained air
790 inspection was conducted. She stated that after bringing in a cleaning team and disinfecting the
791 entire facility, it became safe for people to go down inside and conduct investigative work. She
792 stated that they had workers crawling all over the facility in the middle picture, examining what
793 was happening in the lower level of the pump station. She stated that the electrical and controls
794 investigation teams were visible in the bottom picture, attempting to recreate various scenarios
795 that could have led to a problem.

796
797 Ms. Whitaker stated that additionally, they conducted numerous interviews with staff members.
798 She stated that they also modeled both the sewer system and the river system, and completed a
799 detailed root cause analysis through workshops. She stated that by early June, they were able to
800 submit their findings to the insurance carrier. She stated that the fourth and final phase will
801 involve extensive restoration efforts. She stated that this phase would likely be discussed
802 frequently in the coming months.

803
804 Ms. Whitaker stated that they began the work to restore the station during the past few months
805 while simultaneously conducting investigations. She stated that damaged equipment has been
806 removed, marked, tagged, and labeled. She stated that MEB from Chesapeake was hired as their
807 emergency construction contractor; they have been exceptional in their efforts. She stated that
808 they photograph everything, wire-tag every bolt, nut, and screw, and set aside all demolition
809 debris for insurance purposes. She stated that the insurance carrier has also been on-site to
810 review the situation several times.

811
812 Ms. Whitaker stated that provided on the slide was a list of some activities related to their
813 investigation and restoration work. She stated that today's focus will be on root cause analysis
814 and understanding what happened. She stated that she would discuss four factors that staff
815 believed contributed to this incident. She stated that first, there was a complex pump system
816 control failure, which created an opportunity for other factors to come into play. She stated that
817 this malfunction can be considered the first domino to fall.

818
819 Ms. Whitaker stated that second, water levels in the wet well and collection system rose rapidly.
820 She stated that the reason this matters is that when they have capacity in the collection system,
821 water levels rise slowly, allowing time to react and address issues. She stated that however, when
822 events occur quickly, as they did here, there is very little time to respond.

823
824 Ms. Whitaker stated that they believed that wastewater entered Pump Room 2 through an HVAC
825 opening connecting in the stairwell adjacent to the wet well and the dry pump room. She stated

826 that the elevation of the HVAC opening would not typically have wastewater present but, due to
827 rising levels in the wet well and stairwell, wastewater spilled into the dry side of the station. She
828 explained that the pump station is not designed to be submerged, and with 35 feet of wastewater
829 inside the station, it catastrophically destroyed the electrical equipment.

830

831 Ms. Whitaker stated that the top left image showed the transducer, which normally hung above
832 and out of the water to send signals indicating the water level. She stated that on the right side,
833 top picture, float trees with individual wires controlled each pump's secondary backup system.
834 She stated that they analyzed how these systems behaved individually and together.

835

836 Ms. Whitaker stated that the final picture displayed the interior after dewatering the pump
837 station. She explained that the pump systems were controlled by two overlapping systems. She
838 stated that the primary system was controlled by the SCADA software and was told what to do
839 by the level transducer. She stated that the primary system used the transducer to send signals to
840 the pumps based on water surface changes. She stated that the second pump control system
841 consisted of float trees.

842

843 Ms. Whitaker stated that in this complex pump system malfunction, the ultrasonic transducer
844 inaccurately measured the wastewater level in the wet-well. She stated that they normally want
845 that transducer to sit above the water surface elevation because those types of devices have
846 something called a blanking range. She stated that once the water level got into that range, it sent
847 highly inaccurate and unreliable signals to the SCADA system and the pumps. She stated that at
848 the Rivanna Pump Station, as seen in this graph on the right of the slide, the line represented the
849 water surface measurement and was just shy of the covers.

850

851 Ms. Whitaker stated that as the water level rose and entered the blanking range, the transducers
852 told the pump station that the water level was dropping when it was actually rising. She stated
853 that this was indicated by the red line going up and up as the station flooded. She stated that the
854 station believed the transducers were functioning properly, but eventually one failed or broke due
855 to submergence. She stated that what happened was the pumps were being turned on and off
856 based on these faulty transducer levels when in fact the water level had risen into that blanking
857 range and then above the control device, the transducer itself.

858

859 Mr. Gaffney asked if the transducer worked underwater.

860

861 Ms. Whitaker stated that the device was waterproof, but when water entered the blanking range,
862 it provided inaccurate data. She stated that unfortunately, this issue occurred when the device
863 indicated a decrease in water level. She stated that in response, it reduced the number of pumps
864 operating. She stated that there were several compounding factors present in this situation.

