

## Appomattox River Water Authority

### Board of Directors Meeting

**DATE:** July 25, 2019

**TIME:** 2:00 PM

**LOCATION:** Appomattox River Water Authority  
Board Room, Administration Building  
21300 Chesdin Road  
South Chesterfield, Virginia 23803

### AGENDA

1. Call to Order/Roll Call
2. Approval of Minutes: Minutes of the Regular Board Meeting on May 16, 2019 and Minutes of the June 13, 2019 Special Board Meeting
3. Public Comment
4. Executive Director's Report:
  - Reservoir Status Update for June/July 2019
  - Approval of Services for Work for U.S. EPA Required Compliance with the America's Water Infrastructure Act
  - Alum Settlement Payment Review/Discussion
  - Approval of Services for Work for Development of a Long-Term Hydrilla Management Plan
  - Status Report: Ongoing Projects/ Operations / Financials
5. Items from Counsel
6. Closed Session: Personnel/Executive Director's Annual Review/Legal Matters
7. Other Items from Board Members/Staff Not on Agenda
8. Adjourn

Cc: W. Dupler/George Hayes, Chesterfield  
L. Lyons, Petersburg  
W. Henley, Colonial Heights  
F. Haltom, Prince George  
R. Wilson, Dinwiddie Water Authority  
A. Anderson, McGuire Woods

**1. Call to Order/Roll Call**

**2. Approval of Minutes: Minutes of the Regular Board Meeting on May 16, 2019 and Minutes of the June 13, 2019 Special Board Meeting**

Following are minutes of the Regular Scheduled Board Meeting held on May 16, 2019 and the special Board Meeting held on June 13, 2019

Absent any corrections or revisions, we recommend approval of the minutes as submitted.

**BOARD OF DIRECTORS MEETING**  
**Appomattox River Water Authority**  
**May 16, 2019 at 2:00 p.m.**  
**Location: Appomattox River Water Authority**  
**21300 Chesdin Road, S. Chesterfield, VA 23803**

**MEMBERS PRESENT:**

Doug Smith, Chairman (Colonial Heights)  
Aretha Ferrell-Benavides, (Petersburg)  
Percy Ashcraft, (Prince George)  
Robert B. Wilson, (Dinwiddie)

**ALTERNATES PRESENT:**

George Hayes, Secretary/Treasurer (Alternate, Chesterfield)  
Lionel Lyons, (Alternate, Petersburg)  
Frank Haltom, (Alternate, Prince George)  
William Dupler, (Alternate, Chesterfield)

**ABSENT:**

Kevin Massengill, Vice-Chairman (Dinwiddie)  
Joseph Casey, (Chesterfield)  
William Henley, (Alternate, Colonial Heights)

**STAFF:**

Robert C. Wichser, Executive Director, (ARWA & SCWWA)  
James C. Gordon, Asst. Executive Director (ARWA & SCWWA)  
Arthur Anderson, (McGuire Woods)  
Melissa Wilkins, Accounting/Office Manager (ARWA & SCWWA)  
Kathy Summerson, Administrative Assistant (SCWWA)

**OTHERS:**

Chris Pomeroy, (President-AquaLaw PLC)  
Greg Akers, (Chesterfield Internal Audit)  
Christopher Meade, (Chesterfield Internal Audit)  
Denny Morris, (Crater Region Planning Commission)  
Jay Ruffa, (Crater Region Planning Commission)  
Ted Cole, (Davenport)  
Barry Woods, (AECOM)  
Jack Reed, (Prince George)  
Chris Tabor, (Hazen and Sawyer)  
Mike Wooden, (Arcadis)  
Mike Callen, (ARWA Manager of Water Operations)

Mr. Smith, Chairman, called the meeting to order at 3:28 p.m.

**1. Call to Order/Roll Call**

The roll was called.

**2. Approval of Minutes: Minutes of the Regular Meeting of the Board held on March 21, 2019**

Upon a motion made by Mr. Hayes and seconded by Mr. Ashcraft the following resolution was adopted:

**RESOLVED, that the Minutes of the Regular Meeting of the Board held on March 21, 2019 are hereby approved:**

**For:     5            Against:     0            Abstain:     0**

**3. Public Comment**

There were no public comments.

**4. Executive Director's Report**

- **Reservoir Status Update for April/May 2019**

Dr. Wichser gave a Reservoir Status Update for April/May 2019. He stated based on the UVA Climatology Office report, 2018 was the wettest year ever recorded in the Commonwealth.

- **Seasonal Chesdin Water Wise Conservation Measures**

Dr. Wichser reported on Seasonal Chesdin Water Wise Conservation Measures. He stated there is a Press Release slated to go out on May 28, 2019. Mr. Wilson asked if this release could be provided electronically and Dr. Wichser stated we could do that.

- **Award of Virginia Department of Health 2018 Excellence in Waterworks Operations Performance**

Dr. Wichser presented the Silver Award of Virginia Department of Health 2018 Excellence in Waterworks Operations Performance to Mike Callen, Manager of Water Operations

- **Status Report: Status Report: Ongoing Projects/Operations/Financials**

Mr. Gordon reported on Ongoing Projects/Financials. Mr. Hayes commented that on page 14 of 47 under the Replacement Outlay Budget versus Actual the line item for In-Plant Capital Upgrades that really is a capital item not an operating item. He stated it would make more sense to pull that out as a separate category.

5. **Presentation by Chesterfield County Internal Audit Department: ARWA billing Special Project**

Mr. Smith introduced Greg Akers, Director, and Christopher Meade, Senior Auditor, from Chesterfield County Internal Audit Department. Mr. Akers presented the results/findings/recommendations of the Internal Audit. Mr. Ashcraft stated the intent of this Audit was to analyze the work of Staff. He further stated there's been leveled criticism over the years that things are not where they should be, and this Board has done a good job to hire professionals to run this Authority. He stated he hoped this Audit would put it to rest.

6. **2012 Bond and 2017 Bond Debt Service Budget Adjustments**

Dr. Wichser reported on the 2012 Bond and 2017 Bond Debt Service Budget Adjustments.

Upon a motion made by Mr. Hayes and seconded by Ms. Ferrell-Benavides the following resolution was adopted:

**RESOLVED, that the Authority staff recommends that the Board of the Appomattox River Water Authority (a) provide preliminary approval of the above-stated one-time charges and credits to revise the water rates for Fiscal Year 2019 to be reflected on the invoices for the fourth quarter of Fiscal Year 2019, (b) call a special meeting for 2 PM on June 13, 2019, to be held in the Authority's Board Room, at which will be held a public hearing on the one-time charges or credits, and (c) direct Authority staff to provide for the publication of the notices of such public hearing in accordance with Virginia Code Section 15.2-5136(G). The revisions will reflect the inclusion of (a) the debt service payments on the Authority's 2012 Bond for Fiscal Years 2016-2018 in the authority's Base Rate for such years, (b) the debt service on both the 2012 Bond and the 2017 Bond for Fiscal Year 2019 in the Base Rate for Fiscal Year 2019, and (c) the funding of the Reserve fund and the Capital Fund for Fiscal Years 2016-2019 in the Base Rate for such years. Authority counsel has prepared a resolution to evidence the foregoing:**

**For: 5 Against: 0 Abstain: 0**

7. **Approval of Proposed Fiscal Year 2020 Budget**

Dr. Wichser reported on the proposed Fiscal Year 2020 Budget. He stated the public notices were advertised twice in the newspaper, and that a public hearing was held on March 21, 2019 and no comments were received from the public. He stated Staff is recommending the Board adopt the attached Resolution, which approves the ARWA's Fiscal Year 2020 Budget as presented at the January 16, 2019 Board meeting along with the related payments schedule. Mr. Hayes stated Chesterfield County does support the budget as advertised. He further stated they are requesting that after all the evaluations and pay for performances are done, to present a report back to the Board on what the average increase was, what the increase was per tier, not a specific name, just an understanding of how they were given out. Mr. Anderson explained the Resolution, which gives all the history that Dr. Wichser went through, it approves the Budget as presented, the payments of the various member jurisdictions that tie into the payment schedule.

Upon a motion made by Mr. Wilson and seconded by Ms. Ferrell-Benavides, the following resolution was adopted:

**RESOLVED, that the Board approves the attached Resolution, which approves ARWA's Fiscal Year 2020 budget as presented at the January 16, 2019 ARWA Board Meeting and adopts the related water rates schedule:**

**For: 5          Against: 0          Abstain: 0**

**8. Items from Counsel**

There were no items from Counsel.

**9. Closed Session**

There was no Closed Session.

