Citizens for a Sustainable Water Plan
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April 20, 2011

VIA CERTIFIED, RETURN RECEIPT REQUESTED FIRST CLASS U.S. MAIL

Col. Andrew W. Backus, P.E., District Engineer
U.S. Army Corps of Engineer, Norfolk District
803 Front Street
Norfolk, VA 23510-1096

State Water Control Board
C/O Virginia Department of Environmental Quality
629 East Main Street
P.O. Box 1105
Richmond, VA 23218

RE: U.S. Army Corps of Engineers Permit #06-V1574
Virginia Water Protection Permit Number 06-1574
Rivanna Water and Sewer Authority (RWSA, the Permittee)

Citizens for a Sustainable Water Plan (CSWP) affirms our April 5, 2011 requests to your agencies that, in accordance with federal and state regulations, you suspend, terminate, reevaluate, modify, or revoke the referenced permits issued to the Rivanna Water and Sewer Authority to build a new dam and uphill pipeline.

This letter constitutes additional requests for such action, pending resolution of several questions and, in particular, examination of new information and new studies that demonstrate there is a practical, feasible, and reasonable alternative that accomplishes the project objective of increasing water supply capacity with less wetland and stream impacts than the alternative proposed in the Request for Permit Modification. The public interest is best served by ensuring that the project objective is accomplished with the least wetland and stream impacts.

We restate our request that no action be taken on the March 22, 2011, Request for Permit Modification pending response and resolution of our April 5, 2011 requests and pending resolution of the matters raised below.

A. Alternative Dam with Significantly Less Wetland and Stream Impacts

The U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality are charged with reviewing proposals with demonstrated public need with respect to impacts on wetlands and streams. Part of determining whether a proposed project is in the best public interests is the evaluation of alternatives, a requirement of federal and state regulations and the joint permit application process. New studies and new information that have not been submitted by the Permittee provide evidence that the public interest is best served by modification of the permit for an alternative other than what was requested on March 22, 2011.

CSWP believes that both the Corps and the SWBC/DEQ are aware that the City of Charlottesville contracted with the engineering firm Black & Veatch, Inc. (B&V), to perform detailed investigation and analysis of the existing Lower Ragged Mountain Dam. B&V was asked to render an opinion regarding whether the existing dam has sufficient structural integrity to serve as the base for incremental raising of the structure that would yield pool increases of +13 ft and +45 ft. The conclusion, even after examination by an "independent technical review team" (ITRT) under contract to the Permittee, is that the existing dam can, indeed, serve as the base for incremental increases in the dam height as actual demand for water increases in the future (thus not burdening today's ratepayers with capital improvements that are not needed for decades). While the ITRT raised a number of technical questions and issues, B&V concluded that the issues could be resolved (attached) A member of CSWP procured an independent evaluation of the B&V materials that also identified technical questions and issues that can be resolved, and also determined raising the existing dam "may be safely completed" (attached).

The City-funded evaluation of the "Lower Ragged Mountain Dam Raise" and the subsequent design work by B&V demonstrate that the water supply deficit characterized in the 2006 Community Water Plan (the basis for the Permittee's original and modified proposals) can be addressed with significantly less wetland and stream impacts, and in a manner that would

allow incremental increases of the dam height, which was anticipated by the Permittee in the Permit Support Document.

CSWP expects the Permittee has not reported the results of the B&V evaluation to the DEQ and the Corps. We also expect the Permittee has not provided the simple comparison of impacts associated with the two alternatives shown in the following table (partial; compiled by the City using data provided by the two engineering consultants and reported to the City Council on February 2, 2011). It is evident that the "Lower Ragged Mountain Dam Raise" (the B&V scenario) would have less impact than the "New Ragged Mountain Dam" (the Schnabel scenario, which is the Modified Earth-filled Dam described in the Request for Permit Modification). At the time this comparison was compiled, neither engineering firm had delineated wetlands. Regardless, the difference in stream impacts is significant: this data show that using the Lower Ragged Mountain Dam as the basis for incremental raise would impact 500 feet less stream.

Please note that in February, the Schnabel estimate of length of stream impacted was reported to be 10,163 linear feet, a very precise number. However, CSWP notes that the March 22, 2011, Request for Permit Modification "Comparison of Impacts" states that the Modified Earth-fill Dam will impact 12,392 linear feet – a 22 percent discrepancy of 2,229 ft. We find this large discrepancy disturbing and perhaps misleading, as the lower number shown in the table was highlighted when the two scenarios were presented to the public.