865

866 Ms. Whitaker stated that there were multiple overlapping problems, regrettably, involving
867 identical reference points. She explained that there were two distinct pump operating systems or
868 control systems, each designed as a backup for the other. She stated that both of them converged
869 at that single point and malfunctioned due to different causes, but at the same time.

870

871 Ms. Mallek stated that it was reasonable to question whether it was appropriate to have one

872 measuring device located in one place and another one placed up in another place for computers
873 to determine if they were measuring the right level.

874
875 Ms. Whitaker stated that multiple workshops have been and would be conducted for this
876 particular issue. She stated that they would elaborate on this matter throughout their discussion.
877 She noted that they had installed covers in the wet well as an odor control measure. She pointed
878 out that there were several issues with this approach, one being that when installing equipment
879 such as this, which needed to be significantly above the water level, they might face a potential
880 failure point.

881
882 Mr. Sanders asked if the system understood the blanking range was reached.

883
884 Ms. Whitaker stated that it did not. She stated that they ran into a similar issue on the South
885 Rivanna Water Treatment Plant construction recently. She stated that the device could not be
886 installed too close to the water due to manufacturer's instructions. She stated that the issue was
887 an important consideration during installation. She stated that the high-water level should not
888 have occurred and was what led to this specific scenario. She stated that regarding the displayed
889 graph, the transducer controlled all the pumps. She stated that as the water level rose, it signaled
890 for more pumps to be turned on.

891
892 Ms. Whitaker stated that the red line at the top of the graph represented 53 million gallons per
893 day, which was the full capacity of the pump station. She stated that as the water level rose, it
894 should have been turning on more and more pumps. She stated that what happened was that as
895 the water level rose, the pumps stayed steady and more pumps did not come on. She explained
896 that the system is designed in such a way that if the transducer system fails or they hit this level
897 of 15 feet of water in the wet well, it should automatically switch the control of these pumps over
898 to those floats. She stated that all the pumps should convert over.

899
900 Ms. Whitaker stated that unfortunately, again, that tiny range affected all of the pumps. She
901 stated that multiple pumps tried to switch over within a very short time period. She stated that the
902 water was rising rapidly, causing these pumps to switch to float control simultaneously or within
903 minutes of each other. She stated that additionally, two of the pumps had a programmed set point
904 limiting their output to 75% speed. She stated that this issue was unrelated to the other issues, but
905 certainly compounded the issue. She stated that during a high flow event, all five pumps running
906 at full speed are required to pump 53 million gallons per day out of the station.

907
908 Ms. Whitaker stated that when only four pumps were on, the pumps were programmed to run at
909 100% speed. She stated that they still did not know why, but when the fifth pump was called to
910 come on, the program was written to set the maximum speed for two pumps at 75%. She stated
911 that even if all five pumps had successfully transitioned and were running, two still would have
912 only been running at 75% speed. She stated that the transducer issue with the blanking range not
913 giving good information was compounded with the pumps switching from transducer control to
914 the float system, plus two pumps running at only 75% speed.

915
916 Mr. Gaffney stated that pumps four and six slowed down.

917

918 Ms. Whitaker stated that pump three was running throughout the entire event. She stated that
919 pumps one, two, and five shut down earlier. She stated that when operators received an alarm
920 stating that pumps had stopped during the transition period, it was because pumps two and five
921 were shut down. She stated that pumps two and five were restarted, but pump one never alarmed,
922 and it never restarted; the reason for this remains unknown. She stated that they did not realize
923 that pump one had shut down until a later time. She stated that pumps four and six slowed down
924 due to the 75% speed setting.

925
926 Ms. Whitaker stated that when all these events occurred simultaneously, they observed what was
927 displayed on the graph provided on the current slide. She stated that they were pumping
928 approximately 39 million gallons per day, which decreased to around 20 million gallons per day.
929 She stated that within about 15 minutes, they lost this capacity within the pump station, and the
930 flow never returned higher than roughly 35 to 40 million gallons per day, even though they knew
931 that they had 40 to 45 million gallons entering the station.

932
933 Mr. Pinkston asked if the process of switching from the transducer to the float system caused an
934 electrical inrush issue.

935
936 Ms. Whitaker stated that it was a control power issue. She explained that when the system
937 switched over, the Variable Frequency Drive controlling the pump had some energy in it. She
938 stated that it must de-energize to switch systems, pull the relay in and out, and communicate it
939 was locked in and controlled. She stated that staff believed that it did not fully de-energize,
940 which prevented it from switching over. She stated that it faulted three pumps and declared there
941 was an issue via an alarm. She stated that it did that with three of the pumps. She stated that the
942 VFD pulls the logic circuit in, and that circuit is what trips this out. She emphasized the need to
943 focus on the details of that circuit.

944
945 Mr. Mawyer asked if pumps two and five were manually restarted.