**10. Other Items from Board Members/Staff Not on Agenda**

Dr. Wichser stated he appreciated the Board moving forward and approving both budgets for ARWA and SCWWA. Mr. Haltom reported on Prince George County's permit process. He stated in early April their JPA was submitted and DEQ has been reviewing their application. Prior to that they sat down with DEQ to entertain any comments prior to submitting their application to make sure they are complying with any concerns DEQ may have. He stated DEQ did identify the Atlantic Sturgeon as a primary concern and they have addressed the issue adequately. He further stated they have made their submittal and are currently waiting to receive any comments back from DEQ. He stated that he and Mr. Hayes met last week to try and coordinate any construction activities as they are preparing to submit their permit for withdrawal from the Appomattox River as well. He further stated at this time they are waiting to see how activities are pursued at this point.

Mr. Smith stated he wouldn't be in town for the July 18, 2019 Board meeting. Other members had a conflict with this date, so it will be confirmed at the Special Meeting on June 13, 2019.

**11. Adjourn**

Mr. Smith stated, if there's no other business, and asked for motion to adjourn.

Upon a motion made by Mr. Ashcraft and seconded by Mr. Wilson the meeting was adjourned at 4:17 p.m.

MINUTES APPROVED BY:

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**George Hayes**  
**Secretary/Treasurer**

## RESOLUTION

### OF THE APPOMATTOX RIVER WATER AUTHORITY APPROVING THE BUDGET FOR FISCAL YEAR 2020 AND ADOPTING THE RELATED WATER RATE SCHEDULE

**WHEREAS**, in October, November and December of 2018 the staff of the Appomattox River Water Authority (the "Authority") developed the proposed budget and water rates for Fiscal Year 2020 and on November 16, 2018, presented the proposed budget and water rates to the Authority Board alternates, utility directors and other representatives of all five member jurisdictions of the Authority;

**WHEREAS**, at the Authority Board meeting on January 16, 2019, the staff of the Authority presented the proposed Fiscal Year 2020 budget and water rates to the Authority Board and following the presentation the Authority Board authorized a public hearing on the proposed Fiscal Year 2020 budget and water rates for March 21, 2019, and directed staff to publish a notice of the public hearing;

**WHEREAS**, the Authority Board held the public hearing on the proposed Fiscal Year 2020 budget and water rates at its meeting on March 21, 2019, and no comments were received from the public;

**NOW, THEREFORE, BE IT RESOLVED** that the Board of the Appomattox River Water Authority hereby approves the Fiscal Year 2020 budget as submitted as an attachment to this resolution and adopts the water rate schedule set forth below effective July 1, 2019:

#### **RATES (cents/1,000 gallons)**

	FY2020
Chesterfield County	0.9797
City of Colonial Heights	1.0083
Dinwiddie County	1.4522
City of Petersburg	0.9760
Prince George County	1.3698

**BE IT FURTHER RESOLVED** that the above-stated water rates are subject to change in accordance with the Authority's water service agreement based on, among other things, the amount of water actually purchased by each member jurisdiction and the amounts of revenues received and expenses incurred by the Authority during Fiscal Year 2020.

**BOARD OF DIRECTORS SPECIAL MEETING**

**Appomattox River Water Authority**

**June 13, 2019 at 2:00 p.m.**

**Location: Appomattox River Water Authority  
21300 Chesdin Road, S. Chesterfield, VA 23803**

**MEMBERS PRESENT:**

Doug Smith, Chairman (Colonial Heights)  
Kevin Massengill, Vice-Chairman (Dinwiddie)  
Joseph Casey, (Chesterfield)  
Percy Ashcraft, (Prince George)  
Aretha Ferrell-Benavides, (Petersburg)

**STAFF:**

Robert C. Wichser, Executive Director, (ARWA & SCWWA)  
James C. Gordon, Asst. Executive Director (ARWA & SCWWA)  
Arthur Anderson, (McGuire Woods)  
Melissa Wilkins, Accounting/Office Manager (ARWA & SCWWA)  
Kathy Summerson, Administrative Assistant (SCWWA)

**ALTERNATES PRESENT:**

George Hayes, Secretary/Treasurer (Alternate, Chesterfield)  
Robert B. Wilson, (Alternate, Dinwiddie)  
Lionel Lyons, (Alternate, Petersburg)  
Frank Haltom, (Alternate, Prince George)

**OTHERS:**

Preston Bryant, (McGuire Woods Consulting)  
Andrew Barnes, (Petersburg)

**ABSENT:**

William Dupler, (Alternate, Chesterfield)  
William Henley, (Alternate, Colonial Heights)

Mr. Smith, Chairman, called the meeting to order at 2:05 p.m.

**12. Call to Order/Roll Call**

The roll was called.

**13. Public Hearing on One-Time Charges and Credits to FY 2019 Water Rates**

There were no comments from the Public.

**14. Board Consideration of Resolution Approving One-Time Charges and Credits to FY 2019 Water Rates**

Dr. Wichser reviewed the Resolution for the approval of certain one-time charges and credits to revise the water rates for Fiscal Year 2019 to be reflected on the invoices for the fourth quarter of Fiscal Year 2019.

Upon a motion made by Dr. Casey and seconded by Mr. Massengill the following resolution was approved:

**RESOLVED, that the Board hereby approves the one-time charges and credits to revise the water rates for Fiscal Year 2019 to be reflected on the invoices to the participating jurisdictions for the fourth quarter of Fiscal Year 2019:**

**For: 5 Against: 0 Abstain: 0**

**15. Closed Session: Personnel**

Mr. Anderson read the Resolution to go into Closed Session (attached).

Upon a motion made by Mr. Massengill and seconded by Ms. Ferrell-Benavides the Board went into Closed Session at 2:08 p.m.

**For: 5 Against: 0 Abstain: 0**

Upon a motion made by Mr. Massengill and seconded by Mr. Ashcraft the Board came out of Closed Session at 2:34 p.m.

**For: 5 Against: 0 Abstain: 0**

Mr. Anderson read the Certification of Closed Meeting (attached).

Upon a motion made by Mr. Massengill and seconded by Mr. Ashcraft the Board approved the Certification.

**For: 5 Against: 0 Abstain: 0**

Upon a motion made by Ms. Ferrell-Benavides and seconded by Mr. Massengill the following resolution was adopted:

**RESOLVED, that the Board approves Chesterfield County Human Resources to assist the Board of Directors with the search process for the new Executive Director:**

**For: 5 Against: 0 Abstain: 0**

**16. Adjourn**

Mr. Smith asked for a motion to adjourn.

Upon a motion made by Mr. Massengill and seconded by Ms. Ferrell-Benavides the meeting was adjourned at 2:36 p.m.

MINUTES APPROVED BY:

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**George Hayes**  
**Secretary/Treasurer**



## RESOLUTION

### OF THE APPOMATTOX RIVER WATER AUTHORITY PROVIDING FINAL APPROVAL OF CERTAIN REVISIONS TO THE WATER RATES TO BE CHARGED FOR FISCAL YEAR 2019

**WHEREAS**, on May 16, 2019, the Board of the Appomattox River Water Authority (the "Authority") adopted a resolution (a) providing preliminary approval of certain one-time charges and credits to revise the water rates for Fiscal Year 2019 to be reflected on the invoices for the fourth quarter of Fiscal Year 2019, (b) calling a special meeting for 2 PM on June 13, 2019, to be held in the Authority's Board Room, at which will be held a public hearing on the one-time charges or credits, and (c) directing Authority staff to provide for the publication of the notices of such public hearing in accordance with Virginia Code Section 15.2-5136(G);

**WHEREAS**, as set forth in a memorandum to the Board dated May 16, 2019, the one-time charges and credits are to effect the recommendation of the Chesterfield County Office of Internal Audit, Authority staff and Authority counsel that the Authority's Fiscal Year 2019 Budget and the rates to be charged to each participating jurisdiction in Fiscal Year 2019 be revised to reflect the inclusion of (a) the debt service payments on the Authority's 2012 Bond for Fiscal Years 2016-2018 in the Authority's Base Rate for such years, (b) the debt service on both the 2012 Bond and the 2017 Bond for Fiscal Year 2019 in the Base Rate for Fiscal Year 2019, and (c) the funding of the Reserve Fund and the Capital Fund for Fiscal Years 2016-2019 in the Base Rate for such years; and

**WHEREAS**, the Authority published notices of the public hearing and has held the public hearing as required under Virginia Code Section 15.2-5136(G).

