

## PROPOSAL FOR PROFESSIONAL SERVICES

December 22, 2020

Mr. Mike Brofka, Water Superintendent  
West Allis Water Utility  
City of West Allis  
7525 W. Greenfield Avenue  
West Allis, WI 53214-4688

***Subject: Implementation of Recommendations for Optimal Corrosion Control Treatment***

Dear Mr. Brofka:

This letter proposal summarizes our approach for the ***Implementation of Recommendations for Optimal Corrosion Control Treatment*** for the West Allis Water Utility. This Proposal is based on the completed Desktop Corrosion Control Study, prepared by Process Research Solutions (a sub-consultant to Baxter and Woodman) in December 2019. The completion of a Desktop Corrosion Control Study by the end of 2019 was a requirement of the Wisconsin Department of Natural Resources (WDNR).

The purpose of the study was to recommend and document the actions that the West Allis Water Utility will undertake to reduce the potential for corrosion in your water system. The primary objective of the study was to identify ways to minimize the release of lead and copper from your service lines into the water at your customers' taps, where your customers' tap water quality is at "optimal" levels with regard to lead and copper concentrations.

### PROJECT DESCRIPTION

The following tasks comprise the recommended steps to provide West Allis with a "corrosion control strategy" to meet WDNR requirements as outlined in the Desktop Study. The proposed OCCT Implementation Plan will further study and document reductions in lead and copper release in the distribution system with the following recommended tasks:

1. Project Planning and Coordination
2. Milwaukee Water Works Discussions
3. Water Main Flushing Program (Modified "Source to Edge of Distribution System" Flushing)
4. Additional Flushing to Improve Disinfection Concentrations
5. Water Age Reduction Investigations
6. Pipe Scale Analysis
7. Service Line Materials Inventory
8. Service Line Profile Sampling Analysis

9. Lead and Copper Rule/Regulatory Sampling
10. PRS Monitoring Station Testing and Analysis
11. Interim Report of OCCT Implementation Results/WDNR Meeting
12. Continued Year 2021 Testing
13. Final Report for Implementation of Final Corrosion Control Strategy

## **PROJECT TEAM**

The Project Team will include members from Baxter & Woodman and Process Research Solutions, LLC of Madison, WI.

## **PROJECT APPROACH/SCOPE OF WORK**

The recommended steps to provide West Allis with a “corrosion control strategy” to meet WDNR’s requirements for optimizing corrosion control are discussed in more detail below:

### **Task 1: Project Planning and Coordination**

The overall coordination of the various tasks and sub-consultants will be carried out by the Baxter & Woodman team. Numerous “face to face” and “phone/Skype” meetings will be held to discuss upcoming tasks, results, and conclusions. Process Research Solutions (PRS) will assist Baxter & Woodman and advise West Allis throughout the Implementation Plan. Additional information regarding PRS’s scope of work is detailed in their proposal and attached as Exhibit A at the end of this Proposal.

### **Task 2: Milwaukee Water Works Discussions**

The Project Team will assist West Allis with discussions and/or other meetings with its water supplier Milwaukee Water Works. Discussions will include treated water quality issues regarding adjustment of pH for increasing chloramination effectiveness, lowering the potential for nitrification, and lowering lead release.

### **Task 3: Water Main Flushing Program**

A Water Main Flushing Program will be developed by Baxter and Woodman with assistance from West Allis Water Utility staff to develop a plan for flushing water mains from West Allis’ sources of supply to the edges of its water distribution system. The intent of the plan is to help remove chemical scales and bio-scale from the walls of the distribution system. The modified plan differs from the Uni-Directional Flushing (UDF) plan that was originally proposed which utilized the computer system to develop flushing sequences to develop a series of isolated mains to achieve a minimum 5 fps flushing velocity.