946
947 Ms. Whitaker stated yes, that the operator restarted the pumps by going down into the station.

948
949 Mr. Gaffney asked if pump one was shut off and never restarted.

950
951 Ms. Whitaker stated that was correct. She stated that it never faulted or alarmed. She stated that
952 at the station, there were typically six pumps in operation, with five running at a time. She stated
953 that since no alarm was triggered to address this issue, pump one was not restarted. She
954 explained that the collection system filled at almost the exact same time that the pump station
955 reduced pumping capacity. She stated that this caused the water level to rise very rapidly, and
956 this activated the blanking range on the transducer, tripping out three pumps and reducing the
957 capacity of two others simultaneously. She stated that this led to manhole lids being blown off in
958 the park and the water level rising quickly into the HVAC vent.

959
960 Mr. Pinkston stated that the hydrodynamics of the entire wastewater collection system filled up
961 rapidly, resulting in a sudden loss of capacity during an event that was not particularly rainy. He
962 stated that it appeared that the system had been overwhelmed by technical glitches or logical
963 issues. He stated that if the collection system had possessed more capacity or bandwidth, they

964 would not have experienced the accelerating water and high-water elevation that ultimately
965 overtook the system. He stated that this was unusual because it involved the entire system rather
966 than just a specific pump station.

967
968 Ms. Whitaker clarified that they initially considered the capacity and wet weather flows coming
969 in, thinking there might have been an extreme wet weather flow event that caused an inrush of
970 flow. She stated that while the flows did increase due to wet weather, they did not rise
971 extraordinarily high. She stated that it was not unusual for the collection system to be full after a
972 rainy event. She stated that if the pumps had functioned properly, they would have pumped down
973 the last section of the collection system and allowed them to pace the pumps on and off
974 effectively.

975
976 Ms. Whitaker stated that the sudden control system failure that occurred simultaneously with the
977 collection system being full caused the issue. She stated that another aspect they considered was
978 the settings of their pumps, which turned on and off at about half a foot apart from each other in
979 terms of rise in the wet well. She stated that staff planned to examine whether they needed to
980 have pumps coming on earlier, having pump controls with greater separation, or separating
981 hydraulically from the elevation of the collection system.

982
983 Ms. Whitaker stated that based on their findings, there was a question about whether the river
984 entered the manholes first or if the manholes had wastewater come out of them first. She stated
985 that they concluded that the collection system did fill, but the manhole frames and covers coming
986 off were caused by internal hydraulic pressure. She stated that the connection to the river
987 occurred later that night when it rose out of its banks. She stated that they conducted some river
988 modeling and believed that the river did not go beyond its banks until well past when this event
989 at the pump station was essentially complete.

990
991 Ms. Mallek stated that when the river reached the manholes, it caused the additional amount of
992 water in the wet well.

993
994 Ms. Whitaker stated yes and that they needed to wait until the river level decreased before
995 dewatering the station. She stated that the situation did not cause the problem but complicated
996 the immediate response in the following few days. She stated that she believed the Board had
997 seen the next photos and diagrams before. She stated that they provided a diagram showing the
998 wet side of the pump station, with the wet well highlighted.

999
1000 Ms. Whitaker stated that there was a staircase leading down to the pump room, and the dry side
1001 was approximately at the same level as the wet well. She stated that typically, water remained
1002 within the wet well. She stated that as the water continued to rise, it breached this penetration in
1003 the wall and flooded the pump room. She stated that the blue line indicated the highest point of
1004 water within that facility.

1005
1006 Mr. Pinkston asked when they believed this event happened.

1007
1008 Ms. Whitaker stated that there was an alarm at 5:00 p.m. indicating water in Pump Room 1. She
1009 stated that they hypothesized that the water may have been inside the building for up to half an

1010 hour before the alarm sounded. She stated that the reason for this assumption was that the water
1011 had risen above the covers and exited the wet well. She stated that number one, on the diagram,
1012 referred to a specific door located in the wet well area, which provided access to the stairways.
1013 She stated that that door was completely destroyed; its frame was twisted and pulled out of the
1014 concrete.

1015
1016 Ms. Whitaker stated that the damage indicated that there were significant hydraulic forces at
1017 play. She stated that the door had tried to hold back the water but eventually gave way and
1018 became unmoored from the concrete. She stated that consequently, the water went in the
1019 damaged doorway and rose in the stairway. She stated that regarding how the water entered
1020 Pump Room 1, she explained that it likely came through the air intake located underneath the
1021 bottom landing of the stairs. She stated that the grating on this intake allowed water to flow
1022 inside the pump room. She stated that water then traveled down the HVAC ductwork and filled
1023 the room.