ATTRIBUTE	DESCRIPTION	LOWER RAGGED MOUNTAIN DAM RAISE (B&V)	NEW RAGGED MOUNTAIN DAM (Schnabel)
Permanently Disturbed Area (acres, excluding reservoir)	Excluding the reservoir footprint, the area of permanent disturbance anticipated by the completed facility including dam, access road, borrow areas and spillways for a 30-ft reservoir raise.	3	12
Permanently Disturbed Area (acres, including reservoir)	The area of disturbance anticipated from the completed facility including reservoir, dam, access road, borrow areas and spillways for a 30-ft reservoir raise.	95	108
Length of Stream Impacted (feet)	The length of stream permanently impacted from the dam, access road and reservoir footprints.	9,663	10,163

THEREFORE, pursuant to 33 CFR §320.4, CSWP requests that the U.S. Army Corps of Engineer, District Engineer, reevaluate the public interest review regarding the practicality of using a reasonable alterative method (i.e., using the Lower Ragged Mountain Dam as the base for incremental raises) to accomplish the objective of the proposed structure, i.e., to provide, over time, the water supply identified in the 2006 Community Water Supply Plan without burdening today's ratepayers with the cost of infrastructure that may not be needed for 40 to 50 years. Further, pursuant 33 CFR §325.7, CSWP requests that the District Engineer reevaluate the circumstances and conditions associated with the demonstrated practical, feasible, and reasonable alternative to use the Lower Ragged Mountain Dam as the base for incremental raises to meet the purported water deficit with significantly less impact on streams and likely significantly less impact on wetlands due to the much smaller footprint that would only somewhat widen the base of the current dam and earthen buttress.

THEREFORE, pursuant to 9VAC25-210-180(D)(2) and 9VAC25-210-180(G), CSWP requests that the SWCB/DEQ exercise its discretion to modify, revoke and reissue, or terminate the permit because the Permittee failed to report new information about a practical, feasible, and reasonable alternative that would have justified different VWP permit conditions and because using the Lower Ragged Mountain Dam as the base for incremental raises to meet the purported water deficit results in significantly less impact on streams and likely significantly less impact on wetlands due to the much smaller footprint that would only somewhat widen the base of the current dam and earthen buttress.

B. Questions about Requested Changes in Stream Flow

An attachment to the Request for Permit Modification, a report by Hydrologics, Inc., indicates that the proposed modified pool elevation of 683' (+30 foot higher than the existing Ragged Mountain Reservoir) will provide 1,549 MG of useable storage at the expanded reservoir. That report also cites currently-permitted triggers for stream release requirements from Sugar Hollow Reservoir as volumes in Ragged Mountain Reservoir ranging from a low of 0.66 BG to a high of 1.53 BG, all of which are within the volume provided by the modified dam height. However, the

Request for Permit Modification asks to lower those triggers during what is described as the "intermediate phase." We have several concerns and questions about this proposal:

1. The Permittee does not provide a timeline for this "intermediate phase," nor was there any explanation of the factors that were used to develop the intermediate requirements.

2. The changes were not publicly discussed nor was approval requested of the Permittee's Board of Directors, even though lowering the triggers may seriously impede the capacity of the current system to provide raw water to the Observatory Water Treatment Plant and/or to fill the expanded reservoir and/or to refill the Sugar Hollow Reservoir before the proposed pipeline is constructed and operational.

3. The proposed restrictions reduce the safe yield of the system and put the Charlottesville/Albemarle community at even greater risk than we are today, in the event of a drought before the proposed pipeline is constructed and operational (which the Permittee has indicated may not occur for another 15 to 20 years). Adopting more stringent stream release requirements at this time is neither necessary nor prudent, especially given the risk to the entire Urban Service Area. CSWP believes, given the risk, that the proposed release requirements should not be adopted without a public hearing.

4. The Permittee has not explained in public the rationale for modifying the stream release requirements. Why have lower stream release triggers been requested when the volume provided by the modified reservoir proposal appears to be within the currently permitted parameters?

C. Questions about Safe Yield

Reports have indicated that the current safe yield of the system is 12.8 MGD or 12.9 MGD (the latter from the DEQ). The Permittee, in the Request for Permit Modification, reports that the safe yield of the +30 ft reservoir raise without the pipeline will be 12.5 MGD. Thus, the Urban Service Area will have 0.4 MGD less capacity during the 15 to 20 year period that the

Permittee indicates will elapse before the pipeline will be constructed. Note that the Permittee reports that the safe yield of the +30 ft reservoir rise with pipeline produces a safe yield of 15.3 MGD. This is 0.2 MGD less than the Permittee indicated could be provided by dredging (see Permit Support Document). Given the total anticipated cost of the permitted project (which the Permittee has not updated recently, especially the cost of the pipeline), this calls into question the validity of the conclusion that the permitted project is a feasible alternative to address the purported projected deficit in supply. This, combined with other questions about that projected deficit that will be addressed by the on-going Water Demand Analysis, prompts serious questions for the ratepayers in the Charlottesville-Albemarle Urban Service Area: Are we being asked to pay more for less water?