The original UDF plan closed valves within the distribution system to isolate the main being flushed to guarantee a minimum flushing velocity. Due to anticipated high initial costs to develop the plan and high labor costs to perform the actual flushing, a modified plan was

desired. The modified plan will develop a planned sequence of flushing steps that will be adjusted in the field to obtain desired flushing velocities. The plan will develop primary sequences of flushing to clean larger diameter mains that originate at West Allis' two sources of system supply from Milwaukee and work to the edges of the distribution system. Secondary sequences will then be developed to flush water mains connected to the mains cleaned in the primary sequences. The secondary sequences will be flushed from clean mains outward to the edges of system until an entire area is cleaned. Actual flushing of the system will be performed by West Allis water utility staff.

In any flushing program, the key is to remove pipe wall debris without leaving significant debris entrained in the water that can increase lead and copper transport in building plumbing. To minimize remaining debris, turbidity measurements must be taken to ensure that flushing runs do not end until the water turbidity is less than 1 NTU.

#### **Task 4: Additional Flushing to Improve Disinfection Concentrations**

Disinfection levels are currently being monitored throughout the system, including requirements established by the Total Coliform Rule. After implementing the modified Water Main Flushing Program, if lower disinfection levels continue to be observed in certain locations, plans for additional flushing to maintain disinfection levels will be developed for implementation. Disinfection data will be organized and graphed per quarter of the year to identify sites that have the lowest disinfection levels, which indicate a focus of a flushing program. Any individual sample with disinfection below a specific level will trigger the need for areal flushing.

Actual flushing of the system will be performed by West Allis water utility staff.

#### **Task 5: Water Age Reduction Investigations**

As water age in a pipe or storage tank increases, the overall "quality" of the water decreases due to a number of factors. To improve water quality, including reduced lead and copper corrosion, we will review the overall operation of all storage tanks and proposed potential operational and/or physical improvements to reduce water age in the system. Baxter & Woodman will visit each tank site and document existing conditions, review fill and draw cycles, and study the chlorine levels entering the distribution system from storage facilities.

In addition, water ages throughout the West Allis system will be simulated using the Utility's hydraulic computer model. Water age will be evaluated under varying water demand scenarios and facility operating conditions. This evaluation will include an analysis of incoming water age from the City's water supplier MWW.

A final memorandum will be written to document findings and recommendations. If needed, the existing hydraulic model could be adjusted based on findings in the storage tank study.

#### **Task 6: Pipe Scale Analysis**

An analysis of pipe scale from existing lead and galvanized iron pipes will be studied by Dr. Barry Maynard. West Allis Water Utility will collect “harvested” service lines, submit the service lines to Dr. Maynard, and pay for all associated testing fees. The significance of the pipe scale findings will be discussed in the interim and final OCCT Implementation reports.

#### **Task 7: Service Line Materials Inventory**

Identification of lead and galvanized iron water service lines is required by WDNR as part of the Lead and Copper Rule (LCR). The West Allis Water Utility will continue documenting the presence of existing lead and galvanized iron water service lines. This information will be presented in the interim and final OCCT Implementation reports.

#### **Task 8: Service Line Profile Sampling Analysis**

As required by WDNR, West Allis will need to perform a number of profile samplings on buildings with lead service lines to quantify where lead levels peak in the building or service line. A protocol for profile sampling will be developed and the data from the sampling will be analyzed and presented in the interim and final OCCT Implementation reports.

Profile sampling and its testing will be performed and paid for by West Allis Water Utility.

#### **Task 9: Lead and Copper Rule/Regulatory Sampling**

West Allis Water Utility is required to perform sampling as part of the Lead and Copper Rule and Total Coliform Rule. For the previous Desktop Study, Baxter & Woodman utilized a sub-consultant Process Research Solutions (PRS) to analyze the data from previous Lead and Copper and other required samplings. PRS will add to the regulatory historical graphs that were developed in the corrosion control study as data is produced. Data will include Lead and Copper Rule compliance data, Lead and Copper Rule water quality data, disinfection by-product data, and Total Coliform Rule data. All lead and copper and other required regulatory sampling will be performed and paid for by West Allis Water Utility.

