

Multi Funded Research Agreement 04743

Title

“Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water”

This Multi Funded Research Agreement (hereafter “MFRA”) is entered into on _____, 20__, (the “Effective Date”) by and among the Water Research Foundation (“WRF”), a Colorado non-profit corporation whose principal place of business is located at 6666 W. Quincy Ave., Denver, Colorado 80235, and City of Ann Arbor, a Michigan municipal corporation (“Sub-recipient”) whose principal place of business is located at 301 East Huron Street, Ann Arbor, Michigan 48104, together the organization(s) executing this MFRA as “Co-funder(s)”, in furtherance of their common interest to support research on behalf of the water community.

WRF has selected said Sub-recipient to receive a research and development grant as more specifically detailed in this MFRA. The parties mutually agree as follows:

- I. DEFINITIONS.** The following defined terms shall apply in this MFRA:
- A.** “Co-funder Funds” is that portion of the Project Funds which each Co-funder has agreed to provide to fund the Project under this MFRA, as detailed in Exhibit C.
 - B.** “Cost Share” the portion of allowable costs that the sub-recipient, subcontractor, or third-party participant funds toward completing the WRF project. Cost share includes any non-federal cash and non-cash project funding from the sub-recipient and subcontractors, and non-federal cash funding from participants.
 - C.** “Co-Principal Investigator-Co-PI” An individual involved with the Principal Investigator (University of Michigan) in the scientific development or execution of a project. A Co-PI typically devotes a specified percentage of time to the project and is considered "key personnel." but is not a part of the Sub-recipient’s organization. The designation of a Co-PI, if applicable, does not affect the Principal Investigator's roles and responsibilities as specified in this agreement.
 - D.** “Educational Purpose” is defined as any non-commercial and non-profit use of Intellectual Property, as defined by Paragraph I.G., including, but not limited to, a WRF owned publication or report utilized as a research tool and/or reference, to inform the water community, water utility personnel, or the public of the outcome of this Project.
 - E.** “Expenses” Any WRF approved expenses associated with the research and development performed by the Sub-recipient for the project.
 - F.** “Foundation Award” is that portion of the Project Funds which WRF has agreed to provide to fund the Project under this MFRA, as detailed in Exhibit C.
 - G.** “Intellectual Property-IP” is all rights to copyrights, trademarks, service marks, patents, trade secrets, know how, and confidential information, including the right to enforce, divest, license, seek registration, prosecute infringers, and commercially or otherwise exploit such rights.

- H. “PAC” is the Project Advisory Committee that consists of independent volunteers selected by WRF and Co-funder(s) to provide technical review, assistance, and/or expertise related to the Project. The number of volunteers to serve on the PAC will be determined by WRF.
- I. “Participating Utility” is a utility that provided data or information for the research effort- not survey respondents or workshop participants.
- J. “Principal Investigator” is the Sub-recipient employee identified in Exhibit B, who is primarily responsible for ensuring that all terms and conditions of this MFRA are met and to whom WRF shall give all notices intended for the Sub-recipient.
- K. “Project” is the work to be completed by the Sub-recipient, as described more specifically in the Project Proposal attached hereto as Exhibit A.
- L. “Project (Award) Funds” is the aggregate maximum amount of cash award which WRF and the Co-funder(s) have collectively agreed to provide to Sub-recipient to fund its performance of the Project pursuant to this MFRA.
- M. “Project Proposal” is the final and written description of the project to be undertaken by Sub-recipient for which the Project Funds is granted and performance is monitored pursuant to this MFRA.
- N. “Proposal Guidelines” is WRF’s written guidelines, currently maintained at <http://www.waterrf.org/funding/ProposalDocuments/TailoredCollaborationProposalGuidelines.pdf> which the procedures, criteria and requirements for eligibility, proposal, performance, administration, reporting, and other matters governing the proposal of and performance of a Project are set forth. The Proposal Guidelines were provided to the Sub-recipient prior to its submission of a Project Proposal, and its terms and requirements are incorporated in this MFRA by this reference. The terms “Deliverable”, “Periodic Report”, “Draft Report”, and “Final Report” appearing in this MFRA shall have the definitions, and be governed by the requirements applicable thereto, as set forth in the Proposal Guidelines.
- O. “Reports” are the Periodic Reports, Draft Report, and/or Final Report, collectively.
- P. “Research Manager” WRF staff manager whose responsibility is to manage the development, research and technology related to the Project in coordination with the Principal Investigator to ensure the effective delivery of all related research.
- Q. “Subcontractor” is any individual or entity identified by Sub-recipient in the Project Proposal as assisting in the performance of the Project under this MFRA.
- R. “Sub-recipient” is the awarded entity who performs the substantive, programmatic work or an important or significant portion of the Project.
- S. “Subject Data” shall mean all non-patented original and raw research data, notes, computer programs, writings, sounds recordings, pictorial reproductions, drawings or other graphical representations and works of any similar nature originated by the Sub-recipient in performance of this MFRA, but specifically excluding WRF Intellectual Property or Sub-recipient Intellectual Property as defined within this MFRA.