1024
1025 Ms. Whitaker stated that in this picture, one could see that the register was located just above the
1026 pump floor level. She stated that from this vantage point, there were pumps, the register, and the
1027 penetration. She stated that it was likely that no one thought water could reach such heights when
1028 designing this facility. She stated that however, it did. She indicated the door connecting Pump
1029 Room 2 to Pump Room 1. She stated that the force of the water bent the steel frame door inward,
1030 dislodging the latch, which allowed floodwater to enter the second pump room. She stated that
1031 they believed that approximately 15 minutes to 30 minutes before the floor alarm activated,
1032 water may have already begun entering the facility.

1033
1034 Mr. Pinkston stated that if they had not placed that duct there, the water would have gone all the
1035 way up in the stairwell.

1036
1037 Ms. Whitaker stated that it would have flooded the stairway, then eventually come out in
1038 Riverview Park or one of the other manholes.

1039
1040 Mr. Pinkston asked if it would have been separate from the dry side.

1041
1042 Ms. Whitaker stated yes.

1043
1044 Mr. Mawyer stated that the wet well and the stairwell would have filled with water.

1045
1046 Ms. Mallek stated that there were places for more alarms to be put.

1047
1048 Ms. Whitaker stated yes. She stated that since then, the three penetrations that went from the dry
1049 side to the wet side had been blocked off and were completely sealed.

1050
1051 Mr. Gaffney asked how they were heating and cooling the station.

1052
1053 Ms. Whitaker stated that they were using temporary ventilation and treating it as a confined
1054 space. She stated that therefore, the stairwell doors were propped open on both ends to create a
1055 chimney effect. She stated that gas monitors were worn when going down to that area.

1056
1057 Ms. Whitaker stated that two pictures were provided to show the electrical disconnect boxes for
1058 some equipment that was previously in the facility. She stated that getting instrumentation wet is
1059 a problem, as wastewater is corrosive. She stated that it took their team almost two and a half
1060 weeks to remove water from the facility and wash it down. She stated that as a result, they found
1061 electrical control equipment at the lower level that had been affected by water.

1062
1063 In summary, Ms. Whitaker explained that there was heavy rainfall, totaling 3.5 inches in 40
1064 hours, which was a two to five-year storm event. She stated that the river's response was more
1065 severe, resembling a 10-year storm event. She stated that at the time of pump station failure, they
1066 estimated that approximately 43 million gallons of water per day were entering their system.

1067
1068 Ms. Whitaker stated that the pump station should have been able to handle this flow as it has a
1069 capacity of 53 million gallons. She stated that however, when the excess capacity of the
1070 collection system was filled, the wet well level rose rapidly, reducing reaction time. She stated
1071 that this rapid rise triggered simultaneous changes in pump control mechanisms on both the
1072 transducer and float control sides, causing multiple pumps to fault. She stated that one pump
1073 failed to restart, while others started but ran at reduced capacity after being restarted by
1074 operators.

1075
1076 Ms. Whitaker stated that the resulting pumping output was between 20 and 41 million gallons
1077 per day. She stated that they knew that 43 million gallons were coming in, but they could only
1078 manage to discharge between 20 and 41 million gallons. She stated that this led to surcharging in
1079 the system, causing the wet well to rise further through HVAC penetrations, doorways, and
1080 stairwells, eventually flooding the station and exacerbating the surcharging issue. She stated that
1081 the surcharging occurred in the collection system when the manholes came off.

1082
1083 Ms. Whitaker added that operators attempted to close an influent sluice gate at the entrance of
1084 the pump station but could not due to corrosion in the tracks and the gate being seized. She stated
1085 that as a result, the river overflowed its banks and connected to the pump station, preventing
1086 dewatering until the river receded. She provided a table as a reference point for the 500-page
1087 investigative document. She stated that she wanted to make sure that everyone was aware of its
1088 availability and felt free to use it to understand the sequence of events.

1089
1090 Ms. Whitaker stated that for their next steps, they would be working with their insurance carrier
1091 over the next few months to discuss coverage, reimbursements, and investigations. She stated
1092 that they are also conducting design workshops to address not only rehabilitating the pump
1093 station as it was but making resiliency improvements as well. She stated that these include flood
1094 proofing, HVAC relocation, and pump room isolation.

1095
1096 Ms. Whitaker stated that the goal is to ensure that if the area were to flood again for any reason,
1097 the dry side remains dry and the wet side stays wet. She stated that they are looking at
1098 emergency bypass pumping connections. She stated that one of the things they learned during the
1099 first couple weeks is how challenging this pump station is to install a pumping bypass. She stated
1100 that controls, level sensing, and programming modifications will be part of the rehabilitation
1101 process.

