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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
October 23, 2018

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, October 23, 2018 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mike Gaffney, Lauren Hildebrand, Jeff Richardson, Liz Palmer, Gary O’Connell, Mike Murphy, and Kathy Galvin.

Board Members Absent: None.

Staff Present: Bill Mawyer, Katie McIlwee, Lonnie Wood, Jennifer Whitaker, Tom Freeman, Andrea Terry, Liz Coleman, Dave Tungate, Victoria Fort, Scott Schiller, Michelle Simpson, and Tim Castillo.

Also Present: Kurt Krueger, RWSA counsel, members of the public and media representatives.

1. CALL TO ORDER

Mr. Gaffney called the regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:55 p.m.

2. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on September 25, 2018

There were no changes to the minutes presented.

Dr. Palmer moved to approve the RWSA Board meeting minutes of September 25, 2018. Ms. Galvin seconded the motion, which passed 7-0.

3. RECOGNITION

There were no recognitions presented.

4. EXECUTIVE DIRECTOR’S REPORT

42 Mr. Mawyer stated that he had noted for the Board how well staff had performed during
43 Hurricane Michael, which brought more than three inches of rain to Scottsville -- but there were
44 no sewer overflows or water treatment disruptions. He stated that David Tungate and Tim
45 Castillo would provide a presentation in November on how massive quantities of water were
46 moved through a plant without overflow, noting that this storm brought more than 55MGD in
47 instantaneous flow coming into the plant. Mr. Mawyer explained that they basically bypass
48 normal operating procedures and store it in the ponds, then bring it back and treat it after the
49 flows subside.

50
51 Mr. Mawyer reported that this was National Lead Poisoning Prevention Week, and people can be
52 exposed to lead through the water they drink -- with this community having excellent drinking
53 water, falling far below the action level for lead. He stated that RWSA was in the process of
54 completing a corrosion inhibitor study, with corrosion chemicals preventing lead from leaching
55 into the water, and he noted that Rivanna staff would be discussing more with the Board about
56 the lead prevention program in the coming months.

57
58 Mr. Mawyer stated that they continue to celebrate their granular activated carbon system and
59 how well it produced quality water for the whole community, with continued good results. He
60 stated they had a "taste and odor panel" comprised of City, ACSA, and Rivanna staff members
61 who came over and drank the treated water to detect any issues. He stated that the panel had
62 commented on the good quality of the water and the consistency over the past several months.
63 Mr. Mawyer noted that GAC was a resource that would reach the end of its useful life, and
64 Rivanna's consultant had studied it and determined that the GAC material at South Rivanna and
65 Crozet was closing in on the end of its service life. He stated that this meant that they would
66 replace the GAC at both facilities by the end of calendar year 2018, at a cost of approximately
67 \$500K.

68
69 Ms. Galvin asked if it was somewhat related to the turbidity of the water.

70
71 Mr. Mawyer confirmed that it was, stating that the sediment levels in the water determined how
72 much organic material was absorbed by the carbon. He commented that this was not unexpected,
73 and estimates when he arrived two years ago were about \$1 million per year to replace the GAC
74 material. He added that there were also theories that you could never replace the GAC material
75 by letting bugs grow in to treat the organic material, but this was not an appealing solution, as is
76 done with wastewater.

77
78 Dr. Palmer asked if, when the new sediment removal system was installed at South Fork to
79 transfer the water from South Fork to Ragged Mountain, they would run the water normally
80 treated directly at South Fork through that sediment removal system -- as it would reduce the
81 amount of carbon needed.

82
83 Mr. Mawyer responded that it would go back into a natural reservoir.

84
85 Ms. Whitaker explained that it would be part of the final design considerations and there would
86 be several options. She stated that one was to pretreat everything and use it as part of the
87 treatment train at South Fork, sending the settled water to Ragged Mountain. She stated that

