



# RIVANNA WATER & SEWER AUTHORITY

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## RWSA BOARD OF DIRECTORS

### Minutes of Regular Meeting

November 26, 2007

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Monday, November 26, 2007 at 2:00 p.m., in the Conference Room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

**Board Members Present:** Mr. Gary Fern, Mr. Michael Gaffney – Presiding, Ms. Judith Mueller, Mr. Gary O’Connell, and Mr. Robert Tucker.

**Authority Staff Present:** Ms. Cynthia Burnett, Mr. Bruce Edmonds, Mr. Tom Frederick, Mr. Chuck Kent, Ms. Mary Knowles, Ms. Michelle Simpson, Mr. Justin Weiler, Ms. Jennifer Whitaker, Dr. Robert Wichser, and Mr. Lonnie Wood.

**Also Present:** Mr. Kurt Krueger – RWSA Attorney, Mr. Ronald Taylor – Vice President of Hazen and Sawyer, members of the public, and media representatives.

### **1.0 Call To Order**

The regular meeting of the RWSA Board of Directors was called to order by Mr. Michael Gaffney on Monday, November 26, 2007 at 2:00 p.m., and he noted that a quorum was present.

### **2.0 Minutes of Previous Board Meeting**

**Mr. Gary Fern moved that the Board of Directors vote to approve the minutes of the regular meeting of the Board held on October 22, 2007, seconded by Mr. Tucker. The motion was approved by a 5 – 0 vote.**

### **3.0 Executive Director’s Report**

Although there was no written Executive Director’s report this month, Mr. Frederick noted that within the past three weeks the Authority has hired two new managers. Mr. Lonnie Wood, Director of Finance and Administration, would first introduce the new manager for his staff, and then Dr. Bob Wichser, Director of Water and Wastewater, would report on the new manager with his department.

Mr. Wood stated that he was pleased to introduce Ms. Cynthia Burnett, new Human Resources Manager for Rivanna. She will be replacing Ms. Randi Wescoat, who will be retiring at the end of December 2007. Ms. Burnett has over 15 years of experience as a Human Resources Manager and Director of Administration for a local office.

Dr. Wichser next stated that Mr. Richard Defibaugh, RWSA Water Manager, will be retiring at the end of December 2007 after close to 40 years of service with the Authority. Dr. Wichser was proud to announce that Mr. David Golladay, Assistant Water Manager, has been promoted to the Manager position, effective January 1, 2008. Mr. Golladay, who was not able to attend today’s



meeting, has served the Authority well for over 32 years and Dr. Wichser looked forward to a great working relationship with Mr. Golladay.

Mr. Gaffney extended his congratulations to both Ms. Burnett and Mr. Golladay on behalf of the Board.

#### **4.0 Items from the Public**

There were no items from the public.

#### **5.0 Consent Agenda**

Mr. Gaffney asked if there were any items that the Board members would like to pull for questions or further discussion from the Consent Agenda.

- 5a) Staff Report on Finance**
- 5b) Staff Report on Operations**
- 5c) Staff Report on On-going Projects**
- 5d) Revision to the Section 125 Cafeteria Plan**
- 5e) Proposed Schedule for the 2008 Board of Directors Meetings**
- 5f) Additional Holiday Time Off**

In regards to **Item 5d, Revision to the Section 125 Cafeteria Plan**, Mr. Fern inquired why Rivanna retirees were included as eligible employees in the Premium Conversion plan but not in the Flexible Benefit Plan. Mr. Wood commented that Rivanna elected not to include retirees in the Flexible Benefit Plan due to the amount of administrative work involved with maintaining that plan. By including retirees in the Premium Conversion Plan, the Authority saves money related to employees eligible for Social Security Tax exclusions.

Mr. Fern next commented that it was his understanding that the regulations to include retirees were proposed at this time and that retirees are not currently eligible to be included in health benefit plans. Mr. Wood stated that Internal Revenue Service (IRS) regulations do stipulate that retirees can participate in the health premium conversion plans, but the plans cannot be maintained specifically for the purpose of retirees. Mr. Fern further stated that it was also his understanding that the proposal to add retirees to those plans was not effective until January 2009. Mr. Wood responded that the regulations were in effect at this time based on the IRS website, which stated that retirees can participate in the health benefits of the Section 125 plan as long as it is not maintained specifically for that purpose. Mr. Frederick added that other local agencies contacted are interpreting the IRS regulations in the same manner as Rivanna.