1102
1103 Ms. Whitaker stated that they are currently working on the design, have ordered materials, and
1104 are following a design-build process. She stated that parts and pieces are being removed,
1105 ordered, and rebuilt as they proceeded over the next few months. She stated that by January
1106 2025, they hope to remove the bypass pumping system and return the pump station to normal
1107 operation by May 2025.

1108
1109 Ms. Whitaker stated that they discussed authorizing a capital improvement project in the consent
1110 agenda today, which includes this budget estimate. She stated that the funding for this estimate
1111 comes from various sources, with one of the larger costs being the bypass pumping at \$350,000
1112 per month for renting piping and pumping equipment.

1113
1114 Mr. Pinkston asked if the insurance carrier had asked questions regarding the design of the
1115 facility or engineering aspects that should have been taken into consideration to prepare for a
1116 complicated failure such as this. He asked if there was a process that would develop as part of
1117 working with Virginia Risk Sharing Association (VRSA) to address that question.

1118
1119 Mr. Mawyer stated that hopefully, insurance would cover the cost of the entire event. He added
1120 the insurance company was assessing the causation and the many provisions in the policy's
1121 coverage.

1122
1123 Mr. Mawyer stated that to assist them in case they face coverage debates, they had requested
1124 assistance from Ms. Long and the attorneys with Williams Mullen. He stated that they have not
1125 received a response from insurance regarding their desire to meet and discuss what occurred. He
1126 stated that they have offered to present their information on the situation, explain it, and answer
1127 their questions. He mentioned that the insurance provider has a sub-insurer, which is another
1128 insurance company that the primary insurance company has involved to provide part of the
1129 insurance coverage.

1130
1131 Mr. Pinkston stated that the system had been in operation for seven years. He acknowledged that
1132 a system like this would not be necessary for the entire thing, as he had never witnessed such a
1133 complex one being warranted. He noted that the design engineer usually holds some professional
1134 responsibility or stake in the outcome.

1135
1136 Ms. Whitaker stated that the complexity of the situation was due to numerous contributing
1137 factors. She stated that although everyone wished the HVAC penetration was not there, they had
1138 seen it daily and never expressed a desire for its removal. She stated that there were control
1139 issues, operational issues, and concerns about the isolation gate at the front, which they could not
1140 operate. She stated that if she were to ask questions regarding this matter, she would direct them
1141 to the design engineer, operators, and project management team. She stated that she would go
1142 down the list and inquire about each aspect.

1143
1144 Mr. Pinkston stated that there was not a clear-cut piece of evidence to explain the event as it was
1145 a complicated situation. He stated that he was not trying to determine those causes but was
1146 reacting to the public that they must answer to. He stated that it was a newer system, and he had
1147 confidence in staff's understanding of what had occurred. He stated that however, there were

1148 enough factors regarding the probability that a very unlikely event had occurred. He stated that
1149 he was unsure of how to explain to the public in a thoughtful way. He stated that staff had done a
1150 great job figuring out what had happened and these were unforeseen events that could not have
1151 been anticipated.

1152
1153 Mr. Gaffney stated that if these issues had happened to another plant that had been designed with
1154 this issue in mind, it would likely not have occurred.

1155
1156 Ms. Mallek asked what information sharing allowed anyone to learn about these issues in order
1157 to prepare proactively for them.

1158
1159 Ms. Whitaker stated that there were two engineering firms involved in their restoration work:
1160 one designed this pump station and is familiar with its design intent, allowing them to ask
1161 questions about decisions made during construction. She stated that in some cases, there were
1162 reasons behind certain choices that may have prevented catastrophe under different
1163 circumstances.

1164
1165 Ms. Whitaker stated that they had that firm working on it, and they also had another firm
1166 conducting root cause analysis. She stated that these experts brought highly skilled
1167 instrumentation and controls specialists into the mix. She stated that they also conducted
1168 introspection with all their divisions and implemented lessons learned from this experience into
1169 future designs, policies, and procedures. She stated that these changes aimed to improve the
1170 overall performance of their plants in the long run.

1171
1172 Mr. Sanders asked if the isolation gate had functioned correctly, would it have lessened some of
1173 the damage or not made much impact.

1174
1175 Ms. Whitaker stated that it would depend on when the gate was closed. She explained that
1176 according to the timeline, when they attempted to shut the gate, most likely the water had already
1177 entered the facility. She stated that if they had known about the water penetration earlier and
1178 acted accordingly, they could have closed the gate, which would have pushed more wastewater
1179 into the collection system and park system.

1180
1181 Ms. Whitaker stated that this action would have limited their ability to divert some of the flow
1182 through the rest of the plant. She stated that consequently, all the wastewater would have been
1183 directed towards the collection system in the park and the river. She added that it is possible that
1184 when they tried to close it, they were unaware that the pump station was already starting to flood.