88 another alternative was to build a smaller footprint facility and allow South Fork to continue to
89 treat what it has, then split at the raw water intake -- going in two directions that allow the
90 smaller facility to pretreat Ragged Mountain. She stated that they budgeted to handle the more
91 expensive of those options, but as they get into design, the goal will be to design for the
92 optimum.
93
94 Mr. O'Connell asked if they could evaluate the GAC cost and replacement as part of that.
95
96 Ms. Whitaker responded that they could, but the primary concern was originally sediment
97 removal as they went to Ragged Mountain and that now includes phosphorous removal so that
98 they don't create algae issues at Ragged Mountain. She stated that she does not have good
99 information on how that then impacts the GAC treatment, which was not on their radar at the
100 time and would need to be considered.
101
102 Dr. Palmer asked when this was in the CIP.
103
104 Ms. Whitaker replied that she did not know.
105
106 Mr. Mawyer clarified that from the two options the Board had considered, the earliest start date
107 would be 2027 and the latest would be 2035.
108
109 Mr. O'Connell asked Mr. Mawyer to include something in the November RWSA Board packets
110 about financial implications of GAC replacement and how that fit into the budget.
111
112 Mr. Mawyer responded that they had about \$450K in the budget from a prior year and this year
113 for GAC replacement, so that would cover most of the cost but there may be a smaller amount
114 needed from savings or reserves. He clarified that there had been \$250K budgeted two years ago
115 and some money in the current year, totaling about \$450K, but he would provide actual numbers.
116
117 Mr. O'Connell stated that the budget process could push the item up.
118
119 Mr. Mawyer stated that now that they had historical information on how GAC would perform,
120 they would have a budget item for material replacement every year.
121
122 Mr. Mawyer stated that staff had told the Board in September that they were in the process of
123 taking over the Red Hill water system, and he and Mr. O'Connell were meeting later in the day
124 at Red Hill Elementary to discuss the transfer with customers of that system. He stated that Mr.
125 Henry had suggested meeting with County staff about using the Rivanna lab for lake water
126 analysis, and Andrea Terry had been able to work with Mr. Tungate and their lab to provide
127 nutrient analysis of the water samples -- but could not do algae counts because those were
128 contracted out.
129
130 Mr. Mawyer reported that Ms. Whitaker had been invited to participate in a lake/dam emergency
131 tabletop exercise, and she would report on that later in the meeting.
132

133 He noted that the Board's next meetings would be November 13 and December 18, which were
134 both earlier in the month to accommodate the holidays.

135

136 **5. ITEMS FROM THE PUBLIC**

137 There were no items from the public.

138

139 **6. RESPONSES TO PUBLIC COMMENTS**

140

141 There were no responses to public comments.

142

143 **7. CONSENT AGENDA**

144

145 *a. Staff Report on Finance*

146

147 *b. Staff Report on Ongoing Projects*

148

149 *c. Staff Report on Operations*

150

151 *d. Approval of Engineering Services - Beaver Creek Reservoir Dam Improvements – Schnabel*
152 *Engineering*

153

154 *e. Approval of Engineering Services – Observatory Water Treatment Plant - Expansion And*
155 *Rehabilitation Project – Short, Elliot, Hendrickson Engineers*

156

157 *f. Approval of Engineering Services – South Rivanna Water Treatment Plant - Expansion And*
158 *Rehabilitation Project – Short, Elliot, Hendrickson Engineers*

159

160 *g. Approval of Engineering Services – Ragged Mountain Reservoir To Observatory Water*
161 *Treatment Plant Raw Water Line - Michael Baker International*

162

163

164 *h. Approval of Term Contract for Environmental Engineering Services - ECS Mid-Atlantic,*
165 *LLC*

166

167 **Dr. Palmer moved to approve the Consent Agenda as presented. Mr. O'Connell seconded**
168 **the motion, which passed 7-0.**

169

170 Mr. O'Connell noted that the RWSA had \$75 million in projects they were preparing to design,
171 including a lot of big projects that affected ACSA rates, such as 100% of the Crozet project.

172

173 **8. OTHER BUSINESS**

174

175 *a. Presentation: Birdwood Raw Water Line Update - Bill Mawyer, Executive Director*

176 *i. Recommendation for Acquisition of Raw Water Line Easements*

177 *ii. Recommendation for Authorization to Award Construction Contract*

178

179 Mr. Mawyer reported that the RWSA Board had authorized staff in August to move forward with
180 the Birdwood Raw Water Line, and staff including Ms. Whitaker, Ms. Simpson, Mr. Schiller,
181 and Mr. Krueger had been very busy working on easement documents so they had legal right to
182 access the property and have a pipeline, as well as construction documents to procure the work.
183 He stated that the goal was to have this information ready for the Board to approve at this
184 meeting, as UVA had already begun its work and Rivanna needed to keep pace.

185
186 Mr. Mawyer stated that there was approximately 1.2 miles of 36-inch waterline to be installed,
187 which was part of the raw waterline from the South Rivanna to Ragged Mountain reservoirs. He
188 stated they had advertised construction bids in September and were hoping to award on October
189 23, which was not quite possible but they hoped to still begin construction in early December
190 with completion by October of 2019. Mr. Mawyer stated that the budget presented in August was
191 \$7 million, but staff believes there is now a better figure.