**NOW, THEREFORE, BE IT RESOLVED** that the Board of the Appomattox River Water Authority hereby provides final approval of the following one-time charges and credits to revise the water rates for Fiscal Year 2019 to be reflected on the invoices to the participating jurisdictions for the fourth quarter of Fiscal Year 2019:

	Chesterfield	Colonial Heights	Dinwiddie	Petersburg	Prince George
Total True-Up for FY16-FY18 <sup>(1)</sup>	\$48,696	\$52,855	-\$79,078	\$6,888	-\$15,316
Total True-Up for FY19 <sup>(2)</sup>	\$18,749	\$26,123	-\$39,556	\$1,900	-\$7,419
<b>Total for all adjusts</b>	<b>\$67,445</b>	<b>\$78,978</b>	<b>-\$118,634</b>	<b>\$8,788</b>	<b>-\$22,735</b>

*Note:*

*(1) Total True-Up includes 2012 Debt Service, Capital Program Plan, Reserves, and In-Plant (Engineering Services) Adjustments*

*(2) Total True-Up includes 2012 Debt Service, 2017 Debt Service, and Reserves estimates. FY19 numbers are estimates based on budget flow estimates and final true-up numbers will be dependent on final consumption numbers*

## **CLOSED MEETING RESOLUTION**

### **APPOMATTOX RIVER WATER AUTHORITY**

**June 13, 2019**

I move that we go into a closed meeting for discussion and consideration of prospective candidates for employment by the Authority and the appointment of specific public officers of the Authority, specifically to discuss the process for selecting a replacement for the Executive Director upon his retirement and the possibility of appointing an Interim Executive Director, as permitted by Section 2.2-3711A.1. of FOIA:

MOTION: Massengill

SECOND: Ferrell-Benavides

#### **VOTE**

Ashcraft	Aye
Casey	Aye
Ferrell-Benavides	Aye
Massengill	Aye
Smith	Aye

ABSENT DURING VOTE: None.

ABSENT DURING CLOSED MEETING: None.

SESSION DATE: June 13, 2019

**CERTIFICATION OF CLOSED MEETING**

WHEREAS, the Board of the Appomattox River Water Authority (the "Authority") convened a closed meeting on June 13, 2019, pursuant to an affirmative recorded vote and in accordance with the provisions of the Virginia Freedom of Information Act; and

WHEREAS, Section 2.2-3712 of the Code of Virginia requires a certification by this Board that such closed meeting was conducted in conformity with Virginia law;

NOW THEREFORE, BE IT RESOLVED that the Board of the Authority hereby certifies that, to the best of each member's knowledge, (i) only public business matters lawfully exempted from open meeting requirements by the Virginia Freedom of Information Act were discussed in the closed meeting to which this certification resolution applies, and (ii) only such public business matters as were identified in the motion convening the closed meeting were heard, discussed or considered by the Board.

MOTION: Massengill

SECOND: Ashcraft

VOTE

Ashcraft	Aye
Casey	Aye
Ferrell-Benavides	Aye
Massengill	Aye
Smith	Aye

ABSENT DURING VOTE: None.

ABSENT DURING CLOSED MEETING: None.

### **3. Public Comment**

The Guidelines for Public Comment are:

#### **GUIDELINES FOR PUBLIC COMMENT AT SCWWA/ARWA BOARD OF DIRECTORS MEETINGS**

If you wish to address the SCWWA/ARWA Board of Directors during the time allocated for public comment, please raise your hand or stand when the Chairman asks for public comments.

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for "Public Comment Period." Each person will be allowed to speak for up to three minutes.

When two or more individuals are present from the same group, it is recommended that the group designate a spokesperson to present its comments to the Board and the designated speaker can ask other members of the group to be recognized by raising their hand or standing. Each spokesperson for a group will be allowed to speak for up to five minutes.

During the Public Comment Period, the Board will attempt to hear all members of the public who wish to speak on a subject, but it must be recognized that on rare occasion presentations may have to be limited because of time constraints. If a previous speaker has articulated your position, it is recommended that you not fully repeat the comments and instead advise the Board of your agreement. The time allocated for speakers at public hearings are the same as for regular Board meeting, although the Board can allow exceptions at its discretion.

Speakers should keep in mind that Board of Directors meetings are formal proceedings and all comments are recorded on tape. For that reason, speakers are requested to speak from the podium and wait to be recognized by the Chairman. In order to give all speakers proper respect and courtesy, the Board requests that speakers follow the following guidelines:

- Wait at your seat until recognized by the Chairman;
- Come forward and state your full name and address. If speaking for a group, state your organizational affiliation;
- Address your comments to the Board as a whole;
- State your position clearly and succinctly and give facts and data to support your position;
- Summarize your key points and provide the Board with a written statement or supporting rationale, when possible;
- If you represent a group, you may ask others at the meeting to be recognized by raising their hand or standing;
- Be respectful and civil in all interactions at Board meetings;
- The Board may ask speakers questions or seek clarification, but recognize that Board meetings are not a forum for public debate; Board Members will not recognize comments made from the audience and ask that members of the audience not interrupt the comments of speakers and remain silent while others are speaking so that other members in the audience can hear the speaker;
- The Board will have the opportunity to address public comments after the Public Comment Period has been closed;
- At the request of the Chairman, the Executive Director may address public comments after the session has been closed as well; and
- As appropriate, staff will research questions by the public and respond through a report back to the Board at the next regular meeting of the full Board. It is suggested that citizens who have questions for the Board or staff submit those questions in advance of the meeting to permit the opportunity for some research before the meeting.

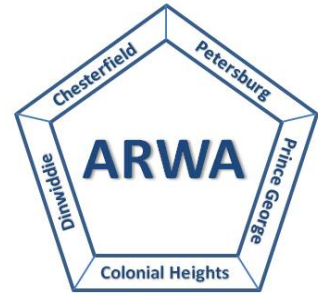
**4. Executive Director's Report:**

- **Reservoir Status Update for June/July 2019**

- **Approval of Services for Work for U.S. EPA Required Compliance with the America's Water Infrastructure Act**

Following is a memo and scope of work regarding the American's Water Infrastructure Act.

# Appomattox River Water Authority



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21300 Chesdin Rd. - S. Chesterfield, VA 23803 - Phone (804) 590-1145 - Fax (804) 590-9285

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## MEMORANDUM

**TO: APPOMATTOX RIVER WATER AUTHORITY  
BOARD OF DIRECTORS**

**FROM: ROBERT C. WICHSER, EXECUTIVE DIRECTOR  
JAMES C. GORDON, ASSISTANT EXECUTIVE DIRECTOR**

**SUBJECT: AWARD OF SERVICES FOR COMPLYING WITH USEPA  
REQUIREMENTS - THE AMERICA'S INFRASTRUCTURE ACT**

**DATE: JULY 25, 2019**

On March 31, 2019 ARWA advertised for proposals related to providing services to comply with the USEPA's regulatory requirements from the America's Infrastructure Act. Proposals were due on April 19, 2019 at 2:00 PM.

Tasks will include: (1) An assessment of the risk to the ARWA infrastructure from malevolent acts and natural hazards; and (2) The analysis of resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and transmission facilities, electronic components, computers, or other automated systems (including the security of such systems), which are utilized by the system.

Additionally, the ARWA's Emergency Response Plan will be updated to include: (1) strategies and resources to improve the resilience of the system, including physical and cybersecurity of the Water system; (2) plans and procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the ARWA to deliver safe drinking water; (3) actions, procedures, and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of the drinking water including the development of alternative source water options, relocation of raw water intakes, etc. and (4) strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.

These tasks will be completed by February 1, 2020, allowing the ARWA to comply with the required certification to the USEPA by March 31, 2020.

Proposals were received from:  
Hazen and Sawyer  
Whitman, Requardt & Associates, LLP  
Arcadis Design & Consultancy  
O'Brien & Gere Engineers, Inc.

Interviews were conducted on June 12, 2019. The Authority's 2019/20 budget does not contain Board approved funding towards this specific federal regulatory required submittal. The Appomattox River Water Authority became

aware of this requirement on March 20, 2019 and immediately issued an RFP on March 31, 2019 to enable compliance by March 31, 2020 with the USEPA's requirement. The Virginia Department of Health Water Programs issued notification of the federal regulatory requirement the week of May 6, 2019 to Virginia Water Treatment Facilities. USEPA will be issuing compliance documents for Water Facilities in August 2019. The funds needed to complete the federally required compliance activities will be taken from the Board approved FY 2018/2019 Replacement Fund Account 58070 - Special Studies, where \$200,000 is available. This work will begin in August 2019.

The RFP No. 19-01 America's Infrastructure Act Compliance review team recommends the following:

**BOARD ACTION REQUESTED:**

Whitman, Requardt & Associates, LLP professional qualifications and proposed Scope of Work were deemed most meritorious. Staff requests that the Board grant approval of the award of the services to provide for the compliance with the USEPA by March 31, 2020 for a lump sum not to exceed amount of \$145,442 to Whitman, Requardt & Associates, LLP Consulting Engineers. Any additional funds expended will be at the discretion of the Executive Director, not to exceed ten percent of the lump sum fee.

## Task Order No. 001

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### **ARWA-WRA - America's Water Infrastructure Act 2018 Risk and Resilience Assessment and Emergency Response Plan**

Whitman, Requardt and Associated is pleased to provide the Appomattox River Water Authority (ARWA) with professional engineering services to perform a risk and resilience assessment update and an emergency response plan update to the ARWA's water system in conformance with the America's Water Infrastructure Act of 2018 (AWIA).