1185
1186 Mr. Pinkston stated that he assumed that the company who designed the pump station had been
1187 completing similar projects in a variety of locations over a long period of time. He asked if these
1188 systems were customized for individual systems or if they were mass-produced.

1189
1190 Mr. Mawyer stated that there were differences in pump station size, capacity, and topography.
1191 He stated that they would analyze all aspects of the findings provided by the insurance
1192 company's engineers. He stated that they would examine whether the designer was responsible
1193 for any issues, as well as staff operating and maintenance procedures. He stated that they would

1194 consider the lessons learned from this experience. He mentioned that they had compiled a
1195 comprehensive list of items to integrate into their work program to prevent future occurrences.
1196

1197 Mr. Pinkston asked if they had standard commissioning agents who come in after complex
1198 projects to thoroughly test them, or if the contractors handle this themselves.
1199

1200 Ms. Whitaker stated that they had not historically used commissioning agents. She stated that
1201 even before the event occurred, discussions took place regarding the use of commissioning
1202 agents for projects such as rebuilding the Administration building. She stated that their expertise
1203 typically lies in industrial construction rather than office building construction.
1204

1205 Ms. Whitaker stated that bringing someone who knows how to run a building through its paces
1206 had been contemplated for this particular reconstruction project. She stated that she believed that
1207 staff were revisiting the way they start-up projects, particularly complex ones. She stated that in
1208 the past, most of the work was carried out with their consulting engineer, occasionally involving
1209 third-party inspectors for specialized inspections and utilizing their own staff. She stated that
1210 conversations about this topic are ongoing.
1211

1212 Mr. Pinkston stated that commissioning a building of this type was evidently distinct from the
1213 commission undertaken for a water plant or something similar. He stated that although there
1214 were companies specialized in such commissions, their team possessed most of those skills
1215 internally and could collaborate with contractors to initiate equipment operations. He stated that
1216 considering the complexity of these systems, and switching between Variable Frequency Drive
1217 and other components, perhaps it was reasonable for such intricate systems to involve third-party
1218 involvement.
1219

1220 Ms. Whitaker stated that there have been discussions, particularly about the controls side. She
1221 stated that they had a great IT SCADA and inspections team, but they could not always be
1222 everywhere.
1223

1224 Mr. Pinkston stated that entire sector had become quite complex. He stated that all the features
1225 and options available in these systems made them extremely complicated. He stated that he
1226 believed they could have contributed to what happened here. He stated that he wanted to thank
1227 staff and appreciated all their efforts to resolve this situation and resume normal operations for
1228 the community.
1229

1230 Ms. Whitaker stated that the staff had been fantastic. She stated that she could not begin to
1231 compliment how hard people had worked during this unfortunate situation.
1232

1233 Mr. Gaffney stated that Mr. Pinkston had summarized how the rest of the Board likely felt about
1234 the events that had occurred over the past six months, the work completed, the thought put into
1235 it, the risks involved, and the heroic efforts made.
1236

1237
1238 *c. Presentation: PFAS – Regulatory and Class-Action Litigation Update*
1239 *David Tungate, Director of Operations and Environmental Services*

1240 David Tungate, Director of Operations and Environmental Services, stated that he would provide
1241 an update on PFAS regulations, and the pending class action litigation. He stated that new PFAS
1242 regulations were established on April 10, 2024, which regulate five PFAS compounds and have a
1243 sixth regulation related to various combinations of PFAS compounds in a Hazard Index
1244 calculation. He stated that the new PFAS regulations are in parts per trillion, which are
1245 equivalent to 1 inch in 16 million miles or one penny in \$10 billion.

1246
1247 Mr. Tungate stated that South Fork Rivanna Reservoir, Sugar Hollow Reservoir, and Ragged
1248 Mountain Reservoir supply water to the urban water system. He stated that Beaver Creek
1249 Reservoir serves the Crozet water system, while Totier Creek Reservoir provides water for the
1250 Scottsville system. He stated that the RWSA water treatment system consisted of five surface
1251 water treatment plants: South Rivanna, Observatory, North Rivanna, Scottsville, Crozet, and a
1252 groundwater system at the Red Hill. He explained that a Maximum Contaminant Level (MCL)
1253 was the highest allowed concentration of contaminants in drinking water.

1254
1255 Mr. Tungate stated that MCLs were set as close to MCL goals as feasible using the best available
1256 treatment technology while considering cost. He stated that a MCL is an enforceable chemical
1257 concentration that water utilities could not exceed. He stated that the MCL goal was a level
1258 below which there was no known or expected health risk, allowing for a margin of safety. He
1259 stated that non-enforceable public health goals also existed. He stated that most people had likely
1260 encountered PFAS chemicals in their daily lives as they can be found in clothes, food wrappers,
1261 and personal care products. The regulated PFAS compounds are PFOA, PFOS, PFHXS, GenX
1262 chemicals, PFNA, and PFMS.