D. Questions about the Proposed Pipeline

The proposed new dam and enlarged reservoir at Ragged Mountain Natural Area will be entirely dependent on withdrawals from the Sugar Hollow Reservoir at the headwaters of the Moorman's River to fill until and unless the proposed pipeline is constructed to transfer water uphill from the South Fork Rivanna Reservoir to the new reservoir at Ragged Mountain.

Currently, only a conceptual route has been suggested for the proposed pipeline and knowledgeable citizens have widely criticized the proposed budget as dramatically underestimating the potential costs for easements, regardless of the route, given the development that is present within the area indicated as likely to contain the route. The public has not been provided a credible cost estimate for this future infrastructure, nor for annual operating and maintenance costs. The proposed enlarged reservoir at Ragged Mountain will be unable to fill without the pipeline, especially if it is drawn down during a drought. This imposes even greater stress on the Moorman's River as the reservoir's only source of water for the 15 to 20 years that the Permittee now indicates may elapse before the pipeline is needed. Further, the Permittee has determined that a new pipeline cannot be funded at this time given other more critical infrastructure needs.

E. Questions about Undocumented Changes in Reservoir Storage Capacity

In the Request for Permit Modification, the Permittee makes a number of unsupported assertions related to the storage capacity of the proposed reservoir behind the Modified Earth-filled Dam. CSWP believes documentation for those assertions must be provided to the Corps of Engineers, the DEQ, and the public. The Permittee has not made public the Storage Capacity Curve for the proposed Modified Earth-fill Dam. The following questions must be answered before acting on the modification request:

1. The Permittee states that the proposed Modified Earth-filled Dam will use earthen fill material that will be excavated on-site from within the proposed pool area, thus creating additional volume that allows the original pool elevation of 686 ft to be lowered to an ultimate pool elevation of 683 ft. The Permittee has not provided nor made public any documentation to support the claim that the total volume of earth materials to be excavated and removed from within the proposed pool area is equivalent to the volume of water between the original pool elevation (686') and the proposed pool elevation (683').

2. During early public reports on the investigations into this dam, the Permittee's consultant reported difficulty finding sufficient quantities of the required quality and type of earth materials necessary for the various parts of the earthen embankment. Indeed, an early cost estimate assumed that as much as half of the total clay necessary for the core would be brought to the site. The consultant subsequently reported that further exploration on-site determined that sufficient quantities are available at several locations below the proposed pool elevation. However, the public has not been provided clear documentation to support this determination. Has the Permittee also identified the locations and large volumes of unsuitable soils that must be removed in order to obtain the material for the embankment? Has the disposal location proposed for the large quantities of unsuitable soils that must be removed to access the good material been identified? Is the disposal site within the Ragged Mountain Natural Area, necessitating clearing of even more trees? Is the disposal site at a different location – perhaps determined by the contractor – which would negate the touted claim of fewer truck trips over local roads? What are the wetland and stream impacts associated with that disposal?

3. One aspect that should be accounted for in the Storage Capacity Curve of the proposed dam is the reduction in capacity from the permitted dam itself because, by its nature, the Modified Earth-filled Dam it is more massive and its embankment volume "displaces" what would have been water behind the permitted Roller-Compacted Concrete dam. Has that displaced volume been accounted for in the storage capacity and safe yield analysis?

4. The Request for Permit Modification states that some of the rock excavated from within the impoundment area will be used around the perimeter, although the volume of that placed rock is not provided. The Permittee does not state whether the rock will be placed for the +30 ft scenario or the ultimate anticipated +42 ft scenario. The Permittee has not provided a Storage Capacity Curve so it is unclear how the placement of that volume of rock alters the available capacity at different levels. Has this change in volume been accounted for in the storage capacity and safe yield analysis?

5. The Request for Modification is silent about the need to dispose of massive quantities of dirt and rock to be excavated and blasted to create the auxiliary (emergency) spillway cut into a hillside adjacent to the proposed Modified Earth-fill Dam. The cut will be more than 300 ft long and more than 70 ft deep (+10 ft of dirt and +60 ft of rock); it will range from 125 ft wide at the base to more than 400 ft wide at the top. The Permittee estimates the volume of excavated rock alone will be 98,000 cubic yards. Has the Permittee identified the disposal site for this massive quantity of waste material? Is the disposal site within the Ragged Mountain Natural Area, necessitating clearing of even more trees? Is the disposal site at a different location – perhaps determined by the contractor – which would negate the touted claim of fewer truck trips over local roads? What are the wetland and stream impacts associated with that disposal?