#### **Task 10: PRS Monitoring Station Testing and Analysis**

Use PRS Monitoring Stations to gauge the Lead and Copper Release potential in the system. Two two-chamber PRS Monitoring Stations will be located in the distribution system using one lead test chamber and one copper test chamber each. We will guide West Allis in the use of the PRS Monitoring Stations and the implementation of the PRS monitoring strategy.

Our Project Team’s services with the PRS Monitoring Stations include the following:

- a. Assist with selecting the location of the PRS Monitoring Station(s) in the water distribution system.

- b. Assist with the ordering of equipment and the internal plates for the test chambers. All equipment purchases are direct through the Rundle-Spence Company.
- c. Train personnel via computer and telephone to install, startup, and monitor the PRS Monitoring Station and distribution system. An operator's manual is also included. Some supplies are needed for startup that are typically available at water utilities or can be purchased for \$300 or less.
- d. Develop a monitoring plan, monitoring budget and monitoring documents so that protocols can be followed consistently. Process Research Solutions uses a comprehensive perspective of water quality and has a plan for tracking a number of factors that shape water quality. The monitoring plan is adjusted slightly for specific characteristics of a given water system. (Note that all laboratory fees are to be paid directly by West Allis to the laboratories. Sample shipping costs to laboratories are to be paid by West Allis. There will also be field tests required; West Allis is to purchase appropriate field water analytical equipment, supplies, and reagents. All sampling labor is to be provided by West Allis.)
- e. Track the PRS Monitoring Stations' totalizer flow meter readings to determine if the station is operating properly (optional; it is best if the user is motivated to track the Station flows and take action immediately if the flows are not correct).
- f. Provide quarterly evaluation of data. Process Research Solutions has developed software for managing and evaluating monitoring data called, My Monitoring Data<sup>®</sup>. This software is not ready for purchase by others at this time. Nevertheless, it aids in managing a large amount of data and in evaluating the water quality data using the comprehensive perspective, Shewhart control charts, and other graphing and statistical methods. It is recommended that data be evaluated at least quarterly following seasonal temperature changes so that operational changes can be routinely adjusted to changing water system conditions.
- g. Make arrangements for the final sampling at the end of a scheduled monitoring period. Monitoring can continue for any length of time but it is best to have at least six months of data. A year of data is convenient for capturing seasonal temperature effects. Some stations have been in operation for over three years. At the end of a scheduled monitoring period, the metal plates can be carefully removed from the test chambers and their surfaces analyzed for chemical scales and biofilms. This adds more insight into the factors that are shaping the water quality in the water system. (Supplies and shipping costs are additional for West Allis. West Allis is to pay testing fees for chemical scale analysis and biofilm analysis.)
- h. West Allis to purchase all PRS Monitoring Stations directly.

**Task 11: Interim Report of OCCT Implementation Results/WDNR Meeting**

Prepare an interim report summarizing monitoring results, conclusions, and recommendations during 2020. The report will include a preliminary description of final corrosion control implementation, plans for re-use of PRS Monitoring Stations, and data analysis for continued water quality control and improvement. Prepare for and attend a meeting with WDNR to discuss findings.

**Task 12: Year 2021 Testing**

Continue and include updating of all LCR/Regulatory data, review and updating of PRS Monitoring data, and attending various face to face and phone/Skype meetings. Additional or “out of scope” items will include major changes required by WDNR due to regulation changes or due to monitoring results developed during 2020.

**Task 13: Final Report for Implementation of Final Corrosion Control Strategy**

Prepare a final report summarizing monitoring results, conclusions, and recommendations during 2021. Prepare and meet with WDNR to discuss final implementation of a corrosion control strategy. Revise and submit final report.

**PROJECT SCHEDULE**

Most of the tasks will be ongoing throughout the project. Critical due dates include the Interim Report due at end of year 2020 and the final report at end of year 2021 are noted below.