192
193 Mr. Mawyer presented a map showing Route 250 and the line depicting the pipeline location,
194 which would come under Rt. 250 with a 40-foot permanent easement, as well as a 10 feet on
195 each side totaling a 20-foot temporary easement while the project was being constructed. He
196 stated that this was the only permanent access easement to the pipeline, and at the other end of
197 Canterbury Road they would have access by a temporary easement across the UVA Foundation
198 property to provide a second access. He noted the location of storage areas there and near Rt. 250
199 to be used during construction. Mr. Mawyer stated that they had been negotiating with the
200 Foundation about two permanent easements and a temporary easement, as well as access at Rt.
201 250 and at Canterbury Road.

202
203 Dr. Palmer asked if Rivanna had reached out to the Bellair Homeowners Association, noting that
204 they were a very active group.

205
206 Mr. Mawyer responded that they haven't yet, but as soon as they have a construction contractor
207 and firm plans, RWSA would schedule a meeting.

208
209 Dr. Palmer stated that she planned to attend that meeting and asked that staff provide as much
210 advance notice as possible.

211
212 Mr. Mawyer presented a sketch showing the pipeline and the permanent and temporary
213 easements, showing that they were purchasing 60 feet of right of way from the Foundation, down
214 the length of the golf course adjacent to Bellair. He stated that in negotiations with the
215 Foundation, they planned to acquire 6.03 acres of permanent easements on two parcels, 2.83
216 acres of temporary easements, at a cost of \$240,200.

217
218 Mr. Mawyer reported that the project budget was \$7 million, and Rivanna had received bids the
219 previous week ranging from \$2.6-\$4.1 million, but unfortunately the applicants did not properly
220 complete the bid forms, so all the bids had to be rejected. He stated that they re-advertised for
221 bids and would reopen for bids on October 31, so it was hoped the cost range would remain the
222 same, with a projected cost of \$4-4.5 million. He noted that the coordination with UVAF and
223 Virginia Power was also beneficial.

224

225 Mr. Mawyer stated that RWSA shared the risk of underground rock with the bidders, who
226 provided a unit price and would be paid for every cubic yard removed, and that was rolled into
227 the total base bid.

228

229 He noted that the reason for the bid returns was that as required in the request for bids,
230 mobilization could not exceed more than 3% of the bid, and they had all miscalculated.

231

232 Mr. Mawyer stated that the Board was being asked at this time to authorize execution of the
233 easement and compensation agreement totaling \$240,200 with UVAF, as well as to authorize
234 Mr. Mawyer to execute minor modifications to this in the event they had to move a few feet in
235 any direction.

236

237 **Ms. Galvin moved to authorize execution of the easement and compensation agreement**
238 **totaling \$240,200 with UVAF, as well as to authorize Mr. Mawyer to execute minor**
239 **modifications to them. Mr. O'Connell seconded the motion, which passed 7-0.**

240

241 Mr. Mawyer reported that the construction contract was a bit unorthodox, but staff was asking
242 the Board to authorize RWSA staff to award the construction contract from bids received the
243 following week, providing they were within the project budget, so they could move forward
244 immediately -- with the typical clause of executing change orders not to exceed 10% of the
245 contract price. He stated that this would help them keep pace with the Foundation and its work,
246 and the award process could be expedited so that things were proceeding before Thanksgiving.

247

248 **Dr. Palmer moved to authorize RWSA staff to award the construction contract, providing**
249 **it was within the project budget of \$7 million or less, with the typical clause of executing**
250 **change orders not to exceed 10% of the contract price.**

251

252 Mr. Murphy commented that the \$7 million estimate was derived from information available up
253 to August, but it seemed like there was more information now and he wondered why they
254 couldn't be at \$5 million, inclusive of the highest bid estimated plus 10%.

255

256 Dr. Palmer responded that they just did not know, because the bids came in and were incorrectly
257 done.

258

259 Mr. Mawyer added that they were hopeful they would be in that same range, but before they got
260 those bids they were prepared with a \$7 million budget and an engineer's estimate of \$5.3
261 million. He stated that they could not fully identify why they were lower, but it was hoped they
262 would remain low -- and if the bid had been at \$5 million and was correct, it would have
263 remained on budget.