**Mr. Tucker moved that the Board of Directors vote to approve Items 5a), b), c), d), e), and f) of the Consent Agenda, seconded by Mr. O'Connell. The motion was approved by a 5 – 0 vote.**

#### **6.0 Other Business**

In regards to **Item 6a), Drought Warning Update**, Mr. Frederick stated that his report today was being presented primarily for informational purposes and no new Board action was being

requested. The memorandum now being distributed to the members of the Board and the public in attendance at the meeting was prepared this morning in order to provide the most current information on reservoir levels.

Mr. Frederick next reported that during most of November RWSA shut down the transfer between the Sugar Hollow Reservoir and the Observatory Water Treatment Plant and began pumping water from the Ragged Mountain Reservoir to the Observatory plant. This action is taken during drought conditions to balance the reservoirs for optimum opportunity for refill during a drought's limited wet weather events. It also happens to provide a better representation of the actual water flow into the Sugar Hollow Reservoir from the North and South forks of the Moormans River above the reservoir. We have learned that in November 2007 the inflow to the Sugar Hollow Reservoir is only about 22% of the flow we would predict using the Mechums River USGS gage as a surrogate adjusted for watershed area. Inspections of the dam and pipeline have found no structural anomalies in the operation that could account for this finding. Through visual observations of the mountain streams above Sugar Hollow, RWSA has concluded that it is much drier along the eastern slope of the Blue Ridge than in the Piedmont areas of Albemarle County. The 4-inch rainfall received in late October helped the piedmont streams achieve modest gains, even though they were still below normal flows for this time of year. However, low stream conditions along the eastern slope of the Blue Ridge appear to remain more extreme. Data on the Beaver Creek Reservoir, which is somewhat influenced by the slope of the Blue Ridge Mountain, indicates that inflow is also lower at that location than what would be predicted by the Mechums River gage. The North Fork Rivanna gage, when compared to the Mechums gage adjusted for watershed drainage areas, is running only 65% of the comparable Mechums flow.

Mr. Frederick then stated that the Sugar Hollow Reservoir is the facility of critical concern for RWSA. As mentioned previously, RWSA strongly felt that all of its reservoirs needed to be full entering the summer months since the area's safe yield and water demand are fairly close together. The continuing concern for RWSA staff is that without more rain than the area has received to date there is a chance that the Sugar Hollow Reservoir will not refill by spring. Until rainfall data is received that indicates incoming flow trends would lead to a refill of the Sugar Hollow Reservoir by April 2008, RWSA recommends that the Drought Warning remain in place.

Mr. Gaffney asked for clarification purposes if the 22% figure was the percentage of rainfall that has fallen in the watershed and made it to the reservoir. Mr. Frederick stated that the 22% figure was based on a conversion of the flow measured at the Mechums River gage adjusted to the Sugar Hollow Reservoir's drainage area size. RWSA used this conversion process as a rough predictor of the inflow to the Sugar Hollow Reservoir and found that the water flow coming into the reservoir is only 22% of that predicted number. Civil engineers do use percentage of fallen rain in a watershed to predict stream increases, and in general 10% to 15% is estimated for a completely forested watershed like Sugar Hollow. RWSA calculates that only 2.7% of a 4-inch rainfall event in October actually reached the Sugar Hollow Reservoir, if in fact that much rain really occurred along the Blue Ridge. The gage at the Sugar Hollow Dam indicated that 4 inches of rain was received, but our calculation would suggest that further up the mountain range much less than 4 inches of rain may have actually occurred.

Mr. Gaffney next inquired if there were other rain gages located further up the slopes, such as in the park area. Mr. Frederick stated that this area is part of the national forest, and additional contacts by staff did not provide reliable information. He added that it was not unusual to experience significant rainfall differences in nearby areas where there were changes in topography, which he felt RWSA's calculations showed has likely been occurring in this watershed over the last two months.

Mr. Tucker then noted that the community has reacted positively to the call for increased water conservation efforts. Mr. Frederick agreed with Mr. Tucker's statement and added that although water demand typically falls during November throughout the historical record due in large part to it being the end of the growing season, urban water demand within the past 30 days has been 5% below the November 2006 average.

In regards to **Item 6b, Enhanced Nutrient Removal Project Update**, Mr. Frederick recognized Ms. Jennifer Whitaker who would provide a brief summary and then introduce Mr. Ronald Taylor, Vice President of Hazen and Sawyer, who was in attendance today to present an update on this project through a PowerPoint presentation.