F. Discrepancies in Reported Wetland and Stream Impacts

The Request for Permit Modification states that a set of graphics "depicting the existing site conditions and the areas that would be filled or inundated by the two dam construction techniques is enclosed for your information." CSWP requested a full-scale set of these drawings and was told that the RWSA does not have "full-scale drawings for the permitted RCC dam

showing stream and wetland impacts . . . available in the manner that can generate the format you requested." Instead, we were directed to a page in the Joint Permit Application that shows the entire proposed reservoir and dam on a letter-size page. We were then advised that the Permittee will "look into" our subsequent request, which questioned why the Permittee does not have full-scale drawings that show the stream and wetland impacts of the permitted RCC dam.

Obviously, the Permittee has not provided access to documentation to allow the public to examine the purported difference in wetland and stream impacts associated with the requested revision. Because the State regulations establish precise triggers to determine whether a modification is a "minor modification," we find it troubling that the Permittee does not make available to the public the documentation of the reported impacts that the Permittee states in the Request for Permit Modification.

In the following table, Row A and Row B replicate the "Comparison of Impacts" (from page 2 of the Request for Permit Modification). The italicized texts show data from the Joint Permit Application (Row C) and the VWP Permit No. 06-1574 (Row D).

Comparison of Impacts Based on Construction Technique *[italicized texts added from cited sources]*				
	Increase in Pool Over Existing Pool Elevation (in feet)	**Pool Elevation (in feet)**	**Wetlands Inundation or Filled (in acres)**	**Streams Inundated or Filled (in feet)**
A. Permitted Roller Compacted Concrete Dam (Permit Modification Request)	45	686	2.60	13,163
B. Modified Earth-fill Dam	42	683	2.61	12,392
C. Permitted Roller Compacted Concrete Dam (Joint Permit Application)	*45*	*686*	*2.61* 2.57***	*14,033* 14,500***
D. Permitted Roller Compacted Concrete Dam (VWP Permit, page 1 of 35)	*45*	*686*	*2.61*	*13,163*
* From Joint Permit Application Form, #3, Description of Project ** From Joint Permit Application, Sheet 6 of 14 (VHB/Gannett Fleming)				

We find the differences between what was requested in the Joint Permit Application (Row C) and what was permitted (Row D) to be troubling – the implication is the applicant's own measures were flawed and subsequently corrected by the regulators. Particularly troubling are the significant differences between the authorized length of stream impact shown in Row D (13,163 ft) and the two different stream lengths in the Joint Permit Application shown in Row C (14,033 ft and 14,500 ft); the differences are +870 ft and +1,337 ft, respectively. The documentation provided in support of the Request for Permit Modification does not provide sufficient detail for independent verification of the claimed impacts shown in Row B. Will the regulators require the Permittee to provide clear and verifiable documentation of the impacts?

Again referring to the table, we find it puzzling that the wetlands impact noted for the Modified Earth-filled Dam (Row B, the requested modification) are precisely the same as the permitted wetlands impacts (Row D). While we appreciate that a 3-ft lower pool elevation reduces the impacts associated with inundation (especially less inundated stream length in the very upper reaches of the proposed pool), it is difficult to understand that the reduced wetland impacts are precisely offset by the increased wetland areas impacted by the larger footprint of the earthen dam. Again, the documentation provided in support of the Request for Permit Modification does not provide sufficient detail for independent verification of the claimed impacts. Will the regulators require the Permittee to provide clear and verifiable documentation of the impacts?

Citizens for a Sustainable Water Plan restate our request that no action be taken on the March 22, 2011, Request for Permit Modification pending response and resolution of our April 5, 2011 requests and pending resolution of the matters raised above. In addition to the feasible and reasonable alternatives that would have significantly less impact on streams and wetlands (both dredging and incremental raise of the existing dam) and thus are in the best public interest, there are many unanswered questions that have bearing on the total potential impacts on streams and wetlands that we believe the U.S. Army Corps of Engineers and the State Water Control Board/Department of Environmental Quality should resolve prior to acting on the Request for Permit Modification.

Sincerely,

Rebecca Quinn, Chair
Citizens for a Sustainable Water Plan
[approved by the Executive Committee, 4/19/11]

Attachments:

Black & Veatch: Letter dated December 14, 2010
Harald Van Aller, P.E., Letter dated November 22, 2010

Cc: City Council, City of Charlottesville
Board of Supervisors, Albemarle County
Thomas L. Frederick, Executive Director, RWSA
Richard E. Henderson, USACE
Vincent Pero, USACE
Scott Kudlas, DEQ
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