264

265 Dr. Palmer stated that if a bid came in at \$5.5 million, it would nullify that bid.

266

267 Mr. Murphy asked if there was a material change in the bids as a result of what the contractors
268 missed.

269

270 Mr. Mawyer responded that they did not know and had heard there was pipe put on reserve and
271 may not be maintained at the bid price -- and in the past, prices had risen when they were rebid.
272
273 Ms. Hildebrand asked if there was a risk of pushing the bids up if they approved something close
274 to budget.
275
276 Mr. Mawyer responded that the budget was known in the first round of bidding.
277
278 Mr. O'Connell suggested that they authorize \$5 million -- and if it came in higher, they had a
279 meeting on November 13 and could discuss it then, which would avoid the possibility of pushing
280 the bids up.
281
282 Mr. Gaffney added that they could always hold a special meeting.
283
284 Ms. Galvin commented that she understood this logic.
285
286 Mr. Krueger pointed out that the bidders had the \$7 million in the first round of bidding, and that
287 was not being changed, so in some sense the engineer's estimate was \$7 million -- and the only
288 reason Mr. Mawyer mentioned a smaller project is because they received the bids. He
289 emphasized that there was nothing in the engineer's estimate to say it was wrong, and from a
290 competitive standpoint, there will still be competition among bidders.
291
292 Ms. Galvin noted that the budget was approved by both, and she was hearing from Mr. Mawyer
293 and Mr. Krueger that it would be easier to proceed as proposed.
294
295 Mr. Krueger mentioned that Mr. Mawyer could always come back to the Board if he so chose,
296 and he was not being required to sign if it was less than \$7 million -- he was only being
297 authorized to do so.
298
299 Mr. O'Connell stated that in terms of a schedule, bids would be opened on October 31, then
300 reviewed and a low bidder determined to get to the point of signing -- which did not offer much
301 time before the next Board meeting.
302
303 Mr. Mawyer responded that they typically used a 10-day waiting period, and if this Board
304 awarded it on November 13, they would wait 10 days before issuing the award letter. He stated
305 that while it was only two or three weeks, it would avoid the holiday period.
306
307 Dr. Palmer stated she did not see a reason to change this, as it was in the CIP and had been
308 publicized at \$7 million.
309
310 Ms. Galvin noted that they were basing the lower budget on bids that were provided in error,
311 which caused concerns for her.
312
313 Mr. O'Connell clarified that the contractors had just filled the bid form out incorrectly.
314

315 Mr. Gaffney stated that hopefully they would be bidding close enough to what they had done
316 before, if they wanted the job.

317
318 Mr. O'Connell stated that they did not know what the contractors would do behind the scenes,
319 and it would be challenging to get going by November 13.

320
321 Dr. Palmer stated it was the 10-day waiting period and Thanksgiving that were at issue, and she
322 would rather get it going -- especially in light of complaints from Bellair constituents. She added
323 that she was getting a constant flow of complaints about Birdwood construction, and it looked
324 like a moonscape with all the clearing, so she would prefer that they get going.

325
326 Mr. Krueger noted that the compensation agreement approved also had milestones for
327 completion of two phases of the project that directly affected Birdwood's fairways and greens,
328 and there was a good amount of time to meet those benchmarks of a date certain in 2019. He
329 stated that in the event they did not meet them, they had to shut down and start over later on,
330 which Birdwood wanted so they could get their grass seed planted and reopen in the spring.

331
332 Ms. Galvin called for the question.

333
334 Mr. Murphy offered a friendly amendment that the Executive Director be required to notify the
335 Board of any executed contract exceeding \$4 million in construction costs.

336
337 Mr. Mawyer stated that would be fine with him.

338
339 **Dr. Palmer accepted the amendment to the motion. Ms. Galvin seconded the motion. The**
340 **motion as amended was approved by a 7-0 vote.**

341
342 *b. Presentation: Rivanna's Dam Safety Program - Jennifer Whitaker, Director of Engineering*
343 *and Maintenance and Victoria Fort, Senior Civil Engineer*

344
345 Ms. Whitaker stated that Ms. Fort would be co-presenting on the dam safety overview, which
346 had been a program with Rivanna for some time and was a pivotal piece of what RWSA did as
347 an organization. She stated that Rivanna had grown into a regional resource for other dam
348 owners, and she had recently learned there were only about 300 regulated dam structures in
349 Albemarle County.

350
351 Ms. Fort reported that dam safety was important in avoiding catastrophic failure of dams, which
352 had resulted in loss of life over the years, as well as massive damage to properties. She stated
353 that they could also learn a lot from non-failure dam emergencies, and she would highlight
354 several of those.

355
356 Ms. Fort reported that the first of those was in February 2017 with the Oreville Dam incident in
357 Northern California. She explained that the dam was constructed in 1968 and was a 770-foot
358 embankment dam -- 10 times the height of the Sugar Hollow Dam -- and was an embankment
359 dam with a concrete main spillway and an earthen emergency spillway. Ms. Fort stated that there
360 had been heavy rains in the winter of early 2017, which caused the lake level to rise quickly, so

361 they opened the gates to the main spillway to allow some of the water to release from the lake.
362 She stated they found fairly quickly that a large crater had formed in the spillway, so they shut
363 off flow to assess the damage but had to continue to release water from the lake to prevent the
364 earthen spillway from activating.