Ms. Whitaker next stated that included in the Board packet is a report that discusses the ongoing Enhanced Nutrient Removal (ENR) design work at the Moores Creek Wastewater Treatment Plant. RWSA has been working since May 2007 with Hazen and Sawyer to begin this design effort, which has progressed at a rapid pace. In May, the Board authorized Hazen and Sawyer to move forward with some regulatory assistance, an Odor Control Study, and preliminary design, which is 30% of the total design work for this project. The preliminary design work is near completion, nine of the 12 technical memorandums updating staff on their findings throughout the plant have been completed, and extensive inspection services have been performed on all of the plant's facilities.

Ms. Whitaker then reported that RWSA was requesting the Board's direction on several items being presented today, which included a general project update by the consultants, a comparison of disinfection methods, and a discussion on current trends in the construction market. Mr. Ronald Taylor will discuss these issues in further detail during his presentation. RWSA staff was also requesting that the Board authorize the next two phases of design, which includes final design and bid phase services.

Prior to Mr. Taylor's report, Ms. Mueller referred to the sentence in the Board report that reads, "Project staff anticipated a final 30% design ... by January 2007," and asked if the date was intended to be "January 2008." Ms. Whitaker stated that January 2008 is the correct date and added that based on Board actions taken today and work done to date, staff anticipates presenting to the Board an updated cost estimate for the entire project at that time.

After Ms. Whitaker's introduction of Mr. Ronald Taylor, Mr. Taylor began his presentation by reporting that the Moores Creek Wastewater Treatment Plant will require capital improvements to comply with the new nutrient regulations for the Chesapeake Bay. Today's presentation is an update on the current status of this project.

Mr. Taylor then stated that the Preliminary Engineering Report (PER) was submitted in February 2007, and Department of Environmental Quality (DEQ) approval was received in September 2007 after resubmission in May in response to DEQ comments. RWSA entered into a Water Quality Improvement Fund (WQIF) grant agreement with the state for \$15.6 million. Hazen and Sawyer began the preliminary design work for this project in June 2007, and a draft was submitted on November 21, 2007 for the 30% complete design work.

Mr. Taylor next commented that during the preliminary design work, Hazen and Sawyer identified technical issues that warrant consideration by the Board. The PER anticipated that the Moores Creek plant would continue to use chlorine for disinfection at 15 mgd. When the plant is expanded beyond 15 mgd, RWSA would convert to ultraviolet disinfection to treat the effluent before it is discharged into the receiving stream. The continued use of chlorine disinfection requires the use of the two existing tertiary settling basins, one of which has been out of service for a number of years due to structural issues. The plant will need to move away from chlorine disinfection once expansion occurs because the filters installed as part of the ENR project will be converted to operate in a denitrification mode, which is not compatible with chlorine disinfection.

Mr. Taylor then discussed the structural problems with the existing tertiary settling basins. The west tertiary settling basin has been out of service between 10-15 years because of significant leakage in the tank walls. During Hazen and Sawyer's investigations it was determined that the tank had undergone differential settlement and would require quite substantial structural repairs, including subsurface soil grouting, repair to the tank itself to prevent leakage, and replacement of mechanical equipment. They were not able to inspect the east basin because it is required to be in service at all times.

Mr. Taylor next addressed the costs for the tertiary settling basin repair work. The direct costs involve repairing the structural problems as well as relocating the dechlorination equipment downstream of the new filters. Indirect impacts would include a new RAS pump station building along with a new secondary clarifier as part of the upgrades, longer runs of major yard piping, and new chemical buildings. The total costs for continued chlorine disinfection is about \$2.36 million. He then referred to the slide that illustrated the proposed site plan for continued chlorination.

Mr. Taylor then reported on the cost of ultraviolet disinfection. Direct costs would involve building new a new ultraviolet disinfection facility downstream of new filter facilities. Other indirect impacts would include demolishing the tertiary settling basin and building a new secondary clarifier, which would allow the use of the existing sludge pumping station as a location of new RAS pumps and result in shorter runs of major yard piping. The existing sludge pumping station has additional space that could be used to house new chemical feed pumps. The total related costs for ultraviolet disinfection are \$2.85 million, which is a net increase of \$494,000.

Mr.. Taylor next referred to the slide that compared the present worth value of these two alternatives over a five-year period which illustrates that ultraviolet disinfection has lower operating costs than chlorination.

Mr. Taylor then noted that the capital cost comparison of the two alternatives presents a clearer long-term perspective that by moving away from chlorine disinfection and making ultraviolet disinfection part of the ENR project now, RWSA would save about \$2 million, largely by reducing the cost of the facility's future expansion to 20 mgd.

