

RWSA BOARD OF DIRECTORS
Minutes of Special Public Outreach Meeting
December 2, 2004

A special meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Thursday, December 2, 2004, at 6:00 p.m. in the Monticello High School Forum, 1400 Independence Way, Charlottesville, Virginia. The purpose of the meeting was to share information and receive public comment on the Community Water Supply Plan alternative to expand the South Fork Rivanna Reservoir (SFRR) by adding a 4-foot bladder to the Dam.

Board Members Present: Mr. William Brent, Mrs. Judith Mueller, Mr. Gary O'Connell – Presiding, and Mr. Robert Tucker.

Board Member Absent: Mr. Michael Gaffney

Authority Staff Present: Mr. Richard Defibaugh, Mr. Bruce Edmonds, Mr. Tom Frederick, Mrs. Mary Knowles, Mr. Glen Recknagel, Ms. Andrea Terry, Ms. Jennifer Whitaker, and Dr. Robert Wichser.

Also Present: Ms Becky C. Christensen – Facilitator; Mr. Bob Klein – Gannett Fleming Project Team Member; Mr. Kurt Krueger – RWSA Attorney; Mr. Neville Reynolds – VHB Project Team Member; City and County Government Officials; ACSA, City, and County staff; members of the public; and media representatives.

1.0 Call To Order

The special meeting of the RWSA Board of Directors was called to order by Mr. Gary O'Connell in the Chairman's absence on Thursday, December 2, 2004 at 6:05 p.m., and he noted that a quorum was present. He explained that due to the number of Board members present, legal requirements specified that this public gathering become an official Board meeting. No Board actions would be taken tonight. Minutes would be prepared and submitted for Board approval.

Mr. O'Connell welcomed and thanked the public for their attendance at tonight's meeting. He stated that he would be providing a brief summary on the Community Water Supply Plan process to date and would also review the purpose of tonight's meeting. Gannet Fleming would then present their factual findings on the concept of expanding the SFRR by adding a 4-foot crest. Following the presentation, the most important components of the meeting would occur during the public question and comment segments. Sharing new information with the community has been RWSA's goal and the focus of the public meetings held to date and would continue as the process moves forward.

Mr. O'Connell commented that he hoped everyone had the opportunity to sign the register and to receive a meeting packet at the sign-in table located outside of the

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Forum. It is important to Rivanna that the public be informed as information becomes available on this project. The public is invited to provide their e-mail address on the sign-up sheets, if they had not done so previously, in order to be included on RWSA's e-mail list for updates on the Community Water Supply Plan process.

Mr. O'Connell noted that he recognized a number of people in attendance tonight who had been to at least one of the previous public meetings. Tonight's meeting continues the series of forums that are being held on the Community Water Supply Plan. The Public Meeting held in September dealt with the broader issues of the future water supply. There are four concepts that are being investigated in-depth. The Dredging concept was discussed at the November 18, 2004 meeting. Tonight's meeting would address the concept of expanding the SFRR by the addition of a 4-foot crest. The James River Intake and the Ragged Mountain Expansion concepts will be the focus of meetings held during January 2005.

Mr. O'Connell pointed out that the Board members, as well as the members of the public, were viewing the information distributed in the meeting packets tonight for the first time. He felt this demonstrated Rivanna's efforts to share new information with the community as it became available. It is also RWSA's intent to be as factual as possible. Questions on the SFRR Expansion concept are encouraged during the public comments segments of the meeting or could be shared with RWSA staff after the meeting so that further research could be conducted on specific issues.

Mr. O'Connell stated that the factual information presented at this meeting would be posted to the RWSA website within the next few days. A detailed memorandum from our consultants concerning this alternative would be placed on the RWSA website by mid-December.

Mr. O'Connell added that Rivanna hoped the public meeting experience would be positive and constructive, and that comments and questions would be kept as succinct as possible. A great deal of thought went into planning the structure of these meetings so that they would be productive for everyone.

Mr. O'Connell next introduced Ms. Becky C. Christensen, who would be facilitating tonight's meeting. He commented that some in attendance tonight might have already met Ms. Christensen in her role as moderator for previous meetings. She has a great deal of experience in the Charlottesville – Albemarle area, as well as around the state, with community planning issues.

RWSA Special Board Minutes Cont.

**Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Ms. Christensen has been assisting RWSA with the public participation element during the Community Water Supply Update process. She will review tonight's meeting agenda, the requested guidelines for discussion, and introduce the speakers. Mr. O'Connell added that he would be returning at the end of the meeting to comment on the next steps of the Community Water Supply Plan process.

Ms. Christensen thanked Mr. O'Connell and then inquired as to how many in attendance tonight also participated in at least one of the previous two public meetings. She also asked how many were joining this process for the first time. She noted by the show of hands that all perspectives were represented tonight and welcomed their input.

Ms. Christensen stated that there were two parts to tonight's agenda. The first part dealt with an in-depth factual presentation on the second alternative, followed by public discussion on the benefits and challenges of the concept as well as creative approaches to implementing the strategy.

Ms. Christensen next pointed out the "Requested Guidelines" listed on the Agenda. She asked that these guidelines be followed so that everyone wishing to make a comment will have an opportunity to do so during the participation phase of the meeting. She also requested that comments be directed into the microphone so that all statements could be recorded and incorporated into the meeting minutes. Prepared written statements would be received and posted on the RWSA website. Rivanna appreciates your participation and invites all your comments.

Ms. Christensen next introduced the two technical consultants who would be presenting the factual information on the Dredging alternative. She stated that Mr. Bob Klein, who is a Senior Project Manager with Gannett Fleming, is an expert on dams. Mr. Neville Reynolds, who is a Senior Environmental Scientist with VHB, will discuss the environmental issues connected to this alternative. Ms. Liz Palmer: "I find questions sometime help an awful lot during the presentation. I'm wondering if it's possible, if you need to ask a very quick clarifying question during the presentation, would that be ok?"