<b>TASK ITEM/CRITICAL DUE DATE</b>	<b>ANTICIPATED TIME FRAME</b>
1. Project Planning and Coordination	Throughout Project Duration
2. Modified Water Main Flushing Program	3/2021 through 5/2021
3. Additional Flushing to Improve Disinfection Concentrations	5/2021 through 10/2021
4. Water Age Reduction Investigations	2/2021 through 6/2021
5. Pipe Scale Analysis	Q2 2021
6. Service Line Materials Inventory	Throughout Project Duration
7. Service Line Profile Sampling Analysis	Throughout Project Duration
8. Lead and Copper Rule/Regulatory Sampling	Throughout Project Duration
9. PRS Monitoring Station Testing and Analysis	Throughout Project Duration
10a. Interim Report of OCCT Implementation Results	Early 2021
10b. Interim Report WDNR Meeting	Early 2021
11. Year 2021 Testing	1/2021 through 11/2021
12. Final Report for Implementation of Corrosion Control Strategy	Late 12/2021

## UTILITY RESPONSIBILITIES

The West Allis Water Utility shall furnish and be responsible for the following services and tasks.

1. **Information/Reports:** Furnish Baxter & Woodman and project sub-consultants with relevant project-related information, all of which Baxter & Woodman may rely upon without independent verification in performing the Services.
2. **Representative:** Designate a representative for the Project who shall have the authority to transmit instructions, receive information, interpret and define the Utility's policies, and make decisions with respect to the Services.
3. **Decisions:** Provide available information for the Project, obtain (with Baxter & Woodman's assistance, if applicable) necessary approvals, attend Project-related meetings, provide interim reviews on an agreed-upon schedule, make decisions on Project alternatives, and generally participate in the Project to the extent necessary to allow the Baxter & Woodman project team to perform the Services.
4. **Other Responsibilities:** Pay directly noted labor and costs for PRS Monitoring Stations, flushing and lab water sample testing fees associated with the Project.

## COMPENSATION

The Utility and Baxter & Woodman has agreed to perform the work on an hourly basis for services provided by the Project Team and its subconsultant. Baxter & Woodman shall be compensated monthly. Monthly charges for services shall be based on the Baxter & Woodman project team's current billing rates for applicable employees plus charges for expenses incurred. Current billing rates shall be the Actual Billing Rates of Personnel Method as summarized below.

### Actual Billable Rates of Personnel Method

Applicable billing rates of the Baxter & Woodman project team members shall be based on the actual billable rates of personnel plus the cost of expenses as outlined below.

### Expenses

The following items involve expenditures made by Baxter & Woodman employees or professional consultants on behalf of the Utility. Their costs are not included in the hourly charges made for services and shall be paid for as described in this Proposal.

1. Mileage expense at published IRS rates
2. Reimbursable non-office out-of-pocket employee expenses
3. Sub-consultant invoices

### Fee Breakdown

Our team's estimated level of effort for the scope of services for Tasks 1 through Task 13 is **\$70,900**. A breakdown of the primary tasks and fees for Baxter and Woodman and our subconsultant is noted below:



Team Member	Primary Task Assignments	Fee
Baxter and Woodman, Inc.	Planning and Coordination all tasks including Tasks 1-5, and 11-13	\$43,500
Process Research Solutions	Project Consultation for all tasks including Tasks 2 and 8-13	\$27,400
	<b>Total All Tasks</b>	<b>\$70,900</b>

Additional services not identified in our scope, or our subconsultant scope of services can be provided on a time and expense basis for the Baxter & Woodman team members involved. Additional services will only be provided upon written authorization by the City.

Sincerely,

**BAXTER & WOODMAN, INC.**  
**CONSULTING ENGINEERS**



Derek J. Wold, P.E., BCEE  
Executive Vice President



Patrick S. Planton, P.E., MBA  
Project Manager



## STANDARD TERMS AND CONDITIONS

**Agreement** - These Standard Terms and Conditions, together with the letter proposal, constitute the entire integrated agreement between the West Allis Water Utility (Owner) and Baxter & Woodman, Inc. (BW) and take precedence over any other provisions between the Parties. These terms may be amended, but only if both parties consent in writing.