365
366 Ms. Fort stated that ultimately they were not able to release enough water, the earthen spillway
367 over-topped and started undercutting quickly, and there was concern that the entire spillway
368 would fail and release a massive floodway into the river basin. She stated that local officials
369 decided to evacuate the Feather River Basin, with 188,000 residents evacuated -- many of whom
370 ended up stuck on the bridge over the Feather River downstream because evacuation routes
371 routed over the river. She noted that the waters eventually receded and the spillway did not fail,
372 but they were currently undergoing repairs at a cost of over \$1 billion.

373
374 Ms. Fort stated that what went well was that everyone recognized the failure early, took steps to
375 try to mitigate, the dam ultimately did not fail, and local officials responded quickly to evacuate
376 the area. She stated that what did not go well was the evacuation route, as they ended up with
377 vehicles stuck over the Feather River on a bridge. She stated there were also some structural
378 issues with the spillway itself that led to the crater and the subsequent damage, which may have
379 been able to be recognized in regular inspections.

380
381 Ms. Fort reported that there was also an incident with the College Lake Dam in Lynchburg,
382 Virginia, which had been overtopped by heavy rains in August 2018 from the upstream basin.
383 She stated that the dam was built in 1934 by VDOT and was 35 feet high, closer in scale to the
384 Totier and Licking Hole Creek dams. She stated that the dam had overtopped and the water
385 caused damage to the road and the dam itself -- with concerns that the dam would fail as the
386 waters continued. She noted that they eventually opened a gate in the dam to release water and
387 drain the lake, but in the meantime evacuated 124 homes downstream. Ms. Fort stated that they
388 would likely abandon the dam built for flood storage and sediment control because the cost of
389 repairs would be too high for the owners to bear.

390
391 Ms. Fort stated that positive aspects were that they made the decision to evacuate in a very
392 timely manner, and protected the downstream university and residents. She stated that the
393 negative aspects were that the dam was undersized for these types of flood events and was in
394 need of an upgrade that was not being pursued as quickly as needed.

395
396 Dr. Palmer asked what they would do to serve the purpose if they were not replacing or repairing
397 the dam.

398
399 Ms. Fort responded that her understanding was that it would be converted to wetlands.

400
401 Ms. Whitaker reported that per the state of Virginia, a regulated dam must be greater than 6 feet
402 tall or greater than 25 feet tall and impounding more than 50 acre feet, or over 15 acre feet for a
403 shorter dam. She stated there were agricultural small dam exceptions, so taking the 300 regulated
404 structures in Albemarle County and doubling or tripling those for ag-exempted dams would
405 mean upwards of several hundred additional dams that fell within that exemption. She added that
406 the South Fork Rivanna Dam was an energy-related dam and thus was a federal dam.

407
408 Ms. Whitaker stated that dams were designed with a high level of conservatism, but current
409 meteorological data may show that is not high enough. She stated that dam safety events were
410 low-probability events but had a potential for high impact. She stated that in Charlottesville,
411 there was the South Fork Rivanna Dam, Sugar Hollow, and Ragged Mountain dams -- and
412 Ragged Mountain and South Fork both had high urban populations downstream, meaning a high
413 impact to homes, transportation, and community functionality. She added that the dam safety
414 program and upkeep on high-hazard dams was important given the close proximity of the
415 community.

416
417 Ms. Whitaker reported that things that could cause dam emergencies included a rainfall event,
418 which had been the case in 2018; material failure such as in the Oreville example; vandalism or
419 terrorism; and accidents and public safety issues. She mentioned that there were a few low-head
420 dams in Albemarle County, which brought safety concerns related to the structures and the
421 hydraulics adjacent to them.

422
423 Ms. Whitaker reported that there were three hazard classifications, including high-hazard dam,
424 which was related to what was downstream and was not related to deficiencies or vulnerability.
425 She stated that high-hazard dams had the potential for loss of life or high economic impact. She
426 stated that significant hazard dams had a possible loss of life and probable destruction of
427 property; low-hazard dams had no loss of life and minimal economic or environmental loss, such
428 as Totier Creek because there are no structures downstream and only three properties between it
429 and the James River, as well as no potential economic functional loss.