Mr. Taylor next discussed the intangible benefits of converting to ultraviolet disinfection. This alternative eliminates the possibility of effluent toxicity from residual chemicals in the final effluent that is discharged to the receiving stream. It reduces chlorine hazards for plant staff and provides significantly more flexibility for future expansions to the plant. Ultraviolet disinfection would increase the total project cost from \$35.4 million to \$35.9 million.

Mr. Taylor added that as engineers his firm would strongly recommend that RWSA consider adding ultraviolet disinfection to the ENR project.

Mr. Taylor then briefly discussed the volatile construction market. The trends being observed in the construction market for these types of utility facilities would have an impact on this project. He referred to the graph that illustrated the unprecedented period of construction cost inflation that is being experienced at this time.

Mr. Taylor next addressed DEQ's nutrient removal compliance schedule that is creating significant contractor price pressure by requiring approximately 90 municipal treatment plants in Virginia to complete the nutrient removal upgrades by January 1, 2011. There is insufficient labor force in the region to handle this work load, which has resulted in projects seeing very few bidders.

Mr. Taylor then reported that the Virginia Association of Municipal Wastewater Agencies (VAMWA) conducted a study a little over a year ago and concluded that construction costs could increase by a market factor of approximately 25% due to the increase in demand for construction services. Of the 90 projects that are planned, only 13 have bid to date. The recent bids are trending upwards towards the predicted 25% over the engineer's estimate for the project and referred to the slide that illustrated this trend. Hazen and Sawyer will continue to monitor the market trends during the final design phase and will update the Board on this issue as they have additional information.

Mr. Fern asked if by spending an additional \$500,000 now, the Authority will save \$2 million in the long term. Mr. Taylor stated that Mr. Fern's statement was correct.

Mr. Tucker then inquired how Hazen and Sawyer planned to address the differential settling and leakage issues once the tertiary basins are demolished and the new ultraviolet facilities are constructed. Mr. Taylor stated that it was anticipated that soil borings would be conducted for a better understanding of subsurface conditions on the site for these new structures. The ultraviolet disinfection facility would not be constructed at the location of the existing tertiary settling basins. However, a new secondary clarifier would be located at that part of the site. Additional soil borings would be conducted after the tertiary settling basin is demolished and perhaps additional foundation repairs would be needed prior to building the secondary clarifier. The new

clarifier will not be as large as the existing tank and could be situated outside of the area that has experienced the most settling issues.

Mr. Gaffney asked if any of the other facilities were checked for settling problems. Mr. Taylor stated that a detailed physical survey was conducted on all the structures, and settling has not been observed at other locations.

Referring back to Mr. Tucker's question, Mr. Frederick pointed out that the side of the structure that has not experienced any structural issues has held water for over 20 years without undergoing any differential settling. He felt this was a very positive sign that a portion of that site can be used.

Mr. Fern next commented that if RWSA were to continue with dechlorination there would be no guarantee that the tertiary settling basin would not experience differential settling again if it were to be brought back into service. Mr. Taylor stated that even after making the repairs, there was the risk that the basin could experience additional settlement.

**Ms Mueller moved that the Board of Directors authorize staff to proceed with the ultraviolet disinfection method for the Moores Creek Wastewater Treatment Plant, seconded by Mr. Fern.**

Prior to the vote, Mr. O'Connell requested that since this project would cost approximately \$40 million that Mr. Taylor explain to the ratepayers how that money would be used. The focus has been on the Community Water Supply Plan, and he wanted the public to be aware of this upcoming expensive wastewater project.

Mr. Taylor stated that the Moores Creek Wastewater Treatment Plant is a 15 mgd facility. The Commonwealth of Virginia, as well as other states that discharge to the Chesapeake Bay, have been mandated by the Environmental Protection Agency (EPA) to reduce the nutrient discharges from their facilities that would result in algae growth in the Chesapeake Bay and impair water quality. While this facility is not being taken down to the limits of technology, the Moores Creek plant as well as other facilities throughout Virginia are being taken down very close to that level. When you approach those limits, the technologies required are very expensive. In this project Hazen and Sawyer anticipated converting the biological process that treats the wastewater from a nitrification process that removes ammonia but leaves phosphorus and nitrate in the water to a process that also removes those constituents. The conversion to a multi-stage biological process is expensive and very equipment intensive. In addition, the effluent will need to be filtered with a deep bed sand filter before it is discharged. The filtering process removes almost all of the particulate matter, which has phosphorus and nitrogen associated with it.