Mr. John Martin: "I would second that. The utility of asking questions, I think, was demonstrated at the last meeting. When things come up, people have questions, their minds are fresh and it's relevant to everybody. It seems to me some latitude should be allowed there."

**Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Ms. Christensen responded that she understood their requests. In the interest of having the presentation end in a succinct manner, she suggested that quick questions with quick answers could be posed during the presentation. She requested that all other questions be held until the segment designated for “Questions of Clarity.”

Mr. John Martin: “Actually, I do have one question about the process. I’m not sure this is the right time to raise it, but let me raise it right at the beginning. This is referred to as a water supply alternative, one of the four water supply alternatives that is under consideration. A year ago this month, the City, the Service Authority, and Rivanna signed an Agreement--I have a signed copy right here—committing to putting crest controls on the Reservoir and committing to how they were going to pay for it, with the City paying 27 percent and the County water user residents, 73 percent. So, is this a done deal? The contract would indicate that this has already been decided upon; that this is going to happen. However, I should note that when they signed the contract, they thought they were going to get 7 MGD of safe yield. It turned out, whoops, that was a mistake. Really, only 2.9 MGD of safe yield can be realized. So as a citizen, I am asking what’s going on here? Is this still a contract? Is this an agreement? Is this an alternative? What’s going on?”

Mr. O’Connell responded that he thought it was important to note for tonight’s meeting, and for the series of these sessions, that no decisions have been made. The community and the Board are receiving new information about each one of the four alternatives as they are examined in-depth. Through on-going meetings with regulatory agencies, the community meetings, and detailed evaluations by the consultants, all the alternatives were undergoing a fresh examination. The list of alternatives has been narrowed down to four primary concepts. Mr. O’Connell pointed out that the purpose of the public meetings was to share the new data, provide background information, and gather the community’s feedback on each of the four alternatives. He reiterated that no decisions have made “behind the scenes.”

Mr. John Martin: “I’m not suggesting that there has been a decision ‘behind the scenes.’ It was in the Rivanna packet that was open. In the contract that was signed, there is a sentence—paragraph 7—*The City, ACSA, and RWSA have agreed to increase the safe yield provided by RWSA’s Urban Water System supply reservoirs by raising the elevation of the South Rivanna Reservoir.* That sounds like a decision. I’m just asking, is it a decision? What is the status of this Agreement? The County wasn’t even a party to this Agreement. That’s another question.”

RWSA Special Board Minutes Cont.

**Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Ms. Christensen thanked Mr. Martin for his question, but she added that it was also a comment. His statements would be included in the record of tonight's meeting, and the meeting would proceed as outlined in the Agenda.

Mr. John Martin: "I assure you, it was a question, and there hasn't been an answer."

Ms. Christensen expressed regret that Mr. Martin felt the response to his question was unsatisfactory. She added that his question could be restated and addressed during the public comment period.

As there were no other questions concerning the meeting process, Ms. Christensen asked Mr. Bob Klein to begin his portion of the presentation.

Mr. Klein stated that it was a pleasure to be at tonight's meeting and hoped that the information shared during the 30-minute presentation would provide a better understanding as to why this alternative was being revisited.

After Mr. Klein briefly reviewed tonight's Agenda, he reiterated Mr. O'Connell's earlier comments that Gannett Fleming and VHB had been working with RWSA to evaluate various alternatives available to increase the water supply using a planning horizon of about 2055. In July 2004, the Project Team published its first Alternatives Evaluation Report, which narrowed down the list of alternatives to four water supply concepts. Tonight's presentation would focus solely on the South Fork Rivanna Reservoir Expansion (4-foot Crest) option.

As mentioned at the September 21, 2004 Public Meeting, Mr. Klein noted that federal law mandates the selection of the "least environmentally damaging, most practicable alternative..."

Mr. Klein referenced the next slide, which illustrated the scale of the SFRR, and stated there were about 100 land parcels that abut the existing SFRR facility.

Mr. Klein stated that the following slide pictured the existing SFRR Dam, which is located about one mile north of the Fashion Square Mall on the South Fork Rivanna River. The concrete gravity dam was built in 1966, is 70 feet high, 700 feet long, and has a 525 foot long spillway. This type of structure is commonly referred to as a "run of the river dam," due to the fact that most of the dam is comprised of a spillway.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Klein pointed out that the schematic drawing on the next slide represented the concrete dam and the South Fork Rivanna River behind the structure. This alternative is proposing the addition of four feet to the top of the pool level by implementing some type of crest gate on the spillway itself. The most favorable option during the last 20 to 30 years has been to install a moveable crest gate. Under normal conditions, the gate would be raised to store the additional volume. During flood conditions or significant flow events, the gate could be lowered completely to restore the original spillway capacity.

Mr. Klein next discussed the types of moveable crest gates, which were pictured on the next four slides, and included the Hydraulically-Operated Bascule (steel) Gate, the Inflatable Rubber Gate, the Obermeyer Hydro, Inc. Gate System, and the Hydroplus Fusegate.

Mr. Klein explained that the steel gate is commonly referred to as a Bascule or Pelican gate due to the cross-sectional shape of the structure. The example on the slide is similar to what is being envisioned at the SFRR.

Mr. Klein stated that another option is the Inflatable Rubber Gate. The gate is manufactured by Bridgestone, which is the only U.S. company that sells this product. The gate is made out of conveyer belt rubber, but the uniqueness of this technology applies itself well to its application on rivers.

Mr. Klein commented that the Obermeyer Hydro, Inc. Gate System is a hybrid between the steel gate and inflatable rubber gate. It is manufactured in Colorado and consists of steel plates, joined by rubber webbing that raise and lower the plates similar to an inflatable rubber bladder.

Mr. Klein next described the Fusegate option, which is a proprietary system manufactured by Hydroplus located in France. The gate consists of fabricated steel or concrete structured elements that are situated next to each other on top of a spillway crest to raise the height of the pool. During a flood situation, water spills into the individual elements and the elements become buoyed and fall over the dam into the channel downstream. A drawback with this system is that the structure is lost during a flooding event.