Subsequent to the Bioterrorism Act of 2002, a Vulnerability Assessment (VA) and Emergency Response Plan were developed for the ARWA by two WRA employees (while working together at another engineering Firm). **Karen Moran** (now in WRA's Baltimore Office) served as the Project Manager and **Terry Legg** (now in WRA's Virginia Beach office) served as the Project Engineer for the initial VA and ERP. Karen will perform the QA/QC duties and Terry will be the Project Manager and Workshop Leader for this ARWA risk and resilience assessment (RRA) and emergency response plan (ERP).

Since the original VA's were conducted, the American Water Works Association (AWWA) has developed and updated software (Vulnerability Self-Assessment Tool, or VSAT) that automates many of the mathematical formulas that had to be hand calculated in the Sandia RAM-W process that was originally used for the ARWA VA. It is designed to be consistent with the ANSI/AWWA J100-10 Risk Analysis and Management for Critical Asset Protection (RAMCAP®) Standard for Risk and Resilience Management of Water and Wastewater Systems. To meet this standard, VSAT includes quantitative risk and resilience metrics, asset prioritization, and a new threat category to assess interdependencies.

VSAT complies with the water sector risk assessment standard and can offer liability protection under the Department of Homeland Security's Support Anti-Terrorism by Fostering Effective Technologies (SAFETY) Act program.

VSAT includes abbreviated lists and default assignments for common utility assets, countermeasures, and threats.

Terry Legg has conducted VA's using VSAT and has been to a two-day training workshop on the new version of VSAT. WRA proposes to use VSAT to assist with conducting the RRA. VSAT will be used in some of the workshops and some data will be input into the software outside of the workshop. The benefit to ARWA for using VSAT is the database created using VSAT will be given to ARWA at the end of the RRA and ARWA can use this database for future updates to their RRA that must be completed every five (5) years.

EPA strongly encourages drinking water and wastewater utility owners and operators to use VSAT to conduct or update an all-hazards risk assessment. VSAT is currently undergoing some minor updates and is expected to be released in August, 2019. EPA is also scheduled to release a separate, new ERP tool and guidance concurrent with the updated VSAT.



## **BACKGROUND**

The AWIA requires that all community water systems serving populations greater than 3,300 persons shall assess the risks to, and resilience of, its system. The Risk and Resilience Assessment (RRA) will include the following elements:

- The risk to the system from malevolent acts and natural hazards
- The resilience of the infrastructure, including SCADA/cyber resilience
- The monitoring practices of the system
- The financial infrastructure of the system
- The use, storage, or handling of various chemicals by the system
- The operation and maintenance of the system

The detailed RRA will culminate with an implementation plan for capital and operational needs for risk and resilience management of the system. The assessment will be finalized and then certified (by the ARWA) to the Administrator of the Environmental Protection Agency (EPA) by March 31, 2020, in the case of systems serving a population of 100,000 or more.

The RRA must be reviewed at least every five years to determine if the assessment will be revised. Upon review, the water system owner will recertify the original assessment or certify a revision to the assessment.

Within six months of completion of the RRA, AWIA also requires a letter of certification to EPA that the Emergency Response Plan (ERP) for the water system is updated, and at least every 5 years thereafter. An update to the ARWA ERP is included in this Draft Scope of Work and Non-Binding Fee Estimate.

## **RRA SCOPE OF SERVICES**

WRA proposes to retain the services of a subconsultant, Applied Technology Services (ATS), Glen Burnie, Maryland, who specializes in conducting PCI compliance assessments & scanning, security assessments of computer network systems, firewall implementation, cardholder systems and maintenance, computer system vulnerability scans, and penetration testing. The FBI has identified Cyber-attacks as the number one threat to organizations such as water treatment systems. WRA is currently working with ATS on several projects in the Baltimore area. WRA proposes to use the Department of Homeland Security's Cyber Security Evaluation Tool (CSET) to assess the ARWA's SCADA and industrial controls systems.

WRA will update the RRA for the water system, including treatment facilities, storage tanks, pump stations and pipelines, financial systems, and SCADA/IT cyber security. Source water protection and asset management systems will also be assessed. The RRA will be conducted in compliance with the ANSI/AWWA J100 standard.

Results of the RRA will be documented in a report with critical asset summaries and an implementation plan for mitigation measures. ARWA will be responsible for integrating the resulting information into their Capital Improvement Plan, policies, and procedures.

The seven-step process outlined in the J100 standard provides the framework for the scope of work. The steps are as follows:

1. Asset characterization
2. Threat characterization
3. Consequence analysis
4. Vulnerability analysis
5. Threat analysis
6. Risk/resilience analysis
7. Risk/resilience management

The RRA involves a series of workshops with ARWA's key staff, field inspections of critical assets, and development of a report that is "for official use only." Summaries of the project workshops will be provided to ARWA electronically. WRA will set up a secure FTP site for transfer of sensitive/confidential documents. Sensitive/confidential documents will not be emailed.

The detailed scope of work is as follows:

## **TASK 1.0 – RISK ASSESSMENT (RRA)**

### **Subtask 1.1 Kickoff Meeting - Project Management, Data Collection, and Coordination**

WRA will conduct a kickoff meeting with ARWA staff to establish the project team and lines of communication, review the scope of services and project schedule. The schedule provided herein can be adjusted to meet the personnel availability requirements of the ARWA. The kickoff meeting will also include a discussion of the background/history related to vulnerability and resiliency for ARWA. WRA will provide a summary of the meeting to capture major discussion items, issues, and action items.

During the kickoff meeting, WRA will meet with the ARWA Executive Director to determine the RRA team participants, needs, and schedule. The following items will be discussed during the meeting:

- Project goals and schedule
- Previous vulnerability assessment document(s)
- Outside agency partners (with staff names, if available) to participate in the project (such as law enforcement, regulatory agencies, etc.)
- Coordination and information flow for the project
- Identified existing information to be reviewed by WRA

ARWA will provide a list of staff (name, role, phone, email) to participate in the project as the RRA Team. Participants in the RRA should include, but are not limited to, the Director and senior staff in the areas of

Communications, Engineering, Finance, Human Resources, Operations, Customer Service, IT and SCADA, and Safety. Additional participants on the RRA team may include representatives from Police, the local hazardous materials team and Fire department, state and local regulatory agencies, LEPC, and a local Department of Homeland Security representative. Including the additional participants in some of the project workshops is required by AWIA and provides critical information about threats to the utility and promotes an understanding of the water system to all participants, particularly first responders.

### **Data Collection and Review**

ARWA will provide the following documents (if they exist) to WRA for review:

1. Existing security plans and procedures,
2. Previous vulnerability and risk assessments,
3. Emergency response plans,
4. Continuity of Operations Plan,
5. SCADA system information,
6. Human resources policies,
7. Door lock/key policies,
8. Security camera use and policies,
9. Source water protection plans,
10. Asset management program description,
11. Other documents that may be related to the vulnerability and resiliency of ARWA.

WRA will review the documents in preparation for Workshop #1.

### **Subtask 1.2 – Workshop #1 - Project Chartering Workshop, Field Visits, and SCADA/Cyber Assessment**

WRA will conduct a Project Chartering Workshop (Workshop #1) with the participants identified during the Kickoff Meeting. Agenda to include a discussion of project purpose and goals, J100 standard process, logistics, information confidentiality, document review process, roles of project participants, identification of potentially critical assets, identification of potential threats, next steps and project schedule. Field visits and SCADA/Cyber Assessments will also be performed during Workshop #1.

The potentially critical assets will begin with those included in the previous vulnerability assessment and will be appended as needed during the workshop. The assets will be ranked until the most critical assets are determined based on consequence of loss. By the J100 Standard definition, a critical asset is an item of value to the utility that, if incapacitated, could result in significant damage to the utility or community to the extent that the utility would be unable to meet its mission. Assets include physical elements, cyber elements, and human elements (critical knowledge or functions of people).

Attendees will discuss and choose the most viable threats to the water system. Development of the list of threats begins with the previous vulnerability assessment, the regional natural hazard mitigation plan, the list of threats from J100, knowledge of threats by WRA from experience, and utility staff historical knowledge. From the list of threats, WRA will develop probability of occurrence values for each threat, based on J100 information and historic values.

This scope and fee are based on up to approximately 15 threats (more if needed) to be used in the J100 analysis. During the second part of the workshop, attendees will re-establish the consequence levels to consider if an asset is lost for any period.

Consequence levels will be updated from the previous assessment, and are typically categorized by:

1. Environmental impact
2. Sickness/Injury and loss of life
3. Cost to remediate and economic loss
4. Public perception
5. Loss of service

WRA will assist ARWA in developing an overall consequence of loss value and monetary amount for loss of each potentially critical asset. The assets will be ranked by consequence and the list of critical assets to be considered in the risk analysis will be approved by the ARWA. Approximately fifteen (15) critical assets for further analysis have been assumed for development of this scope and fee.