**Owner's Responsibility** - Provide BW with all criteria and full information for the Project. BW will rely, without liability, on the accuracy and completeness of all information provided by the Owner including its consultants, contractor, specialty contractors, manufacturers, suppliers and publishers of technical standards without independently verifying that information. The Owner warrants that all known hazardous materials on or beneath the site have been identified to BW. BW and their consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of, or exposure of persons to, unidentified or undisclosed hazardous materials unless this service is set forth in the proposal.

**Schedule for Rendering Services** - The agreed upon services shall be completed within a reasonable amount of time allowing Owner to meet its key DNR project milestones as set forth in the Project Schedule summarized in the letter proposal. If BW is hindered, delayed or prevented from performing the services as a result of any act or neglect of the Owner or force majeure, BW's work shall be extended and the rates and amounts of BW's compensation shall be equitably adjusted in writing executed by all Parties.

**Invoices and Payments** - The fees to perform the proposed scope of services constitute BW's estimate to perform the agreed upon scope of services. Circumstances may dictate a change in scope, and if this occurs, an equitable adjustment in compensation and time shall be made by all parties. No service for which added compensation will be charged will be provided without first obtaining written authorization from the Owner.

**Opinion of Probable Construction Costs** - BW's opinion of probable construction costs represents its reasonable judgment as a professional engineer. Owner acknowledges that BW has no control over construction costs of contractor's methods of determining prices, or over competitive bidding, of market conditions. BW cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from BW's opinion of probable construction costs.

**Standards of Performance** - (1) The standard of care for all services performed or furnished by BW, will be completed with the same care and skill ordinarily used by professionals practicing under similar circumstances, at the same time and in the same locality on similar projects. (2) BW shall be responsible for the technical accuracy of its services and documents; (3) BW shall use reasonable care to comply with all applicable laws and regulations and Owner-mandated standards; (4) BW may employ such sub-consultants as BW deems necessary to assist in the performance or furnishing of the services, subject to reasonable, timely, and substantive objection by Owner; (5) BW shall not supervise, direct, control, or have authority over any contractor work (it is understood by the parties that sub-consultants are not considered "contractors"), nor have authority over or be responsible for the means, methods, techniques sequences, or procedures of construction selected or used by any contractor, or the safety precautions and programs incident thereto, for security or safety of the site, nor for any failure of a contractor to comply with laws and regulations applicable to such contractor's furnishing and performing of its work; (6) BW neither guarantees the performance of any contractor nor assumes responsibility for contractor's failure to furnish and perform the work in accordance with the contract documents; (7) BW is not responsible for the acts or omissions of any contractor, subcontractor, or supplier, or any of their agents or employees or any other person at the site or otherwise furnishing or performing any work; (8) Shop drawing and submittal review by BW shall apply to only the items in the submissions and only for the purpose of assessing if upon installation or incorporation in the Project work they are generally consistent with the construction documents. Owner agrees that the contractor is solely responsible for the submissions (regardless of the format in which provided, i.e. hard copy or electronic transmission) and for compliance with the construction documents. Owner further agrees that BW's review and action in relation to these submissions shall not constitute the provision of means, methods, techniques, sequencing or procedures of construction or extend to safety programs or precautions. BW's consideration of a component does not constitute acceptance of the assembled item; (9) BW's site observation during construction shall be at the times agreed upon in the Project scope. Through standard, reasonable means, BW will become generally familiar with observable completed work. If BW observes completed work that is inconsistent with the construction documents, that information shall be communicated to the contractor and Owner for them to address.

**Insurance** - BW will maintain insurance coverage with the following limits and Certificates of Insurance will be provided to the Owner upon written request:

Worker's Compensation:	Statutory Limits	Excess Umbrella Liability:	\$5 million per claim and aggregate
General Liability:	\$1 million per claim	Professional Liability:	\$5 million per claim
	\$2 million aggregate		\$5 million aggregate
Automobile Liability:	\$1 million combined single limit		

BW shall ensure the sub-consultants they employ on this Project maintain insurance coverage with similar limits to those set forth above. Any claim against BW arising out of this Agreement may be asserted by the Owner, but only against the entity and not against BW's directors, officers, shareholders or employees, none of whom shall bear any liability and may not be subject to any claim.