Mr. Klein added that during Gannett Fleming's consideration of the four types of crest gates, a number of other projects similar to the one being proposed at SFRR were examined and detailed cost analyses were also conducted. Through this work, it was established that a steel gate and the Hydroplus Fusegate structures were not suitable for this particular application at SFRR. A Bridgestone Rubber

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

gate and the Obermeyer Hydro gate options were recommended for further consideration

Mr. Klein explained that the technology involved for the two recommended crest gate options has been in existence for about 30+ years. He referenced the slide which illustrated the location of Bridgestone Rubber Dam and Obermeyer Hydro Dam installations throughout the country. The next slide highlighted the crest gate installations in the immediate area. Some of the projects that use the Bridgestone type application included RWSA's Sugar Hollow Dam and the City of Manassas. The Dominion Virginia Power Company utilizes an Obermeyer system. He pointed out that the Obermeyer system allows for tighter control of water level, which is more critical for hydro plant operations.

Mr. Klein reiterated that RWSA has had previous experience with a rubber gate system. The Sugar Hollow Dam has a similar application on the spillway crest at a similar height as the proposed alternative and has been in operation for five years. The one difference is that the Sugar Hollow Dam project involved the replacement of an existing steel gate structure due to safety issues with no change in pool level.

Mr. Klein commented that the next slide illustrated in more detail the Bridgestone Inflatable gate operation. He stated that there were hoses which ran inside the bladder itself, which allow the air fed by an industrial size air compressor to be distributed so that the gate can be raised and lowered evenly. The gate is anchored to the structure by a steel clamping system. Two individual rubber bodies are defused at one end to form a thin surface that keeps the gate from oscillating during overflows. Off to the side is a control room which provides the equipment that operates the facility.

Mr. Klein added that the Bridgestone system is a fairly full-proof operation. Questions have been raised concerning the ability to lower the gate after equipment failure. Because the gates are inflated with air, manually opening a valve will release the air and lower the gate.

Mr. Klein noted that questions have also been raised as to how well this system performs during severe weather conditions, such as ice. This system operates much more favorably in these conditions than other gate options, such as the steel gate. Steel gates have been known to freeze in place and become inoperable, whereas rubber gates naturally deform and allow the ice to break up from the water pressure behind the structure.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Klein also discussed concerns involving vandalism of the system, such as damage from gun shots. Depending on the caliber of the gun, the bullet hole itself can actually self-seal or seal to the point where leakage is so small that the compressor which inflates the gate could easily keep pace with any leakage until the puncture mark could be repaired. This would also be the case for damage caused by some type of debris. Due to the thickness of the rubber, damage by puncture marks is a rare occurrence. He referenced the slide which illustrated the type of debris that could flow over the gate without causing any damage to the structure.

Mr. Klein pointed out that the reservoir does not need to be taken out of service during installation of this type of gate. Maintaining a pool behind the existing dam provides the ability for a barge to be placed beside the structure to perform the installation work.

Mr. Klein next described the overall effect that the addition of a 4-foot crest gate would have on the SFRR. He stated that there would be a safe yield benefit of 3.3 MGD, and a 50 percent increase in volume. This alternative would need to be combined with other projects in order to satisfy the projected safe yield demand in 2055. The amount of land that would be inundated by the 4 foot increase in the pool level is about 115 acres.

Mr. Klein next discussed the impacts on facilities and infrastructure that already exist around the Reservoir. The next slide illustrated the three major bridges that cross the SFRR. The Reas Ford Road bridge was built in 1990 and its topography would easily accommodate the pool level increase. The Earlysville Road and the Woodlands Road bridges were both built in 1965. Preliminary analysis indicated that the Reas Ford Road and the Earlysville Road structures would not need to be replaced, but the Woodlands Road bridge might require some modifications with this alternative. Further study and discussions with VDOT on this issue will be conducted during the next two weeks.

Mr. Klein then addressed the recreational impacts with this alternative. He noted that there are about 21 known private docks in the Reservoir that would need to be moved due to the increase in pool level, which would be a temporary impact. The boat launch located near the Woodlands Road bridge would experience some loss of land area due to the inundation caused by the pool level increase. The impact would be somewhat minor due to the steepness of the ramp. A large benefit would be the increase to the surface area and depth of the Reservoir, which would allow for more boating, rowing, and canoeing opportunities.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Klein next reviewed impacts to utilities. Preliminary discussions with the

utility companies indicated no impacts to the electrical, gas, and communications lines that traverse the Reservoir area. There are some utility lines that cross over the bridges. Any modifications to the Woodlands Road bridge would affect the utilities in that area.

Mr. Klein then turned the meeting over to Mr. Neville Reynolds, who would discuss the environmental issues associated with this alternative.

Mr. Reynolds stated that one of the important steps in implementing a project is to acquire the necessary governmental permits. The federal agencies that have jurisdiction over this project included the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the U.S. Fish and Wildlife Service. At the state level, the Virginia Department of Environmental Quality, the Virginia Marine Resources Commission and the Virginia Department of Historic Resources would be reviewing this project. The four key issues that these agencies would be addressing are wetlands, streams, cultural resources and threatened and endangered species.

Mr. Reynolds first addressed the wetlands issue. He stated that there are a number of different wetland habitats that occur around the perimeter of the Reservoir that have the potential to be affected when the current pool elevation is raised by 4 feet. The forested wetlands tend to occur in the higher drainage areas. The scrub – shrub habitat is woody vegetation that is not a forested system. The emergent wetlands consist of the sedges and rushes that occur around the perimeter of the wetland. The ability of the wetlands to survive is actually caused by the existing Reservoir. It is estimated that about half of the wetlands that would be affected by this project were actually produced by the Reservoir.