WRA will compile individual asset sheets summarizing field and risk analysis results for use in the RRA report.

### **Field Visits**

WRA will visit the ARWA facilities to determine potential vulnerabilities, security issues, and mitigation measures. The field visit will be conducted with ARWA operational staff. For some assets, a night visit will also be conducted to assess lighting at the facility and to better observe potential vandal/criminal activity in the area. The field visits will be performed by WRA and ATS personnel that are subject matter experts in the following:

- Vulnerability Assessments
- Physical Security
- Dam and Intake
- Treatment Plant Facilities
- Pumping and Transmission Facilities
- Source Water Protection
- SCADA Systems

- Information Technology
- Drone Inspections
- Business Continuity Planning

Through the field visit and meetings with ARWA staff, WRA will gather information on physical and personnel security, access control, systems controls, protection of the source water, and hiring/firing/Human Resources procedures.

WRA will assist the ARWA to request Computer-Aided Dispatch (CAD) crime information for critical asset areas from the local police department.

### **SCADA/Cyber Assessment**

WRA will utilize the Department of Homeland Security (DHS) Cyber Security Evaluation Tool (CSET), to review ARWA's cyber vulnerabilities, particularly as they relate to the SCADA system. Any existing ARWA cyber assessment will be updated during a meeting with technical staff aware of ARWA's SCADA network and Information Technology layout. The report from the cyber evaluation tool will be included in the RRA report appendix. It will include a list of action items for improved SCADA and cyber security for ARWA to consider.

### **Subtask 1.3 – Workshop #2 - Risk Calculations and Results, Mitigation Measures for Critical Assets, Cost-Benefit Analysis, and Asset Management System Review**

WRA will pair each threat with each critical asset (e.g. 15 assets paired with 15 threats yields 225 threat-asset pairs) in an electronic table. Additional threat-asset pairs will be assessed and included in the RRA as determined by the ARWA.

The calculation of risk is a function of threat likelihood, vulnerability, and consequence. During Workshop No. 2, WRA and ARWA will develop the threat and vulnerability values, to complement the consequence of loss values from Workshop No. 2, so that an updated risk value can be developed for each critical asset.

WRA will assist the ARWA to develop these values during Workshop No. 3, along with potential mitigation measures that can lower risk. The work and discussions during this workshop will result in risk information to focus mitigation strategies on critical assets with the highest risk. The resulting list of critical assets ordered by risk (from highest to lowest) will be provided to the ARWA for approval.

With the understanding of which threat-asset pairs have the greatest risk, the RRA Team will discuss and develop mitigation measures for critical assets. Mitigation measures may include policy and procedure changes, physical security improvements, general changes at facilities, SCADA/Cyber changes, needs for additional hires, etc.

WRA will document the suggested mitigation measures for each of the high-risk threat-asset pairs, and the overall mitigation measures in the draft RRA report. ARWA will select which mitigation measures are most practical and efficient to retain in the final RRA report. WRA will develop order-of-magnitude costs to implement the mitigation strategies for high-risk threat-asset pairs.

WRA will estimate the benefit of each mitigation measure for high risk threat-asset pairs in terms of risk reduction. (For example, there is a high cost-benefit of using a \$20,000 generator at a site which, if it failed

due to power loss, would cause \$0.5 Million of damage or loss to the water system). WRA will summarize the simple cost-benefit analysis for each of the mitigation strategies based on the J100 Standard in the RRA report.

The requirements of the RRA include an assessment of the operation and maintenance of the water system. WRA will review the status of an asset management program and identification of any gaps that could be filled to make the ARWA more resilient. The results of the assessment will be included in the RRA Report.

WRA will also update the Utility Resilience Index (URI) from J100 Standard Appendix H, through research and staff discussions. The URI results will be included in the RRA report.

#### **Subtask 1.4 – DRAFT RRA Report and Implementation Plan**

WRA will develop a new RRA report to describe the information from the J100 process, and VSAT, and provide the data and results of the assessment. The mitigation measures chosen by ARWA will be established in an implementation plan, which can be used by the ARWA to prioritize and schedule implementation of the mitigation measures. In addition to the VSAT RRA output, all additional assessments will be combined in the RRA report body or appendices as appropriate. The RRA report will include summaries (typically two-page) for each critical asset.

#### **Subtask 1.5 – Final RRA Report and Certification Form**

WRA will revise the DRAFT report and provide the final document in electronic format with 1 paper copy. The Certification Form will be provided for ARWA's Executive Director's signature. ARWA will certify by letter to the Administrator of the Environmental Protection Agency (EPA), that the RRA has been completed. Such certification will remain valid for five years. It is recommended that ARWA perform a review after four years, such that updates can be incorporated (under future work authorization) and the ARWA can recertify to EPA that the RRA has been updated. The final RRA document delivery will include a presentation of the RRA results to the ARWA Board of Directors by WRA personnel.

### **EMERGENCY RESPONSE PLAN SCOPE OF SERVICES**

AWIA requires that an ERP be updated to include mitigation measures for the findings of the RRA. Mitigation measures include strategies and resources to improve resilience, including physical security and cybersecurity; Plans, procedures, and equipment for responding to a malevolent act or natural hazard; Actions, procedures, and equipment to lessen the impact of a malevolent act or natural hazard, including alternative source water, relocation of intakes, and flood protection barriers; Strategies to detect malevolent acts or natural hazards.

#### **TASK 2.0 - EMERGENCY RESPONSE PLAN (ERP)**

The ARWA's ERP will be updated through a series of meetings with the Executive Director and his selected staff.

#### **Subtask 2.1 - Review Existing Emergency Response (ERP) Plan documents**

WRA will meet with the ARWA Executive Director and his selected staff and will collect all available existing emergency response plan documents for review and potential use in preparing the updated ERP. Documents for review may include:

- Emergency Action Plan (2014)
- Emergency Management Plan for Extended Power Outages
- Emergency Response Plan for Terrorism
- Hurricane Response Plan
- Pandemic Influenza Response Plan
- Biological Emergency Response Plan
- Severe Weather Response Plan
- Emergency Communications Directory

**Subtask 2.2 - Identify additional input required by the AWIA 2018 and results of the RRA from Subtask 2.1 above and prepare supplemental ERP Content**

WRA will meet with the ARWA Executive Director and his staff to discuss consequence mitigation for malevolent and natural threats identified in the RRA and as required by the J100 Standard. The existing ERP will be updated, and “Rip-and-Run” Sheets to augment the existing documents referenced in Task 2.1 above. “Rip-and-Run” sheets are detailed flowcharts documenting what process to follow during the many different stages of a crisis situation. They provide emergency phone numbers for ARWA and first responder personnel and include a table for recording actions taken during the event. They are prepared in accordance with the goals and objectives of the National Infrastructure Protection Plan.

“Rip-and-Run” Flowcharts and Tables will be created for the following Threats:

- Contamination - Source Water
- Contamination - Water Treatment Facility
- Threats of Weapons of Mass Destruction (including Bomb Threats)
- Virtual Attack - Cyber Intrusion
- Physical Attack - Raw Water Intake
- Physical Attack - Raw Water Pump Station
- Physical Attack - Finish Water Pumping at Water Treatment Facility
- Fire / Explosion
- Earthquake
- Severe Weather
- Blackouts

### **Subtask 2.3 – Draft ERP**

WRA will meet with the ARWA Executive Director and his staff (as appropriate) for the purpose of delivering and reviewing the Draft ERP.

### **Subtask 2.4 – Final ERP and Project Closeout**

Upon addressing final comments, WRA will deliver the Final ERP and associated files. ARWA will certify by letter to the Administrator of the Environmental Protection Agency (EPA), that the ERP has been completed. Such certification will remain valid for a period of five years. It is recommended that ARWA perform a review after four years, such that updates can be incorporated (under future work authorization) and the ARWA can recertify to EPA that the ERP has been updated.

### **KEY ASSUMPTIONS**

1. ARWA is responsible for workshop logistics, including scheduling and workshop location.
2. WRA will provide subject matter experts to facilitate the meetings, workshops, and field visits.
3. WRA will provide meeting/workshop summaries documenting major discussion items, issues, and action items.
4. All existing documents will be provided by ARWA in electronic files (or hard-copy) which can be utilized in the RRA.
5. Existing data and new information will be input into the EPA's VSAT software.
6. ARWA staff comprising the RRA Team will attend each of the project workshops.
7. WRA will discuss the use of the EPA's new (under development) AWIA ERP software tool and guidance if requested by the ARWA.
8. The ARWA Executive Director will be involved throughout the project and will sign the final RRA Report.
9. All decisions in this project are those of ARWA staff and not WRA.
10. All documents will be delivered electronically with the exception of one paper copy of the RRA and ERP.