Mr. Taylor further commented that the existing Moores Creek plant is designed to operate at 15 mgd and can only push slightly more flow through the plant under peak conditions. Improvements are needed throughout the plant in order to hydraulically convey higher peak flows. The design criteria has been set to take a peak flow of up to 37.5 mgd associated with a storm event. Historically it has been shown that flows do get that high, even based on current flows of less than 10 mgd on average. Implementation of those improvements would require a

new secondary clarifier and an associated RAS pumping station or return sludge pumping station. Additional improvements will need to be made to the solids handling portion of the plant. This facility has only a single dewatering device with no redundancy. A second unit will be added so that the plant can process solids out of the plant reliably, which is absolutely necessary in order to meet the new stringent nutrient limits.

Mr. Gaffney next commented that the total project cost would increase to \$35.9 million with implementing the ultraviolet disinfection method. He asked if the total project cost could potentially increase to \$45 to \$50 million based on current market trends that project a 25% or more increase in construction costs. Mr. Taylor stated that Hazen and Sawyer has not yet completed the detailed construction cost estimate associated with the 30% design phase. RWSA staff has directed them on the importance of maintaining cost control in this project, and Hazen and Sawyer takes that charge very seriously. However, based on other projects it is believed that the answer to Mr. Gaffney's question will be "yes," as the costs could escalate into that range.

Ms. Mueller then inquired if additional WQIF grant funds were available and if RWSA's project would be eligible for those additional monies if the Authority's actual costs were dramatically higher than the current projected figure. Mr. Frederick responded that the contract states that what the state pays in grant monies is a percent of the total cost. This meant that if the bids came in higher, the contract provides that the state should pay its representative share of the increased costs. However, the contract also provides that disbursement of state funds is contingent upon appropriations by the State Legislature. Ms. Mueller also asked if the three localities listed in the slide presentation related to increased construction costs received additional funding due to their project bids coming in higher than engineering estimates. Mr. Frederick stated that those localities did receive additional funding from the state.

Mr. Taylor added that additional funding will continue to be provided as long as state funding is available. Mr. Frederick next commented that the latest information suggests that the money that is now committed under WQIF grant agreements is now approaching what the State Legislature has authorized. If the State Legislature does not continue to authorize additional funding, he felt that the amount of available grant money would be capped in the near future. Organizations such as VAMWA and the Virginia Municipal League are in strong support for additional state funding, but there are uncertainties at this time as to what action the State Legislature might take in this area.

Mr. Fern next questioned whether the modifications being proposed for the Moores Creek plant were grant eligible. Mr. Taylor stated that disinfection is not grant eligible in either the chlorination or ultraviolet scenario. However, each of the two methods include components in terms of the location of the secondary clarifier and the pumping facilities that would change the cost of the project and therefore could affect the total grant amount. Hazen and Sawyer did not anticipate that a decision to convert to an ultraviolet disinfection method would have any major impact in the grant amount.

Mr. Gaffney then inquired whether converting to the ultraviolet disinfection method would enable the Moores Creek plant to exceed the nitrogen requirements and therefore allow the Authority to sell credits or if it would have a neutral impact. Mr. Taylor stated that the impact

would be neutral in terms of selling credits for nutrients. The process does result in a higher quality effluent in terms of disinfection criteria than the chlorine disinfection method and would therefore be of a greater environmental benefit. Mr. Frederick added that the plan presented to the Board in June 2007 that suggested that the improvements to the plant would enable the Authority to sell credits was still intact.

**As there were not further questions or discussion, the Board of Directors voted to approve the motion by a 5 – 0 vote.**

**Mr. Tucker next moved that the Board of Directors authorize the Executive Director to execute an amendment to the June 6, 2007 Engineering Services Agreement with Hazen and Sawyer, P.C. for services related to the Moores Creek Wastewater Treatment Plant Nutrient Removal Upgrade, which will include Tasks 4 – Final Design and Task 5 – Bid Phase Services in the amount of \$1,691,000, with discretion given to the Executive Director to executive amendments in an amount up to 10% of the total contract amount, seconded by Mr. Fern. The motion was approved by a 5 – 0 vote.**

#### **7.0 Other Items from Board/Staff not on Agenda**

There were no other items from the Board or staff not the Agenda.

#### **8.0 Closed Meeting**

There was no need for a closed meeting.

#### **9.0 Adjournment**

**There being no further business, Mr. Fern moved that the meeting be adjourned, seconded by Ms. Mueller. All members voted aye, and the meeting was adjourned at 2:46 p.m.**

Respectfully submitted,

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Mr. Robert W. Tucker, Jr.  
Secretary-Treasurer