1263
1264 Mr. Tungate explained that PFAS is present in various commonly used products: consumer
1265 products like water and stain-resistant clothing, food packaging, fire extinguishing foams, waste
1266 disposal sites, non-stick cookware, and drinking water. He stated that most Americans had been
1267 exposed to some level of PFAS. According to the EPA, very little PFAS could enter one's body
1268 through skin contact during activities like showering, bathing, and washing dishes.

1269
1270 Mr. Tungate stated that PFAS refers to compounds with eight carbon atoms and adjoining
1271 fluorine atoms, creating the carbon-fluorine bond as the root of the chemical structure. He stated
1272 that there are variations that change the compounds themselves. He stated that Rivanna is proud
1273 of its sampling history for PFAS. He stated that RWSA started sampling for PFAS in 2014, as
1274 part of the federally required testing program UCMR3. He stated that since 2014, Rivanna has
1275 collected more than 20 PFAS samples at the five surface water treatment plants and 16 times at
1276 Red Hill Water Treatment Plant since acquiring the system in 2018.

1277
1278 Mr. Tungate stated that each sample kit requires filling approximately 20 containers with water
1279 for each location at around \$395 per sample. He stated that samples were collected from two
1280 locations at each water treatment plant; raw and finished. The raw samples are prior to any water
1281 treatment and the finished water is sampled prior to leaving the facility. Both locations are
1282 sampled to identify potential sources of any detected chemicals. He stated that the cost for a
1283 PFAS kit was \$395 with 20 bottles that need to be filled with water in each kit. He mentioned
1284 that taking raw and finished samples from a water treatment plant would amount to almost \$800
1285 for any sampling involving raw and finished sample locations.

1286
1287 Mr. Tungate stated that they had minimal detections of PFAS in the raw and finished water in the
1288 RWSA water system. He next explained the results of the sampling event on May 24, 2023 at the
1289 North Rivanna treatment plant. On May 24, 2023 a finished water PFAS sample detected PFOA
1290 at a concentration of 25 parts per trillion. He pointed out that this is the highest concentration of
1291 PFAS chemicals in the RWSA water system. Gen X and PFNA have never been detected in the
1292 RWSA water system. He explained that Gen X chemical was the PFAS chemical detected by
1293 the Western Virginia Water Authority at one of their water treatment plants.

1294
1295 Mr. Tungate proceeded to explain the hazard index calculation. He stated that the MCLs were
1296 used as denominators in these index calculations and one the PFAS concentrations were used in
1297 the numerator. All 4 of the fractions are added together with the Hazard Index MCL being 1.0.
1298 A running annual average is used for Hazard Index calculation. He stated that he would next
1299 discuss PFAS treatment. He stated that in 2012 the community decided to install Granular
1300 Activated Carbon (GAC) contactors at all 5 of the water treatment plants. He stated that the
1301 South Rivanna Treatment Plant, our largest water treatment plant, has eight granular activated
1302 carbon contactors.

1303
1304 Mr. Tungate stated that granular activated carbon was one of the best treatment techniques
1305 available for removing PFAS compounds. It does not remove all the PFAS chemicals. He stated
1306 that they had six GAC contactors at Observatory, two smaller contactors at Crozet, which would
1307 soon be increased to four, and two contactors at Scottsville. He added that RWSA has a project
1308 to install another GAC contactor at Red Hill.

1309
1310 Mr. Tungate stated that the new PFAS regulations require initial quarterly monitoring at all entry
1311 points in the distribution system by 2027. He mentioned that there are water utilities in the
1312 country that had not yet sampled for PFAS. This part of the rule is to require quarterly sampling
1313 by 2027. He stated that starting in 2027, all PFAS results are required to be in the Consumer
1314 Confidence Reports (CCRs). He stated that Ms. Hildebrand's and Mr. Lunsford's staff would
1315 handle this reporting process.

1316
1317 Mr. Tungate explained that compliance with the new PFAS regulation is based on a running
1318 annual average. He stated that the quarterly compliance samples will start in 2028 for the running
1319 annual average reporting in 2029. He stated that if the PFAS concentration is less than the MCL,
1320 then zero is used for the running annual average calculation. He stated that in this example, with
1321 a PFAS concentration of two in quarter one, three in quarter two, five in quarter three, and two in
1322 quarter four, the running annual average calculation would be zero, zero, five, and zero because
1323 the MCL is four.