430
431 Ms. Whitaker stated that they have discussed probable maximum precipitation, which is the
432 theoretical greatest amount of precipitation for a given area and given period of time, based on
433 fairly complex computer models -- including one completed in 2015-16 for Virginia -- preceded
434 by models that used hydrologic data from the 1980s. She stated that given precipitation patterns,
435 there would likely be more frequent updates in the future.

436
437 Ms. Whitaker presented probable maximum precipitation (PMP) data from the Beaver Creek
438 watershed evaluation, with that being a relatively small watershed. She stated that the South Fork
439 Rivanna River watershed had 259 square miles, so those numbers would drop because you could
440 not have a very intense storm over an area that large. She stated that a 2-year storm had just
441 under four inches of rain; a 100-year storm had 9 inches of rain; and a PMP event was 34 inches
442 of rain in a 24-hour period. Ms. Whitaker noted that the May 30-31, 2018 storm event had 9
443 inches of rain in a very short timeframe. She stated that while PMP was a maximum, there were
444 several events in Virginia that have approached that level -- Hurricane Camille and the 1995
445 Madison County rain event, both of which were at 80% of PMP. Ms. Whitaker mentioned that
446 those two events were among the largest rain events in the entire country.

447
448 Dr. Palmer asked what percentage the 1995 event was for Sugar Hollow, as it was impacted the
449 same as Madison County.

450
451 Ms. Whitaker responded that it was 86%, and it was one of the storms that governed the Virginia
452 study for the region.

453
454 Ms. Whitaker noted that there were high-hazard facilities that included South Fork, Sugar
455 Hollow, Beaver Creek, Ragged Mountain; low-hazard was Totier Creek and Lickinghole; and
456 there were other facilities such as North Fork, Mechums River, a small dam at the Ivy MUC, and
457 a small dam at Buck Mountain Creek that were monitored. She stated there was also Lake
458 Albemarle, state-regulated dams, private dams, County-run dams, Dominion Power dams, etc.
459 that needed to be monitored -- and this was a big issue in the County, given its topography.
460

461 Ms. Whitaker stated that South Fork was federally regulated with FERC, but Rivanna hoped it
462 would revert back to state regulation in the near future; Ragged Mountain was earthen and state-
463 regulated; Sugar Hollow was concrete with a rubber bladder, which would be replaced along
464 with the bladder air system in the next CIP. She stated that Beaver Creek Dam was fairly
465 significant and would need upgrades, and given the road on the crest of the dam, it fell into high-
466 hazard. She stated that Totier Creek and Lickinghole were relatively small, low-hazard dams
467 and were just over 30 feet tall.
468

469 Mr. O'Connell asked how Rivanna was responsible for Lickinghole.
470

471 Ms. Whitaker responded that she researched it and found that it came out of the anti-
472 eutrophication watershed ordinance work in the 1980s, at which time there was interest in trying
473 to do sediment forebays on the South Fork Rivanna River to prevent nutrients moving
474 downstream. She stated that Rivanna was a dam-owning agency and a regional cooperation
475 agency in the water supply with jurisdiction in the river, and the project was handed over for
476 operation. Ms. Whitaker noted that it served as a sediment basin for the Crozet service area and
477 prevented sediment from coming into South Fork.
478

479 Dr. Palmer recalled that it went along with putting the Crozet Interceptor in to save the South
480 Fork from eutrophication, as there was a lot of algae growth in the South Fork in the 1970s.
481

482 Ms. Whitaker added that there were nutrients coming from the interceptor to the wastewater
483 plant in Crozet that was discharging, as well as sediment that carried phosphorous typically, so
484 the idea was to address it in several different ways and try to improve the health of the South
485 Fork.
486

487 Ms. Fort stated that there was a number of elements that went into emergency response planning
488 (EAP) for dams, and they have created the Owners Dam Safety Plan, which included internal
489 dam safety policies, internal procedures and training, safe dam design and quality construction,
490 dam maintenance and monitoring -- including inspection and instrumentation, emergency action
491 plans for high-hazard dams as a federal and state requirement, and annual review of and training
492 on emergency action plans, including functional exercises. She stated there was also public
493 notification protocol regarding present hazards, including signs and buoys of "dam ahead," with a
494 goal of increasing that signage and possible alarm systems to alert for rising floodwaters.
495

496 Ms. Fort stated that EAPs included several sections, including a notification chart for each type
497 of emergency for each dam, which went through a call-down list and actions to take; emergency
498 detection evaluation and classification; responsibilities both internally and externally within

499 Rivanna in the event of an emergency; preparedness steps to be ready for an emergency; and
500 inundation maps.

501
502 Ms. Fort reported that there were three failure scenarios: a dam has failed or is about to fail; there
503 is a potential situation developing, such as a new seep getting bigger; and a non-failure
504 emergency such as a high-rain event that may increase the level of monitoring. She stated that
505 each scenario had a notification chart for each dam under each EAP, and she presented an
506 example of each along with a description of each failure scenario it accompanies. Ms. Fort also
507 presented a call-down list, which included police, fire, RWSA Board members, emergency
508 management, the National Weather Service, dam safety officials, VDOT, and alternative
509 contacts.