Mr. Reynolds then referenced the slide which illustrated the wetlands that would be impacted by this project. He stated that based on current evaluations and location of the wetlands, raising the pool by 4 feet would inundate approximately 4 acres of forested wetlands, about 18.16 acres of scrub – shrub wetlands, and little over 8 acres of emergent wetlands for a total of 30.34 acres. He reiterated that about half of that acreage is a result of the Reservoir being constructed.

Mr. Reynolds reviewed impacts to streams due to inundation caused by raising the pool level 4 feet. He stated that there are a number of drainages that lead into the existing Reservoir, in addition to the South Fork Rivanna River itself and Ivy Creek. Forty-eight streams would incur some degree of back flooding.

Inundation on these streams would range from 5 linear feet to over 2,000 feet. It

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

is estimated that there would be an estimated total of 10,000 linear feet of side channel impact. The impact to the South Fork Rivanna River and Ivy Creek

would be approximately 8,000 linear feet.

Mr. Reynolds referenced the next two slides which illustrated the side channels or the smaller tributaries around the perimeter of the Reservoir and the inundation impact on the South Fork Rivanna River and Ivy Creek as a result of the 4 foot rise in the pool level.

Mr. Reynolds noted that the following four slides illustrated the type of streams that currently feed into the Reservoir.

Ms. Liz Palmer: "In the 8,000 linear feet on Ivy Creek, are you talking about along the water stream, like two or three feet in?"

Mr. Reynolds responded that the figure is derived from a direct measurement down the center line of the channel from where the existing pool level is to the new pool level. He then asked Ms. Palmer if she would like him to return to that particular slide.

Ms. Palmer: "I'm just trying to envision what that meant 8,000 linear feet."
Mr. Reynolds returned to the slide in question and pointed out the linear area measured.

Mr. Reynolds next discussed the regulatory requirements associated with mitigating the wetland impacts. He stated there were several options that could be utilized and included restoration, creation, enhancement, preservation, and monetary contributions to the Corps of Engineers Wetlands Restoration Trust Fund and Stream Restoration Trust Fund. There is also the potential for purchasing credits from state and federally approved private mitigation banks.

There was a question from an unidentified woman concerning contributions associated with the bank and trust fund options, which was not audible enough to be understood from the meeting tape recording to quote in its entirety.

Mr. Reynolds replied that the Corps of Engineers and The Nature Conservancy (TNC) manage the trust fund monies. TNC generally applied those funds in the watershed where the impacts occurred. Banks are available in Goochland and Buckingham Counties, but none are located in this area. Monetary contributions would come directly from the community.

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

Dr. Rich Collins: "What category would wetlands fall into if in the process of building the reservoir, you added wetlands as we did the last time? That would be hydrology reestablishing wetlands?"

Mr. Reynolds responded in the affirmative and stated that it would fall under the category of creating new wetlands. Part of the process currently being undertaken involved an aggressive assessment of appropriate areas for hydrology restoration.

Mr. Reynolds referred to the next two slides which were examples of wetland mitigation and stream mitigation. The wetland mitigation site was located in Mecklenburg County and entailed the use of creation, restoration, and preservation components. The stream mitigation example included a sequence of pictures of the same stream in an urban setting in Fairfax County. A whole channel restoration option was used at this site whereby the natural channel pattern and profile was reestablished. The channel stream was linked back to its floodplain, wetlands were allowed to establish in these areas, and the corridor was replanted with needed vegetation.

Mr. Reynolds also explained that with a project of this scale, it is likely that a combination of options would be included in the mitigation package. He also discussed less labor-intensive elements that preserve or improve the character of a site.

Mr. Reynolds next reviewed the slide pertaining to mitigation costs. He stated that the wetland work was estimated at \$2.0 million and stream mitigation at \$12.6 million, for a total of \$14.6 million.

Dr. Rich Collins: "What is meant by stream compensation and is it required by federal law?"

Mr. Reynolds replied in the affirmative and added that you are required to compensate for the inundation of the stream channel.

A citizen whose name was not identified questioned who receives this compensation.

Mr. Reynolds stated that compensation is the amount needed to build or enhance new wetland areas, restore damaged wetland areas, or restore stream channels.

The citizen further asked if this pertained to reservoir-owned land or private land.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Reynolds responded that it could be a combination of both those options. It is RWSA's responsibility to select the most appropriate sites for mitigation and present those to the regulatory agencies in a mitigation proposal.

Ms. Liz Palmer: “Does the compensation figure take into consideration at all the wetlands that would be created by raising the dam?”

Mr. Reynolds replied that it did, but there would be a cost associated with creation of wetlands. Clearing and grading around the perimeter of the Reservoir would first need to occur. There would be some exposed flat areas that would be subject to the rise and fall of the new pool. In order for those areas to be accepted as mitigation sites by the regulatory agencies, they would need to be planted and monitored over a ten-year period.

A citizen whose name was not identified asked how those areas would be accessed.

Mr. Reynolds stated that access would be an important issue to consider as sites are selected.

Ms. Christensen interjected at this point that mitigation appeared to be an area of interest to the group. She asked that Mr. Reynolds finish his presentation at this time, and the remaining questions on this issue would be addressed during the “Q & A” segment.

Mr. Reynolds continued his presentation by discussing the cultural resources aspect of the project. He explained that there were potential sites that would be inundated by the new pool level. At this point, four basic areas have been identified where there was a potential for significant historic resources. The significance of these areas has not been established at this time, and discussions are currently underway with the regulatory agencies concerning this issue. The impact to the project would be determined over the course of the next two months.

Mr. Reynolds noted the same is true for the threatened and endangered species study. Surveys have been conducted for the James Spiny mussel in many of the channels that are affected by this project. One species was located on Buck Mountain Creek near the confluence of Buck Mountain and the South Fork Rivanna River. The effect on this project and how it might influence the permitting process has not been fully determined at this time. This issue would also be discussed with the regulatory agencies over the next two months.