1324
1325 Mr. Tungate stated that this is how EPA has required them to calculate the running annual
1326 average. He mentioned that the EPA estimates that over many years, the PFAS MCL can prevent
1327 PFAS exposure in drinking water for approximately 100 million people, prevent thousands of
1328 deaths, and reduce tens of thousands of PFAS attributable illnesses. He stated that this
1329 information is from the EPA's website.

1330
1331 Mr. Tungate pointed out that the American Water Works Association and the American

1332 Metropolitan Water Association have filed a petition to appeal or repeal the MCL goals that were
1333 established by EPA. He stated that currently, there are four class action lawsuits: 3M, Dupont,
1334 Tyco, and BASF. He stated that BASF was just announced two weeks ago. He added that
1335 payments made to each class member who has not excluded themselves will be based on
1336 allocation tables detailed in the estimated allocation tables that have been provided for Dupont
1337 and 3M.

1338
1339 Mr. Tungate stated that the Tyco and BASF allocation tables have not been released yet. He
1340 stated that allocation will be reflected on factors such as the volume of water produced and the
1341 PFAS concentration. He stated that he provided an estimate of the money RWSA would receive
1342 based on the allocation tables for 3M and Dupont settlement: roughly \$1 million. He stated that
1343 the settlement tables have not yet been adopted for Tyco and BASF. He stated that on the earlier
1344 slides, the Tyco and BASF class action settlement amounts were lower than 3M and Dupont.

1345
1346 Ms. Mallek asked if they had already tested the groundwater at Red Hill.

1347
1348 Mr. Tungate stated yes; there had been no PFAS detections at Red Hill.

1349
1350 Ms. Mallek stated that there was great concern about what was leaching into the wells. She stated
1351 that the current well testing did not include PFAS tests, but she hoped they would provide it in
1352 the future.

1353
1354 Mr. Tungate stated that there was a considerable backlog regarding the UCMR 5 testing, which
1355 includes PFAS. He stated that with the class action lawsuits and increased awareness of PFAS
1356 in drinking water, has led to a significant increase in workload for labs that provide PFAS water
1357 testing. There is a select number of EPA certified drinking water labs, and we all assume that
1358 they will expand their testing capacity.

1359
1360 Ms. Mallek stated that the EPA's budget included an expansion of testing capabilities for PFAS.

1361
1362 Mr. Gaffney asked if the recycling of GAC material ensured PFAS was cleaned out before reuse.

1363
1364 Mr. Tungate stated that there had been quite a lot of discussion on PFAS concentration in
1365 reactivated GAC. The GAC contractor has confirmed that 99.9 % of all PFAS are destroyed in
1366 the GAC reactivation process.

1367
1368 Mr. Gaffney asked if they were using recycled GAC.

1369
1370 Mr. Tungate stated yes.

1371
1372 Mr. Gaffney asked if they were only using their own recycled GAC.

1373
1374 Mr. Tungate confirmed that was correct; RWSA can only receive their own reactivated GAC.

1375
1376 Mr. Gaffney asked if ACSA and the City were still considering filing in the PFAS class action
1377 lawsuit individually.

1378
1379
1380
1381
1382
1383
1384
1385
1386
1387
1388
1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399

1400
1401
1402

1403
1404
1405

1406
1407
1408
1409
1410
1411
1412
1413
1414
1415

Mr. Mawyer stated that they had decided that Rivanna would file on their behalf, because they would make an award to only one utility. He stated that they agreed that if Rivanna received any award, they would equally distribute it via our projects.

Mr. Tungate stated that part of the class action lawsuit necessitated certification that RWSA was the water treatment provider for both the City and the County, ensuring that they do not bear any treatment expenses. He stated that this guarantees complete coverage.

Mr. Gaffney asked if there was any known legislation for eliminating the manufacture of all these chemicals. He stated that he had never heard once that it would happen.

Mr. Mawyer stated that there is legislation to indemnify utilities, so that they cannot be sued for putting PFAS back into the streams through the wastewater. He stated that he had not heard of any regulation specifically targeting companies.

Ms. Mallek stated that the wastewater testing will definitely be coming. She stated that the EPA was noncommittal when they were asked to address the production of the chemicals, and because it was a legislative issue, they should all consider contacting their congress representatives. She stated that if they did not address the source, all of this work was pointless.

10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were none.

11. CLOSED MEETING

There was no reason for a closed meeting.

12. ADJOURNMENT

At 4:19 p.m., Mr. Pinkston moved to adjourn the meeting of the Rivanna Water and Sewer Authority. Ms. Mallek seconded the motion, which passed unanimously (5-0). (Mr. O'Connell and Mr. Richardson were absent.)

Respectfully submitted,



Mr. Sam Sanders
Secretary - Treasurer