510
511 Dr. Palmer noted that she was not on the list.

512
513 Ms. Whitaker responded that they were in the process of updating it and would add her, noting
514 that it may not include elected officials.

515
516 Ms. Fort clarified that it was County and City executives.

517
518 Mr. O'Connell asked what officials would be expected to do.

519
520 Ms. Fort stated that in terms of responsibilities, Rivanna would verify and assess what the
521 emergency condition was and how it was progressing; notify emergency management agencies
522 of the event and how RWSA felt it should be classified; undertake corrective action at the facility
523 as much as possible, such as putting down stone or rip-rap; issuing condition status reports to
524 local officials and emergency management personnel; and declare an emergency at the facility.
525 She stated that Charlottesville, UVA, Albemarle, and other emergency management staff were
526 responsible for receiving Rivanna's condition status reports and notifying the public -- and if an
527 evacuation needed to happen, the localities and UVA would be the ones coordinating it. She
528 mentioned that Fluvanna was also receiving the reports since they were in the inundation areas,
529 and were thus responsible for notifying the public in connecting the evacuations.

530
531 Mr. Murphy stated that he assumed they would convene the regional Emergency Operations
532 Center (EOC), and Alison Farole would convene the group and work through that -- but he
533 wasn't sure how that would work with Fluvanna.

534
535 Ms. Fort confirmed this, adding that in the event of an emergency, Fluvanna would also be
536 notified.

537
538 Ms. Whitaker clarified that Ms. Farole has called Fluvanna's representatives in the past related to
539 some of the South Fork Dam emergency items, and they had been asked to attend EOC events.

540
541 Mr. O'Connell pointed out that in the event of a major weather event, everyone would be
542 involved anyway.

543

544 Ms. Fort stated that EAPs would likely be activated for multiple facilities, and the longer text in
545 those plans expounded on the detail as to which staff members were present at the EOC, who
546 was coordinating with whom, and the protocol for contacting local officials.
547

548 Ms. Fort stated that she would also review inundation mapping, as they had a set of maps for
549 every facility included in the copy of the EAP, and she pointed out various sections of the
550 Ragged Mountain Dam EAP. She stated that they evaluated various road crossings and the
551 distance from the dam, the arrival of the flood wave, and a sunny day breach -- which was one
552 that occurred in the middle of a day, not related to a flood; or a Probably Maximum Flood
553 (PMF) breach, a flood resulting from PMP. She noted that it also showed where inundated road
554 beds and structures were, which were also detailed in the EAP for crossings.
555

556 Mr. Murphy asked about authority for an evacuation because in terms of local government it was
557 just a suggestion, as the Governor was the only one authorized to require mandatory evacuation.
558

559 Ms. Whitaker explained that from a dam safety perspective, Rivanna had to notify all the local
560 emergency management agencies -- and it was incumbent on the local EOC and municipalities to
561 issue evacuation orders.
562

563 Mr. Murphy stated that he had only done a preliminary look with the City Attorney, along with
564 research pertaining to the recent Lynchburg incidents, and he understood that it was not in the
565 power of a local administrator and must be coordinated with the state.
566

567 Ms. Whitaker responded that during Hurricane Isabel, the EOC issued evacuation orders for
568 Reservoir Road and Sugar Hollow -- but she was not certain if they were enforceable by law. She
569 stated that emergency management went door to door to encourage evacuation, but she was not
570 aware of their legal authority.
571

572 Mr. O'Connell noted that County Police went door to door with Sugar Hollow in 1995, but he
573 was not sure if people resisted or refused.
574

575 Dr. Palmer stated that the Fire Department had come by and advised her to leave, but it was not
576 an order -- and she had not left because they were at a higher elevation.
577

578 Ms. Fort reviewed the dam safety program elements, noting that they took care of all the
579 permitting and regulatory compliance for FERC and DCR for regulatory dams; developed and
580 annually updated all EAPs; performed annual training internally and regionally, including
581 exercises annually; addressed vegetation control at all facilities, including grass maintenance;
582 performed repairs and upgrades needed to instrumentation for the dam and ancillary facilities;
583 dealt with public safety, signage, access, and recreational components; performed studies and
584 reports for the facilities for emergency procedures and design purposes; conducted annual and
585 monthly inspections; and monitored facilities, including use of staff.
586

587 Mr. Mawyer commented that it takes a lot of the Rivanna team's effort to manage the 5+ dams
588 under its purview.
589

590 *c. Presentation: Recommendation for Disposition of FY 2017-2018 Rate Center Results –*
591 *Lonnie Wood, Director of Finance and Administration*

592
593 Mr. Wood reported that the bond issue would price the following week, with November 6 as a
594 target date for execution.