### **COMPENSATION**

WRA will be compensated for the scope of services on a lump sum basis, not to exceed **\$145,442.00** based on the estimated level of effort shown in the following Manhour and Fee Proposal spreadsheet. Actual direct labor cost times a multiplier of 2.55 will be used for invoicing of our services. Reimbursable expenses and Subconsultants will be invoiced at direct cost. Mileage shall be reimbursed at \$0.58 per mile and will be subject to an annual adjustment beginning on February 3, 2020.

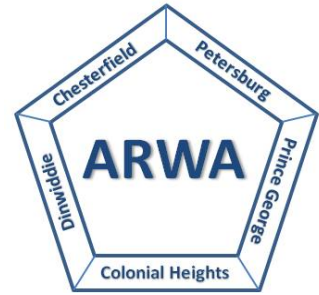


- **Alum Settlement Payment Review/Discussion**

- **Approval of Services for Work for Development of a Long-Term Hydrilla Management Plan**

Following is a memo and scope of work services to develop a Long-Term Hydrilla Management Plan at the ARWA

# Appomattox River Water Authority



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21300 Chesdin Rd. - S. Chesterfield, VA 23803 - Phone (804) 590-1145 - Fax (804) 590-9285

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## MEMORANDUM

**TO: APPOMATTOX RIVER WATER AUTHORITY  
BOARD OF DIRECTORS**

**FROM: ROBERT C. WICHSER, EXECUTIVE DIRECTOR  
JAMES C. GORDON, ASSISTANT EXECUTIVE DIRECTOR**

**SUBJECT: AWARD FOR DEVELOPMENT OF A LONG TERM HYDRILLA  
MANAGEMENT PLAN**

**DATE: JULY 25, 2019**

On April 14, 2019 ARWA advertised for proposals related to the development of a long-term Hydrilla Management Plan for the Chesdin Reservoir. Proposals were due on May 10, 2019 at 2:00 PM. The Hydrilla Management Plan will serve as an outline of the steps that the ARWA will take to implement management of Hydrilla, as well as to provide documentation of the analysis that went into the decision to pursue control of Hydrilla in the Chesdin Reservoir. The Management Plan will support a broader program to minimize the establishment and spread of Hydrilla, and include an extensive public consultation aspect. The strategy will be adaptive and may be revised as needed based on lessons learned from management efforts each year. Water quality monitoring, along with plant and tuber survey work in the reservoir, will be an integral part in evaluating the success of the Management Plan and adapting the control strategy as necessary. ARWA indicated in the Request for Proposal that the firm selected to complete this Plan shall have experience with not only the technical needs of this Plan, but also with community meetings and public interaction.

Proposals were received from Golder Associates Inc. and Hazen and Sawyer, both with offices located in Richmond, Virginia. Both firms were interviewed on June 14, 2019. The interview team also reviewed the non-binding cost proposals that both firms submitted. The Authority's 2019/20 budget presently contains Board approved one year funding of \$150,000 towards this specific program development. This work will begin in August 2019.

The RFP No. 19-02 Hydrilla Management Plan review team recommends the following:

### **BOARD ACTION REQUESTED:**

Staff requests that the Board grant approval of the award of the services for two (2) years to provide for the development of a long-term Hydrilla Management Plan for a lump sum not to exceed amount of \$152,400 to Golder Associates Inc. consulting engineers. Any additional funds expended will be at the discretion of the Executive Director, not to exceed ten percent of the lump sum fee.

July 15, 2019

Proposal No. P19122981

**Mr. Robert Wichser**

Appomattox River Water Authority  
21300 Chesdin Road  
South Chesterfield  
Virginia 23803

**RE: PROPOSED SCOPE OF WORK HYDRILLA MANGEMENT PLAN – LAKE CHESDIN**

Dear Robert,

Golder Associates Inc. (Golder) is pleased to present our Scope of Work to Appomattox River Water Authority (ARWA) in response to RFP# 19-02 for the development of a Hydrilla Management Plan for Lake Chesdin. The following Scope of Work details the proposed efforts presented to ARWA in response to RFP# 19-02 on May 10, 2019.

The Scope of Work includes the following tasks;

- Public Consultation and Outreach Programs,
- Hydrilla Assessment Surveys, and
- Hydrilla Management Plan Development.

## **1.0 TASK 1 - PUBLIC CONSULTATION AND OUTREACH PROGRAMS**

This task includes work associated with the involvement to develop public and stakeholder support for the development and implementation of the plan and provide public notification and education.

Golder will provide qualified personnel to answer questions related to this project and will make available the relevant expertise to ARWA. During public interactions, Golder project personnel will liaise with the public on behalf of ARWA.

### **1.1 Task 1A - Public Meetings**

Public meeting will be scheduled for discussions with interested parties and provide information on the proposed scope of work, provide updates, and to develop public support. The first meeting will be scheduled after the initial aquatic plant survey. The meeting will be held at ARWA's Chesdin Road facility attended by a Golder qualified biologist to address questions and comments.

Public presentations will be scheduled annually to provide ongoing updates of the assessment results for the public and stakeholders and will be conducted with ARWA's support annually at ARWA's Chesdin Road facility.

The public meetings are tentatively scheduled for September 2019, October 2020, and July 2021.

## 1.2 Task 1B - Public Notifications

Golder will develop informational brochures for distribution to lake community residents and lake users. The brochure shall be mailed to all landowners on the lake shore, and made available at all boat ramps, marinas, and campgrounds located on the lake. The information will be provided to ARWA for posting on ARWA's website, if requested. A brochure will be mailed to community residents prior to the first public meeting. The brochure will include the following topics:

- Information about Hydrilla and potential impacts of uncontrolled growth;
- Tips on identification of Hydrilla and preventing the transport of Hydrilla;
- Activities performed by ARWA to address the infestation;
- Proposed activities, details on the development of a Hydrilla Management Plan; and
- Support for public involvement and contact information.

Annual updates shall be developed for the public during the assessment phase and will be provided to community residents and interested parties. The information will be provided in the form of brochures and email notifications. If requested, the updates will be provided to ARWA for posting on ARWA's website.

## 1.3 Task 1C - Public Education and Outreach

Golder will set up training sessions for interested parties and community residents with a qualified Golder biologist for lake-side plant identification. The intent is to increase public involvement and awareness and provide training to assist ARWA with Hydrilla identification. Golder will attempt to recruit volunteers to assist with plant monitoring.

Golder will provide contact information with the public notifications and act as an intermediary to ARWA for public enquiries and will liaise with the public on behalf of ARWA, as required. Golder will provide a means for community residents and boaters to contact qualified biologists for aquatic plant identification. This service will allow residents to send photographs via email of unidentified aquatic plants. The photographs will be used for visual identification and will also allow geolocation of the photo for assisting with the plant surveys.

Golder anticipates two training sessions in 2019 and additional sessions in 2020 as required. The training sessions will preferentially take place on a weekend for up to ½ day each session.

## 2.0 TASK 2 - HYDRILLA ASSESSMENT SURVEYS

Two survey monitoring programs are proposed to facilitate development of the Hydrilla Management Plan. The first monitoring program is designed to evaluate Hydrilla tuber distribution and density and will be performed prior to spring Hydrilla emergence. Subsequently, after emergence, monitoring the Hydrilla distribution and biomass will be performed during the growing season.

Prior to performing the survey activities, a GIS based sampling/survey grid will be developed for use throughout the monitoring and management program. The survey grid will attempt to incorporate similar aquatic habitats encountered in Lake Chesdin and minimize the number of survey locations to the extent possible. Golder personnel to accurately locate sample points in the field and record the survey using ESRI ArcMap GIS software.

### 2.1 Task 2A - Tuber Monitoring

Golder will conduct tuber monitoring in early spring during the Hydrilla emergence stages to characterize the tuber populations and growing period. Tube samplers will be driven into the sediment for collecting sediment samples.

The sediment will be washed and the tuber/turion population counted. Tuber monitoring will be performed with ARWA's support by utilizing the ARWA pontoon boat and captain.

An initial comprehensive tuber survey prior to emergence will be conducted in early spring 2020 and 2021, followed by a limited survey at up to 4 locations each spring on a weekly basis until emergence is characterized. Golder anticipates the comprehensive tuber survey will be performed over a 5 day period in March or April, followed by ½ day follow-up surveys each week for 4-5 weeks.

## **2.2 Task 2B – Aquatic Plant Monitoring**

Aquatic plant monitoring for Hydrilla identification will be performed during the growing season to assess the extent of Hydrilla and document impacts on the lake. Suitable survey times would be mid-summer and early fall.

Visual monitoring methods using a high-resolution color underwater video camera will be used. Visual assessment will include side and bottom substrate views at each survey location to document vegetation characteristics in terms of their species composition, areal coverage, and estimated biomass volume by qualified Golder biologists. The sample locations will be determined using sub-meter GPS and record the survey results using ESRI ArcCollector GIS for incorporating the results directly into ESRI ArcMap GIS mapping software. The surveys will be performed with ARWA's support by utilizing the ARWA pontoon boat and captain.