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

Mr. Reynolds stated that in summary, there were a number of environmental impacts with regulatory implications associated with this project. The agencies would be looking at whether during the planning process, everything had been done to avoid and minimize impacts to environmental resources. If it is decided

that the project has been appropriately planned, mitigation will be required for those impacts that are unavoidable. A determination would also be made by the regulatory agencies if the least environmentally damaging alternative had been selected.

Mr. Reynolds concluded his portion of the presentation and asked Mr. Klein to discuss the total project costs.

Mr. Klein reiterated that the total estimated cost for environmental mitigation was \$14.6 million. Prior to discussing total project costs, he pointed out that at this point in the developmental process it is common practice to add about 25 percent contingency because of the level of detail involved and to provide a reserve to account for uncertainties.

Mr. Klein reviewed the slide containing the basic line items involved for this alternative, which included dam modifications estimated at \$3.09 million, bridge/road modifications at \$1.76 million, land acquisition at \$1.50 million, and the \$18.25 million for environmental mitigation, for a total project cost of about \$24.6 million. He noted that the environmental mitigation figure reflected a 25 percent increase to the \$14.6 million that Mr. Reynolds had shared previously.

Mr. Klein commented that this alternative provides 550 MG of additional storage at the SFRR, which is based on a safe yield increase of about 3.3 MGD. This computes to about a \$7.45 per gallon of safe yield increase, as compared to the \$23.00 to \$29.00 for the Dredging alternative.

Mr. Klein briefly summarized the benefits and risks associated with this alternative. Although there would be an increase in safe yield of 3.3 MGD, this alternative would need to be combined with other concepts in order to meet the projected 9.9 MGD deficit in 2055. The larger pool area would increase recreational opportunities and provide benefits to wildlife, but could necessitate a bridge replacement. Another risk associated with this concept is the land acquisition component and the time involved with that process. All the mitigation dollars could be spent locally while enhancing the watershed area. The downside involves the environmental impacts associated with raising the pool level.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Dr. Rich Collins: “Do you have any kind of estimate on water treatment or other costs related to that particular option? Do you have any kind of estimate of what that number might be?”

Mr. Klein replied that the level of study so far does not account for those parts of

the alternative.

Ms. Christensen stated that questions for clarity would be entertained at this time before proceeding to the comment period.

Ms. Liz Palmer: “If you decide to dredge the Reservoir, is it best to dredge the Reservoir prior to putting this bladder on?”

Mr. Klein responded that since he felt the increase in the pool level by the installation of crest gates would be modest, he felt dredging could be accommodated at the same time. He pointed out that the crest gate was moveable, so RWSA had the opportunity to change the pool level at any time. If the dredging option is pursued, lowering the pool level in certain areas could facilitate the process.

For clarification purposes, Ms. Christensen asked Mr. Klein if tonight’s presentation assumed implementation of the dredging option as well.

Mr. Klein responded that the presentation focused on the SFRR Expansion alternative by itself.

A citizen whose name was not identified asked, “Who or what authority has the final say on where mitigation dollars are spent?”

Mr. Reynolds replied that there were two groups that would decide where the mitigation dollars were spent. RWSA would first decide what is in their best interest. A proposal would then be developed and presented to the regulatory agencies for a decision on its appropriateness.

The citizen asked for further clarification on the second party involved in this process. Mr. Reynolds stated that the regulatory agencies having input on this matter included the U.S. Army Corps of Engineers, the U.S. Fish & Wildlife Service, the U.S. Environmental Protection Agency, and the Virginia Department of Environmental Quality.

Follow-up Question: “Does the local government have any influence on it?”

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Reynolds commented that he felt local government would have some influence on that decision, but not as a permit-issuing entity for this project as it related to the mitigation. He asked Mr. Frederick if he any additional comments on this matter.

Mr. Frederick stated that RWSA is building a good relationship with County staff,

many of whom are present tonight, on a number of issues. He definitely anticipated that on the question of providing environmental mitigation in the South Fork watershed, the County staff would definitely be consulted and be part of the proposal. After review, the regulatory agencies have the power to veto the proposal.

Ms. Christensen restated a question from the audience concerning the debris that would occur in a flooded area.

Mr. Klein responded that it was a good question, but it was more of a water treatment issue than an issue related to the dam. Debris would not likely be seen under normal conditions with the use of an inflatable rubber bladder. In flood conditions, the bladder would be fully deflated and there would be no obstruction to the flow path. From a water quality perspective, it would be prudent to cut the trees down to the stumps. From a sediment reduction program, it would be prudent to leave the stumps and the root systems in the ground.

Ms. Liz Palmer: Questioned the effect downstream if the gate is inadvertently lowered.

Mr. Klein stated that when you lower the gate, a wall of water is essentially being released downstream. This issue was closely examined for any possible endangerment to persons or infrastructure. The analysis done to date shows the equivalent of a five-year flooding event in cases where the gate malfunctions and lowers on its own.

A question from a citizen whose name was not identified: "At the point of installation of the 4-foot crests, would they publish any new regulatory requirements on maintaining certain minimum flows, which I understand is just voluntary presently?"

Mr. Klein commented that dams, such as the one at SFRR, were grandfathered since they were built in an era before in-stream flows were required. From a regulatory standpoint, any proposal to modify that dam allows the regulators to revisit that issue and enter into negotiations.

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

Dr. Rich Collins: "Is that included in your 3.3 MGD figure? Did you give any allowance for that or not?"

Mr. Klein stated that an allowance was made for what they believed to be a reasonable release and was included in that figure.

Dr. Rich Collins: "How much is that?"

Mr. Klein replied that it was based on an 8 MGD release or natural inflow, whichever is less.

Mr. John Martin: “I have just a couple of quick questions. The first one—the \$18.0 million for environmental mitigation—does Rivanna have data available that could explain how that figure was arrived at?”

Mr. Klein responded that the data is currently being compiled and will be made available.