595
596 Mr. Wood explained that at the end of each year, after the auditors completed their work,
597 Rivanna went through a process of evaluating operating cash balances and comparing them and
598 reconciling them with year-end results. He stated the authority had six separate rate centers, each
599 with its own budget, rates, and revenue stream. He stated that they would not want to have rate
600 center surplus one year to pay for another's deficit.

601
602 Mr. Wood stated that they had looked at their cash balances and came up with a 60-day cash
603 target for operating, with \$4.1 million currently in that account and target cash of \$5.4 million,
604 making them short by about \$1.29 million -- which was close to what year-end results were, due
605 to a wastewater deficit as discussed in April. He stated that most of this was due to a low-flow
606 year, with a dry year at the end of 2017, and they were hard to predict, that caused about \$600K
607 of the deficit itself and revenues lower than anticipated. He stated that they also had some
608 metering issues in July and August that caused about \$100K of the deficit, and had some pipeline
609 and streambank restorations that were over budget by \$122K. Mr. Wood stated they had some
610 odor control issues with the Crozet Interceptor that were fixed with the contractor, and the utility
611 budget was going over because of the new pump station.

612
613 Mr. Wood presented a memo that detailed transfers in and out of the operating account to make it
614 whole, and the recommendation was to transfer those funds according to that. He stated the other
615 attachment was provided to give an idea of where reserves were currently, and the year-end
616 results were about \$29.9 million -- with \$28.6 million remaining after this transfer. He stated that
617 while this seemed like a lot in reserves, however with \$160 million in debt, the liquidity position
618 helped balance some of that out. He noted that there was a recent Moody's review that showed
619 Rivanna having a significant/above-normal amount of debt, but the liquidity position balanced
620 that out and helped maintain the Authority's AA2 rating.

621
622 Mr. Mawyer commented that they had an excess of funds in 2014.

623
624 Mr. Gaffney noted that there had been a lot of rain in the current year.

625
626 Mr. Wood responded that this would help make up some of that difference.

627
628 Mr. Murphy asked what the total number was for wastewater.

629
630 Mr. Wood clarified that it was about \$15 million, or half of the total, and he mentioned that
631 wastewater could fluctuate 40% from one year to the next based on rain.

632
633 Dr. Palmer stated that it was better than it used to be when they had capital debt built into the
634 rates.

635
636 Mr. Wood stated it would be double that if flows were still tied to debt service rates.
637
638 Mr. Murphy stated that he was trying to establish how closely the \$1.3 million tracked the 9.3%.
639
640 Mr. O'Connell noted that with a \$15-million budget, 10% would be \$1.5 million.
641
642 Mr. Wood mentioned that it was on the website for the June RWSA financial results, but he
643 could also send it directly.
644
645 Mr. Gaffney noted that they were 20% over for this year.
646
647 Mr. Wood stated that would get even better if the upcoming spring was wet.
648
649 **Dr. Palmer moved to approve transfer of funds according to the memo. Ms. Hildebrand**
650 **seconded the motion, which passed 6-0. Ms. Galvin had left the meeting and was not**
651 **present for the vote.**

652
653 ***9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA***

654
655 Dr. Palmer stated she had asked in September who attended project coordination meetings, such
656 as those with VDOT and the power companies, and she asked Mr. Mawyer to send the list.
657
658 Mr. O'Connell noted that there would be a new meeting set up with VDOT in March to look at
659 County water and sewer projects to coordinate them with paving projects.

660
661 ***10. CLOSED MEETING***

662
663 There was no closed meeting held.

664
665 ***11. ADJOURNMENT***

666
667 **Dr. Palmer moved to adjourn the meeting. Ms. Hildebrand seconded the motion, which**
668 **passed 6-0. Ms. Galvin had left the meeting and was not present for the vote.**

669
670 **The RWSA Board adjourned the meeting at 4:10 p.m.**

671
672
673 Respectfully submitted,



674
675
676
677 **Mr. Jeff Richardson**
678 **Secretary-Treasurer**
679