Golder recommends limiting the aerial extent of monitoring due to the size of the lake and varied aquatic habitats encountered in Lake Chesdin to reduce costs. Golder proposes conducting two surveys during the 2019 and 2020 growing season in to establish baseline conditions. The surveys will be limited to two 5-day surveys each growing season. The vegetation surveys will be performed by trained biologists and conducted using a 2-man crew. The surveys will be scheduled based on lake water visibility conditions and will likely be performed in August and October.

## **2.3 Task 2C - Water Quality Monitoring**

Water quality monitoring will be performed in conjunction with each aquatic plant monitoring surveys to evaluate water quality at each plant survey location. Water quality monitoring parameters to be analyzed will identify general water quality parameters and nutrients. General water quality parameters including turbidity, pH, conductivity, dissolved oxygen and temperature at selected water depths will be performed at each survey location. Nutrient analysis will include nitrate and phosphorus analysis at survey locations near potential nutrient discharges including local streams, springs, areas with potential fertilizer use, and wastewater discharges. Water quality parameters will be measured on-site utilizing calibrated multi-parameter water quality meter. Nutrient analysis will be performed using a portable HACH spectrophotometer and reagents.

## **3.0 TASK 3 - HYDRILLA MANAGEMENT PLAN DEVELOPMENT**

The Hydrilla Management Plan will be developed upon completion of the assessment monitoring program and will incorporate the baseline conditions to develop management options.

### **3.1 Task 3A – Stakeholder Meetings**

Upon completion of the assessment phase a public meeting will be held to bring the public and stakeholders together to present the findings and initiate discussions on the management approaches. Golder will provide management options for discussion and address public concerns and suggestions. Stakeholders that should be

included in addition to ARWA personnel include community residents, recreational boaters and fisherman, county officials, government agency representatives, and Kruger representatives.

A public meeting will also be held after the plan is developed and before the management plan is implemented to discuss management approaches and obtain feedback from the public.

Golder anticipates the two meetings will be scheduled in July and November 2021.

### **3.2 Task 3B – Plan Development**

The Hydrilla Management Plan will be developed upon completion of the assessment monitoring program. The plan will summarize the assessment activities and will also identify potential nutrient sources based on water quality monitoring. The plan will also include: plan goals and objectives including prevention, detection, mitigation objectives; education and outreach strategies; invasive species impacts; evaluation of mitigation methods and ranking; work plan development including priorities for mitigation; monitoring and management methods; and scheduling. Budget costs will be provided for management strategy implementation.

## **4.0 SCHEDULE**

Field activities will be conducted over a 3 year period incorporating summer monitoring periods in 2019 and 2020, along with the 2021 spring tuber monitoring for two full growing seasons. Assessment field activities will be completed in the spring of 2021. The comprehensive tuber monitoring survey will be scheduled for March or April 2020 and 2021 and will be performed over a 5 day period, followed by ½ day follow-up surveys each week for 4-5 weeks. The aquatic plant surveys will be scheduled for 2019 and 2020 and will be limited to two 5-day surveys each growing season. The first aquatic plant survey will be performed in August 2019. The Management Plan will be developed after the final tuber survey is completed and finalized after the stakeholder meeting scheduled in November 2021

The public outreach programs will commence upon notice to proceed. The initial public meeting will be conducted in October 2019.

## **5.0 LIMITATIONS**

Golder services are conducted in a manner consistent with the level of care and skill ordinarily exercised by other members of the consulting community currently practicing under similar conditions subject to the time limits and financial and physical constraints applicable to the services. Our scope of services is based on the following understandings:

- Site induction training including water hazards identification is required for site work.
- ARWA will delineate all known private subsurface utilities within the work area prior to initiation of subsurface intrusion activities by Golder.
- ARWA will make the pontoon boat and/or jon boat available for completing surveys.
- ARWA will provide a pilot for the pontoon boat during vegetation surveys.
- Golder's work plan for surveys is based on information provided by ARWA.
- Field work activities will be performed during day-light hours, Monday through Friday.

- Plant monitoring surveys will be visual using underwater video camera. Golder assumes the surveys will be completed during period of low turbidity. If visual observations cannot be performed, additional time will be required to conduct each survey using rake-toss survey methods.
- The aquatic plant surveys will be limited to two 5-day surveys each growing season. The vegetation surveys will be conducted using a 2-man crew. An estimated 250 survey locations will be completed during each 5-day period.

## 6.0 TERMS AND CONDITIONS

Golder proposes to perform the services presented herein in accordance with the attached terms and conditions. If you agree with the attached terms and conditions, please sign and return the attached Proposal Acceptance Form.

## 7.0 CLOSING

Golder appreciates the opportunity to submit this Scope of Work to ARWA. Should you have any questions or need any additional information, please do not hesitate to contact us.

**Golder Associates Inc.**



Peter Nash

*Senior Hydrogeologist and Associate*

PWN

CC: James Gordon, Assistant Executive Director, ARWA, 21300 Chesdin Road,  
South Chesterfield, VA 23803

Attachments: Golder Terms and Conditions  
Proposal Acceptance Form

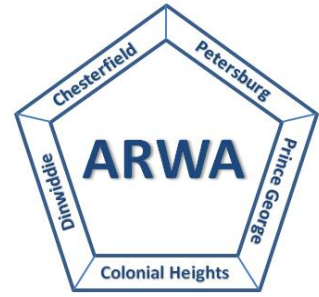
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- **Status Report: Ongoing Projects / Operations / Financials**

Following are status reports concerning the Ongoing Projects, Operations, and Financials for the ARWA.



# Appomattox River Water Authority



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21300 Chesdin Rd. - S. Chesterfield, VA 23803 - Phone (804) 590-1145 - Fax (804) 590-9285

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## MEMORANDUM

**TO: APPOMATTOX RIVER WATER AUTHORITY: BOARD OF DIRECTORS**

**FROM: ROBERT C. WICHSER, EXECUTIVE DIRECTOR  
JAMES C. GORDON, ASSISTANT EXECUTIVE DIRECTOR**

**SUBJECT: STATUS REPORT – ON-GOING PROJECTS**

**DATE: JULY 25, 2019**

The following projects are underway. This report includes sections on Capital projects and large replacement projects.

### In-Plant Capital Projects:

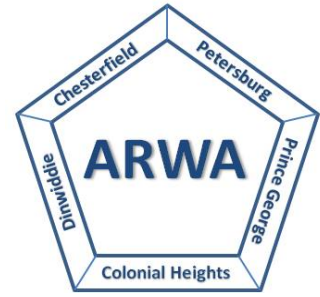
#### Phase I

- Construction is ongoing. Finished water pump no. 9 was installed in June and the five day test will begin the week of July 15<sup>th</sup>.
- Finished Water Pumps 7, 8, and 10 have been delivered and anticipate installation in July/August.
- Pentair has been put on notice that they are in breach of contract due to scheduling delays.

#### Phase II

- Phase 2 design includes a roof for the chlorine dioxide tank farm, two new double wall hypochlorite tank for post chlorination, and electrical upgrades to panels associated with the filter gallery and the prechemical building. 90 percent plans have recently been submitted and a design team meeting is in the progress of being scheduled. Anticipate advertising this project in July/August 2019 timeframe.

# Appomattox River Water Authority



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21300 Chesdin Rd. - S. Chesterfield, VA 23803 - Phone (804) 590-1145 - Fax (804) 590-9285

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## MEMORANDUM

**TO: APPOMATTOX RIVER WATER AUTHORITY BOARD OF DIRECTORS**

**FROM: ROBERT C. WICHSER, EXECUTIVE DIRECTOR  
JAMES C. GORDON, ASST. EXECUTIVE DIRECTOR**

**SUBJECT: OPERATING AND FINANCIAL STATUS REPORT**

**DATE: JULY 25, 2019**

### Operating Status Report

#### General:

- The next scheduled normal Board of Directors Meeting is **Thursday September 12, 2019** at the South Central Wastewater Authority at 2:00 pm.
- The final quarterly invoices for FY2019 were distributed with the FY2016-2018 and FY2019 adjustments
- Staff is preparing for Robinson, Farmer, Cox to perform the annual audit in August.
- The Annual AWWA Partnership data was submitted.

#### Operations:

- Finished water met all permit requirements for May and June 2019. Copies of the VDH monitoring reports are available if anyone would like to see them.
- Staff is currently performing their annual summer cleaning of the sedimentation basin
- Working with the In-Plant contractors to perform testing on the newly installed pumps.

#### Maintenance:

- Irrigation inspections are being scheduled as applications are received. To date, we have received 60 applications.
- Staff is in the process of updating the polymer feed system.
- Coordinating repairs to Flocculator #2. A new shaft needs to be installed and aligned.
- Staff is arranging for directional boring to run fiber from finish water pump station 1 to under the lab

#### Instrumentation/IT:

- Filter Operating Table installations are complete. Final programming is ongoing.
- Fiber pulls that were required by our staff for the network upgrade have been completed.