Mr. John Martin: “The second question—The 100-year probable maximum flooding of the Rivanna Reservoir is 9 feet above the normal pool level. When the bladder deflates, would it be able to withstand a flood of that magnitude. There would be water 9-foot deep coming across the bladder. Would you state whether it’s your opinion or it’s the manufacturer’s opinion.”

Ms. Christensen inquired if Mr. Martin’s questions concerned when the bladder was deflated.

Mr. John Martin: “When the bladder is deflated, assuming that you know the flood is coming and you are going to deflate the bladder and it’s just laying flat on top of the dam. You have 9 feet of water coming across it.”

Mr. Klein referred to his previous response as to what would happen if the gate would inadvertently open and release water downstream. He also addressed the issue of whether the increased pool level would cause further flooding upstream during storm events. Analysis to date indicated that the additional 550 MG could be evacuated out of the Reservoir in advance of the typical storm scenario so that it would not be the cause of increased flooding.

Mr. Klein next responded to Mr. Martin’s second question and stated that the gate could withstand the flow from a 100-year flood due to the rubber being anchored

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

to the steel clamping system. During this flood scenario, the gate would lay flat and be supported by the concrete.

Mr. John Martin: “When the bladder is inflated, what is the maximum amount of water in depth that can fall over the bladder without causing a problem to the bladder itself? How often will it be necessary to deflate the bladder due to a storm surge?”

Mr. Klein stated that in answer to the first question, the amount of overtopping that is allowed is the function of dam height. Gates could be made as high as 20 feet. In this application, it would be prudent to design the gate so that for any overtopping of greater than about a foot, the control systems would start to deflate the bladder to maintain at least one foot maximum overflow. The flow would continually be monitored, and the bladder deflated as needed to the point where it is fully deflated. At that point, the amount of overtopping is no longer an issue.

In reply to Mr. Martin's second question concerning how often the bladder would need to be deflated, Mr. Klein commented that it was a function of storm events.

Mr. John Martin: "Based on historic storm event records for the Rivanna Reservoir—Do you have them?"

Mr. Klein responded in the affirmative and added that they have not yet reached that level of study.

Ms. Christensen stated that there was time for a couple more questions before proceeding to the comment period. She asked that those who have not had the opportunity to ask their question, do so at this time.

A citizen whose name was not identified asked a question concerning drawdowns during storm events. "Why do you feel it is necessary to draw down Sugar Hollow when it's not even raining. You could leave it up. In other words, I get hit with maybe a 2-foot wall of water. Quite frankly, you can't control your bladder. I know you do this to get ahead of a storm event. I'm starting to cross the river, and suddenly there's this 2-foot wall of water coming. The sun is out, and I know it's not raining and I'm not expecting it. I don't see any reason why you even need to drawn down at Sugar Hollow."

Ms. Christensen stated that she felt the last statement was more of a comment versus a question. She asked for further clarification if it was intended as a question.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

"Why is it necessary to drawn down at Sugar Hollow?"

Mr. Klein responded that he could not address Sugar Hollow as he was not involved with the design of that facility. One option would be to add more concrete to the dam to obtain the additional 4 feet. Once a permanent structure is in place, there is no way to regain the spillage capacity when a flood event occurs. A moveable gate allows the dam to return to its original configuration to maximize the spillway capacity. Often the key is to have the gate lower gradually in advance of increased overtopping to minimize downstream impacts and to

prepare the dam for any additional flows during a flood event.

A citizen whose name was not identified asked for clarification concerning the earlier statements about maintaining a minimum in-stream flow.

Mr. Klein stated that an allowance was made for an 8 MGD release or natural inflows, whichever would be less. It would not be prudent if the natural flow into the SFRR on a given day was 1 MGD, and then turn around and release 8 MGD downstream of the dam.

A question was posed from a citizen whose name was not identified concerning the bridge on Route 676 or Earlysville Bridge. "One time you said it might need to be replaced. Another time you said it might need to be modified. Can you clarify what you were thinking? Would you replace it? Remove it? Raise it? Or what?"

Mr. Klein replied that it was not his intent to confuse anyone with his different choice of words. This concept has not been developed enough at this time to determine what would be the appropriate approach for that particular bridge. If this alternative was selected for further development, replacement or modification of that bridge would be addressed at that point.

Ms. Christensen asked Mr. Klein if the bridge replacements were included in the project budget.

Mr. Klein replied in the affirmative. He stated that it was common practice to be conservative at this point during the planning stage and included the most costly option of bridge replacement.

A citizen whose name was not identified asked, "Before everything is cast in unremovable concrete or what have you, is there any plan to notify the individual landowners on the Reservoir of what the effect will be to them? I come to infinite

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

numbers of these meetings, and there's wonderful conversation in generality. When it gets down to this is what we are going to do to you, it doesn't exist. It's, Oh well, that hasn't been decided yet. I like to be protected before there is no wiggle room. I speak for a number of landowners."

Mr. Klein stated that over 40 alternatives were narrowed down to 4 concepts during an involved process. The Project Team was at the initial stages of reviewing the detailed analyses. If this alternative was selected, at that point impacts on each land parcel would be further examined.

Follow-up Question: “What are we talking about in terms of time? Is this months? Is this years? How much time between the time you decide on a program and the impact on the landowners?”

Mr. Klein responded that the plan was to select what was being referred to as the best alternative. This alternative would need to be combined with another concept, so it is the best combined alternatives solution. The plan is to have the selection made by early 2005 and to share that information with the community. Once the alternative has been chosen, preliminary engineering would be launched as it is crucial that these projects be constructed within a few years.

Follow-up Question: “So, there is no wiggle room. Basically, you all make up your mind between these two alternatives, and then you go ahead into the engineering and you work on it. There is no real advance notice to the landowner that this is what’s going to happen to your land. This is how we are going to access it? This is what we are going to do to you?”

Mr. John Via: Commented that he felt County Board approval was needed prior to implementation of the selected alternative.