**Indemnification and Mutual Waiver** – (1) To the fullest extent permitted by law, BW shall indemnify and hold harmless the Owner, which shall include such party's officers and employees, from claims, costs, losses, and damages arising out of or relating to the Project, provided that such claims, costs, losses, or damages are attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom, but only to the extent caused by the indemnifying party's negligent acts or omissions (2) In the event claims, losses, damages or expenses are caused by the joint or concurrent fault of BW and Owner, they shall be borne by each party in proportion to their respective fault, as determined by a court of competent jurisdiction; (3) The Owner acknowledges that BW is a business corporation and not a professional service corporation, and further acknowledges, accepts, and agrees that BW's officers, directors, and employees shall not be subject to any personal liability for services provided under this Agreement.

Nothing contained within this Agreement is intended to be a waiver or estoppel of the City or its insurer to rely upon the limitations, defenses and immunities contained within Wisconsin Statutes sections 893.80 and 345.05. To the extent that indemnification is available and enforceable, the City or its insurer shall not be liable in indemnity, contribution or otherwise for an amount greater than the limits of liability for municipal claims established by Wisconsin law.

**Termination** - Either party may terminate this Agreement upon ten (10) business days' written notice to the other party in the event of failure by the other party to perform with the terms of the Agreement through no fault of the terminating party. A condition precedent to termination shall be an opportunity for the Parties to meet. If this Agreement is terminated, Owner shall receive reproducible copies of drawings, developed applications and other completed documents. Owner shall be liable for, and promptly pay for all services and reimbursable expenses rendered to the date of suspension/termination of services.

**Use of Documents** - BW documents are instruments of service and BW retains ownership and property interest (including copyright and right of reuse). Owner shall not rely on such documents unless in printed form, signed or sealed by BW or its consultant. Electronic format of BW's design documents may differ from the printed version and BW bears no liability for errors, omissions or discrepancies. Reuse of BW's design documents is prohibited and Owner shall defend and indemnify BW from all claims, damages, losses and expenses, including attorney's fees, consultant/expert fees, and costs arising out of or resulting from said reuse. Nothing herein shall restrict Owner's obligations pursuant to the Wisconsin Open Records law. BW's document retention policy will be followed upon Project closeout, and project documents will be kept for a period of 14 years after Project closeout.

**Successors, Assigns, and Beneficiaries** – Nothing in this Agreement shall be construed to create, impose, or give rise to any duty owed by Owner or BW to any third party, including any lender, Contractor, Contractor's subcontractor, supplier, manufacturer, other individual, entity or public body, or to any surety for or employee of any of them. All duties and responsibilities undertaken pursuant to this Agreement are for the sole and exclusive benefit of the Owner and BW and not for the benefit (intended, unintended, direct or indirect) of any other entity or person.

**Dispute Resolution** - All disputes between the Parties shall first be negotiated between them for a period of thirty (30) days. If unresolved, disputes shall be then submitted to mediation as a condition precedent to litigation. If mediation is unsuccessful, litigation in the county where the Project is pending shall be pursued.

**Miscellaneous Provisions** – (1) This Agreement is to be governed by the law of the state or jurisdiction in which the Project is located. (2) All notices must be in writing and shall be deemed effectively served upon the other party when sent by certified mail, return receipt requested; (3) All express representations, waivers, indemnifications, and limitations of liability included in this Agreement will survive its completion or termination for any reason; (4) Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the Owner and BW, which agree that the Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close to expressing the intention of the stricken provision; (5) A party's non-enforcement of any provision shall not constitute a waiver of the provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement; (6) To the fullest extent permitted by law, all causes of action arising under this Agreement shall be deemed to have accrued, and all statutory periods of limitation shall commence, no later than the date of substantial completion, which is the point where the Project can be utilized for the purposes for which it was intended.