#### Laboratory:

- All annual proficiency tests were passed for state certification.
- Preparing and coordinating for Whole Effluent Toxicity sampling next month.

**Financial Status Report:**

Following is the Executive Summary of the Monthly Financial Statement that includes the *Preliminary* YTD Budget Performance and Financial Statement for the fiscal year ending June 30, 2019.

**Appomattox River Water Authority-Balance Sheet**  
For Month Ending June 30, 2019

**Assets**

**Current Assets**

Petty Cash	\$	400
SunTrust Operating Fund	\$	1,375,654
SunTrust Replacement Fund	\$	119,437
<b>Total Unrestricted Cash</b>	<b>\$</b>	<b>1,495,491</b>
Water Revenue	\$	3,153,267
Reserve Account	\$	3,132,731
Replacement Account	\$	808,256
Debt Service Reserve	\$	1,063,862
Bond Principal/Interest	\$	3,524,756
Bond Construction	\$	6,067,231
<b>Total Restricted Cash</b>	<b>\$</b>	<b>17,750,102</b>
<b>Total Checking/Savings</b>	<b>\$</b>	<b>19,245,593</b>
Accounts Receivable	\$	2,863,317
Other Current Assets	\$	12,936
Inventory	\$	264,923

**Total Current Assets** **\$ 22,386,769**

**Fixed Assets**

Land and Land Rights	\$	1,090,685
Water System	\$	85,625,821
Equipment	\$	1,176,668
Hydro	\$	34,873
Construction in Progress	\$	803,082
Accumulated Amortization	\$	(34,175)
Accumulated Depreciation	\$	(47,059,529)
<b>Total Fixed Assets</b>	<b>\$</b>	<b>41,637,425</b>

**Other Assets**

Def Out Res-Post ER Pension Costs	\$	74,997
Deferred Outflow-OPEB GLI	\$	7,729
Def Out Res-Net Dif Pension Inv	\$	36,171
<b>Total Other Assets</b>	<b>\$</b>	<b>118,897</b>

**Total Assets** **\$ 64,143,091**

**Liabilities & Equity**

**Current Liabilities**

Accounts Payable	\$	326,155
Retainage Payable	\$	-
Accrued Interest Payable	\$	198,754
<b>Total Current Liabilities</b>	<b>\$</b>	<b>524,909</b>

**Long Term Liabilities**

Def Inf Res-Pen Chg Assumptions	\$	132,365
Def Inf Res-Pens Dif Proj/Act E	\$	82,326
Net Pension Liability	\$	(118,326)
Def Infl-OPEB Chg of Assumptions	\$	3,106
Deferred Inflow-OPEB GLI	\$	16,000
Bonds Payable-2010	\$	7,415,016
Bonds Payable-2012	\$	2,372,000
Bonds Payable-2017	\$	12,750,000
Accrued Leave Payable	\$	167,383
Post Employment Benefit	\$	107,038
OPEB Liability-GLI	\$	119,000
<b>Total Long-Term Liabilities</b>	<b>\$</b>	<b>23,045,908</b>

**Total Liabilities** **\$ 23,570,847**

**Equity**

Retained Earnings	\$	(3,281,219)
Reserve for Operations	\$	3,341,142
Reserve for Water Revenue	\$	5,991,639
Reserve for Replacements	\$	500,000
Reserve for Bond Interest	\$	198,754
Reserve for Debt Service	\$	2,142,022
Reserve for Bond Principal	\$	1,370,000
Reserve for Reserve	\$	2,602,136
Fixed Assets, Net of Debt	\$	30,696,880

**Total Equity** **\$ 40,572,243**

**Total Liabilities & Equity** **\$ 64,143,091**

\$ -

Appomattox River Water Authority  
YTD Income Statement for the period ending June 30, 2019

Water Rate Center

Revenues and Expenses Summary

Budget	Budget	Actual	YTD Budget	Variance
FY 18/19	Year-to-Date	Year-to-Date	vs. Actual	Percentage

**Operating Budget vs. Actual**

**Revenues**

Water Sales	\$ 10,163,119	\$ 10,163,119	\$ 10,855,487	\$ 692,369	6.81%
Misc. Revenue	\$ 30,000	\$ 30,000	\$ 52,479	\$ 22,479	74.93%
<b>Total Operating Revenues</b>	<b>\$ 10,193,119</b>	<b>\$ 10,193,119</b>	<b>\$ 10,907,966</b>	<b>\$ 714,848</b>	<b>7.01%</b>

**Expenses**

Personnel Cost	\$ 2,378,100	\$ 2,378,100	\$ 2,312,975	\$ (65,125)	-2.74%
Contractual/Professional Services	\$ 952,500	\$ 952,500	\$ 840,348	\$ (112,152)	-11.77%
Utilities	\$ 824,000	\$ 824,000	\$ 818,599	\$ (5,401)	-0.66%
Communication/Postal/Freight	\$ 39,200	\$ 39,200	\$ 39,005	\$ (195)	-0.50%
Office/Lab/Purification Supplies	\$ 101,000	\$ 101,000	\$ 103,593	\$ 2,593	2.57%
Insurance	\$ 90,000	\$ 90,000	\$ 85,804	\$ (4,196)	-4.66%
Lease/Rental Equipment	\$ 20,000	\$ 20,000	\$ 15,207	\$ (4,793)	-23.96%
Travel/Training/Dues	\$ 51,400	\$ 51,400	\$ 36,894	\$ (14,506)	-28.22%
Safety/Uniforms	\$ 26,000	\$ 26,000	\$ 24,087	\$ (1,913)	-7.36%
Chemicals	\$ 2,300,000	\$ 2,300,000	\$ 2,095,977	\$ (204,023)	-8.87%
Repair/Maintenance Parts & Supplies	\$ 330,000	\$ 330,000	\$ 199,877	\$ (130,123)	-39.43%
<b>Total Operating Expenses</b>	<b>\$ 7,112,200</b>	<b>\$ 7,112,200</b>	<b>\$ 6,572,368</b>	<b>\$ (539,832)</b>	<b>-7.59%</b>
<b>Operating Results Suplus/(Deficit)</b>	<b>\$ 3,080,919</b>	<b>\$ 3,080,919</b>	<b>\$ 4,335,599</b>	<b>\$ 1,254,680</b>	<b>40.72%</b>

**Replacement Outlay Budget vs. Actual**

Machinery & Motors	\$ 160,000	\$ 160,000	\$ 161,487	\$ 1,487	0.93%
Instrumentation	\$ -	\$ -	\$ -	\$ -	#DIV/0!
SCADA	\$ 50,000	\$ 50,000	\$ 116,617	\$ 66,617	133.23%
Computer Equipment	\$ 10,000	\$ 10,000	\$ 14,865	\$ 4,865	48.65%
Furniture/Fixtures	\$ 6,000	\$ 6,000	\$ -	\$ (6,000)	-100.00%
Motor Vehicles	\$ 28,000	\$ 28,000	\$ 35,540	\$ 7,540	26.93%
Special Studies	\$ 400,000	\$ 400,000	\$ 40,705	\$ (359,295)	-89.82%
Valve Replacement	\$ 50,000	\$ 50,000	\$ 9,034	\$ (30,966)	-61.93%
Concrete	\$ 25,000	\$ 25,000	\$ 21,000	\$ (21,900)	-87.60%
Flow Meters	\$ 40,000	\$ 40,000	\$ 13,454	\$ (26,546)	-66.36%
Replacement-Other	\$ -	\$ -	\$ 64,000	\$ 64,000	#DIV/0!
<b>Total Capital Outlay</b>	<b>\$ 769,000</b>	<b>\$ 769,000</b>	<b>\$ 468,892</b>	<b>\$ (300,198)</b>	<b>-39.04%</b>

**Construction Outlay Budget vs. Actual**

In-Plant Capital Upgrade	\$ -	\$ -	\$ 6,677,758	\$ 6,677,758	#DIV/0!
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**Debt Service Budget vs. Actual**

Interest Income	\$ -	\$ -	\$ 425,685	\$ 425,685	#DIV/0!
Interest Jurisdictions (Income)	\$ -	\$ -	\$ -	\$ -	#DIV/0!
Interest Expense	\$ -	\$ -	\$ 772,022	\$ 772,022	#DIV/0!
Principal Payments	\$ 2,142,225	\$ 2,142,225	\$ 1,370,000	\$ (772,225)	-36.05%

**Other Income**

Alum Litigation Proceeds	\$ -	\$ -	\$ 141,773	\$ 141,773	#DIV/0!
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**5. Items from Counsel**

**6. Closed Session: Personnel/Executive Director's Annual Review/Legal Matters**

**7. Other Items from Board Members/Staff Not on Agenda:**

**8. Adjourn**