Mr. Tom Frederick reiterated a statement made previously at Board meetings. An outreach meeting would be held on each of the four concepts. At the completion of this process, all the information would be reviewed. Questions that have not been addressed during these meetings, would be researched further and addressed appropriately. Another meeting will be held to engage public input at the time a draft tentative position on a selected alternative is made before the decision is taken to the regulators for final approval. He hoped that the decision made locally is the alternative that is actually implemented. He pointed out that the regulators could veto the process, so RWSA needed to be sensitive to their concerns and issues as well.

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Frederick further commented on the earlier question concerning the bridge replacement. The bridge is owned and operated by the Virginia Department of Transportation (VDOT). He was not personally at the meetings with VDOT, but RWSA staff and the consultants were in attendance. It was his understanding that the discussion with VDOT had not gotten to the detailed level at this point on possible bridge replacement or modification. RWSA will take into consideration public comments, but ultimately this issue will need to be negotiated with VDOT.

Ms. Christensen stated that she would continue to entertain questions for the technical consultants but would also invite public comments at this time. She requested that comments and questions be directed into the microphone.

“My name Tom Loach from Crozet. I think it’s good that you are combining answers. I’m just not sure if you answered the right question or not. I looked at your data as far as on the demand side, and it seems to me to be incorrect when compared against the previous figures that showed a build out in the growth area in 20 years. These were done about 2000. So, instead of seeing a 45 degree increase in demand, it seems to me in 20 years that should have leveled off with the build out of the growth area. Obviously, your figures in the past have left something to be desired. I think that someone has to substantiate why the demand is that.

“The second thing, another answer to this, may be to lower the demand. I’m sure now that in Crozet we found out that the County can’t afford our Master Plan. I think there is are lot of people in Crozet who would be glad to see a lot of Crozet revert back to its rural zoning and decrease the demand on water in Crozet proper, Then maybe save millions of dollars on the side of demand. It seems to me that one of the things we should be looking at is that.

“The third thing, it seems to me Rivanna operates either in conjunction or as a subordinate to the Comprehensive Plan. I’m afraid that we have a tail wagging the dog where the Comprehensive Plan is not being given its due based on Rivanna making a decision based on what I consider faulty data from a great supply of water, which will put potentially a demand for more growth and which will put us in a cycle. I would like to see the County at the Board of Supervisors, especially the City Council, make some decision based on the Comprehensive Plan before we go any further.”

Ms. Liz Palmer: “I just have a question. About your \$19 million in mitigation, does that include any additional money for acquisition to create 30 acres of wetlands.”

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

Mr. Reynolds replied that the amount includes funding for the creation of the wetlands, land acquisition, the design cost, and monitoring cost.

Ms. Liz Palmer: “I understand that the information would be made available so we could go through it and really understand it. You’re going to create a lot of wetland with this, so you don’t need to go out and spend more money to create more, do you? It’s just a question of clearing the land to make it so you can inundate more of it. Is that what you are saying?”

Mr. Klein noted that a large majority of the \$18 million is stream mitigation and not wetland mitigation.

Ms. Liz Palmer: “Could you explain a little bit about what that means? Where exactly is that money going to go? I just really don’t understand? How do you spend \$18 million on stream mitigation?”

Mr. Reynolds referred to the example he used during his presentation which involved looking within the Rivanna Reservoir for existing channels that have been degraded by watershed development, by agricultural practices, roadway construction and implementing a restoration project.

Ms. Liz Palmer: “That’s because we inundated other small streams?”

Mr. Reynolds replied that her statement was correct.

Ms. Liz Palmer: “Because when we do that, we create more wetlands. We can’t overlap the two?”

Mr. Reynolds replied that the current regulatory process will not allow us to do that because it requires in-kind mitigation. If we impact forested wetlands, we would need to replace forested wetlands. If we impact streams, we replace streams.

Ms. Liz Palmer: “When you talk about the 8 MGD over the dam or inflow, there is no natural inflow between the Reservoir and the South Fork, Sugar Hollow and Beaver Creek. That’s just a comment.”

“My name is Jack Brown. I came late so if this is redundant, phew on me. Two-and-a-half – three years ago, the Reservoir was half empty. It looks to me then there was this golden opportunity; that nature had removed a lot of water, and if we wanted to dredge the Reservoir and save money on bladders, there was an

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

opportunity. Or was I mistaken that that was an opportunity? If I was mistaken, what stood in our way of doing something like dredging?”

Ms. Christensen inquired if that was a question or a comment.

Mr. Jack Brown: “Was there a lack of regulatory rules? A lack of budget? Because there’s every chance that we will have a drought again.

Mr. Klein commented that he was not a Rivanna employee at that time, but he was in contact with staff that was working on that particular issue at that time. From his perspective, RWSA was aggressively working on that issue. Discussions were held with a contractor who owned a drag line. RWSA was prepared to hire the company to drag the sediments out of the Reservoir while it

was at the lower state during the drought. He understood the main difficulty was getting the U.S. Army Corps of Engineers' permission to conduct the work.

Mr. Jack Brown: "Is there any notion of going ahead and getting permission in hopes that perhaps the opportunity would return?"

Mr. Klein stated that the last drought with the same severity occurred in 1930. It is uncertain as to when the next drought would take place, but records suggest a somewhat lengthy time frame involved until the next occurrence. The window of opportunity for dredging was lost with the increased precipitation events.

Mr. Howard Pape: "I have two questions. What would you expect to happen to the rate of siltation in the Reservoir because of this bladder project? I think a lot of people in public assume that this silt comes from development. Second, I was wondering if you could tell us where you think the silt is coming from?"

Mr. Klein replied that he felt that a report by Stephen Bowler was the best resource to deal with on the issue of silt. The report had been posted on Rivanna's website.

Mr. Klein then addressed the second question dealing with the rate of sedimentation with the installation of the rubber gate. He stated that the original dam design included "mud gates" to be operated during flows where there were high sediment loads. Due to the configuration of the Reservoir, it is easy for the sediments to fall out at the headwaters of the Reservoir before they reach the dam. With the installation of the crest, you are increasing the pool level by 4 feet. There is the possibility of operating the crest during flood flows so that when the crest is lowered, the sediment would pass through the 4-foot pool level area and

**RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004**

be discharged back into the existing Reservoir area. As an example of the complexity of this issue, he stated that Einstein's son studied sediment transfer in college because that was one subject his father could not comprehend fully.

Question from a citizen whose name was not identified: "There's about 115 acres that would become inundated. What part of that is privately owned versus owned by RWSA or other government entities?"

Mr. Klein commented that the estimate is based on private ownership.

Follow-up Question: "How many acres not privately owned would be inundated?"

Mr. Klein stated that there is a buffer zone around the Reservoir and that this 4-

foot increase would require a new buffer zone. The strategy is to assume that the total 115 acres would involve some sort of private land acquisition, either due to inundation or the need to reestablish the buffer zone.

Question from unidentified woman: “Could you tell me how long since the installation of Sugar Hollow, that the bladder has been dropped and how long it takes to drop it and how long it takes to reinflate it?”

Mr. Klein replied that he was not familiar with the operational history of that gate. This type of gate could take anywhere from 10 minutes to an hour to deflate. This operation could be easily regulated by the control equipment. Bladders operate at a very low air pressure, on the order of about 2 to 8 pounds per square inch (psi), where the normal car tire is about 30 psi.

Comment from a citizen whose name was not identified: “When you normally gradually deflate these bladders, you are simulating a five-year flood. My information is you are simulating about a 3-inch rain. You mentioned a wall of water coming downstream. I really think these bladders can create a public safety hazard. I went out and talked to the guy at the Reservoir. He was dropping a foot of water on 55 acres in an hour. I don’t know how many million gallons that is, but if you start dropping a foot of water off of the Reservoir the size of the South Fork in an hour’s time, somebody down around Palmyra is going to be washed away. I’m really not real hep on putting a bladder on unless you can control the bladder better. You mentioned deflating it during a flood event. That just adds to the flooding event. The last time I think they got flooded in at White Hall when they deflated during the flood.

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

Mr. Klein replied that plan of operation would be to deflate the bladder at the early part of the storm so that it would be fully deflated by the time the largest amount of flow volume would have to pass through dam. As far as the mention of the 5-year storm event, he cautioned that at this level of the study an evaluation is made as to whether there are issues making this alternative so unreasonable that further investigation would not be prudent. For example, the worst case scenario is examined whereby the bladder is instantaneously removed and a 4-foot wall of water is released equating to about a 5-year flooding event. There are ways to control and modify the equipment so that worst case scenario would never occur.

Mr. John Martin: “ A year ago when Rivanna, the Service Authority, and the City entered into the Cost Share Agreement for putting a bladder on the South Fork Rivanna Dam, the cost estimate they used was \$7.5 million. Now the cost estimate has tripled. I don’t understand what’s happened in a year. I wondered if somebody could explain. Am I missing something here? Perhaps Tom, or

Rivanna, or the other parties to the Agreement who are in the room, could somebody explain why it goes from \$7.5 million to \$24 million?”

Mr. Klein commented that he was not involved with the earlier study by another firm, but he did a cursory review of that work. The level of detail of the current study had not been done in the earlier work. Through this detailed work, better information has been obtained on which the cost estimates were based.

Ms. Katie Hobbs – Albemarle County: “One of the earlier sections of the report mentioned that if you buffered the stream, you could gain up to about 3 MGD. I am wondering here if with your mitigation, if you aren’t actually doing two things. Because you have the initial thing which you need to do, but you are also buffering the streams. Aren’t you going to pick up some of the 3 MGD?”

Mr. Klein responded that he was not sure he understood the question.

Ms. Katie Hobbs: “The original report talked about with dredging you could get around 3MGD, with installing a bladder you get around 3 MGD, and by buffering the streams you could get about 3 MGD. So you end up with everything you needed by doing three things at the SFRR. So when you are doing stream mitigation, what you are really doing is helping the streams better support the Reservoir. You are actually doing some buffering of those streams that lead to the Reservoir, so why aren’t you mixing up a little bit of this 3 MGD that you capture buffering?”

Mr. Klein inquired as to which report Ms. Hobbs was referring to in her question.

RWSA Special Board Minutes Cont.
Public Outreach Meeting on SFRR Expansion
December 2, 2004

Katie Hobbs: “Yours.”

Mr. Klein responded that his initial reaction was that the report referred to sediment erosion reduction measures. He was not familiar with that particular part of the report. He would need to research that issue further in order to better answer her question.

Ms. Christensen concluded the public comment segment of the meeting and thanked everyone for their thoughtful questions and comments. She then asked Mr. O’Connell to comment on the next steps of the project.

Mr. O’Connell thanked everyone for their participation and feedback tonight. He encouraged everyone to visit the RWSA website at www.rivanna.org for updated information on the Community Water Supply process. A speakers bureau is available to discuss topics of particular interest to community groups. Contact Mary Knowles at 977-2970, ext 101, for more information about scheduling a

speaker for your organization.

Mr. O'Connell stated that the next two public outreach meetings will be held in January. The James River concept will be discussed at the January 6, 2005 meeting. This will be followed by a discussion of the Ragged Mountain Expansion concept on January 20, 2005. Both meetings will be held at 6:00 p.m. at this same location. The consultants will be evaluating all the information obtained from these Public Outreach sessions. The goal is to have the preferred alternative selected by Spring 2005. The community will continue to be involved during this selection process.

Mr. O'Connell again thanked everyone for their attendance and wished everyone a happy holiday.

Mr. O'Connell adjourned the special meeting of the RWSA Board of Directors at 7:38 p.m.

Respectfully Submitted,

Mr. Robert Tucker
Secretary - Treasurer