Subject Data also excludes financial reports, costs, analysis, and similar information incidental to contract administration.

- T. “Work Product” is copyrightable works of authorship created by or on behalf of the Sub-recipient or its Subcontractors during performing under this MFRA or the Project, including, without limitation, the Scope of Work, all Deliverables, Periodic Reports, Draft Reports, the Final Report, all interim drafts of the foregoing, and any computer software and related documentation developed under the Project.

II. GENERAL OBLIGATIONS OF THE PARTIES

A. The Sub-recipient.

1. The Sub-recipient agrees to *employ diligent efforts to* complete the research, prepare written Reports, deliver the Deliverables to WRF, and perform such other functions, all in accordance with the schedules and other requirements set forth in the Exhibits and this MFRA. The Sub-recipient shall itself, and shall require all its Subcontractors to, perform the Project and all other activities related thereto in full compliance with all laws, regulations, ordinances, and other requirements governing them.
2. Sub-recipient may not use Project Funds received under this MFRA as a match or cost-sharing vehicle to secure U.S. Federal monies or money from any other sources, unless otherwise expressly stated and fully disclosed in the Project Proposal. The Sub-recipient may not use any portion of the Project Funds for any purpose other than as detailed in the Project Proposal, and as is necessary to perform the Project.
3. All disbursements of Project Funds will be paid directly to Sub-recipient. Sub-recipient shall remain solely responsible for payment of its Subcontractors, and for procurement of all equipment, materials, and other resources necessary for performance of the Project hereunder.

- B. The Co-funder(s). The Co-funder(s) agree to pay their respective Co-funder funds in accordance with the terms and timelines in this MFRA. The Co-funder(s) shall deliver their full Co-funder funding; by company check made payable to WRF, by no later than the Project Start date in Exhibit B.

- C. WRF. WRF will invoice the full Co-funder funding upon full execution of this MFRA. If WRF has received the full Co-funder funding from each of the Co-funder(s), WRF will disburse the Project Funds to the Sub-recipient as detailed in this MFRA and Exhibit C. WRF’s disbursement of the Project Funds shall be subject to WRF first having received full corresponding payment from all the Co-funder(s), and may further be subject to WRF’s receipt of its own funding from appropriate sources. In no event, shall WRF be required to disburse the Co-funder funding if WRF itself has not received same from Co-funder(s).

III. DISBURSEMENT OF PROJECT FUNDS

- A. Advance Payment. All payments of the Project Funds will be disbursed by WRF directly to the Sub-recipient. Each disbursement shall be deemed to be made by WRF and the Co-funder(s) in proportion to their relative payment to the Project Funds. The amount of Project Funds was determined based on the budget submitted by the Sub-recipient, and set forth in Exhibit C. The Project Funds is a “not to exceed”

amount and no payments in excess of such amount are authorized or required. Subject to WRF's prior receipt of the **full amount** of the Co-funder funding, following the Effective Date WRF will advance to the Sub-recipient 10% of the Project (Award) Funds. All subsequent disbursements of the Project Funds shall be governed by the requirements described in Section III.B below and in Exhibit C.

B. Invoicing and Payments.

1. Beginning three (3) months after the Effective Date, and every three (3) months thereafter during the term of this MFRA, Sub-recipient shall submit to WRF a detailed invoice itemizing the expenses incurred in the three (3) months prior to the invoice date by the Sub-recipient in the performance of the Project, and identifying all Cost Share and third party in-kind contributions as well as the contributing parties. The invoice shall be sent to the Project Coordinator identified in Exhibit B.
2. Each invoice should be displayed per the budget line items in Exhibit A. All invoices must be submitted using the form attached in Exhibit D, must be on the Sub-recipient's letterhead, and must be sent to WRF's Project Coordinator identified in Exhibit B. Only out of pocket costs and expenses incurred by the Sub-recipient may be invoiced under this MFRA.
3. WRF will disburse Project Funds conditioned upon the Sub-recipient timely submitting Reports. No portion of the Project Funds will be disbursed by WRF unless and until WRF receives and accepts each corresponding invoice and Report. If the invoices and Reports are accepted, the Sub-recipient will be paid as follows:
 - (a) The ten percent (10%) advance payment must be shown on all invoices, including the final invoice, as an advance payment received. Subject to the hold back provision below, invoices will be paid to the extent actual costs incurred exceed the advance payment. **No invoice is required from the Sub-recipient; the advance is paid upon full execution of this MFRA.**
 - (b) Regardless of the actual amounts invoiced, WRF will at all times during this MFRA hold back twenty percent (20%) of the Project Funds, and will only disburse same as follows: Ten percent (10%) of the Project Funds will be disbursed to the Sub-recipient when WRF receives and accepts the Draft Report. The remaining held back ten percent (10%) of the Project Funds will be disbursed to the Sub-recipient after the Sub-recipient has completely and adequately responded to editor queries on the Final Report, has made all revisions reasonably requested by WRF to finalize the Final Report, submitted a final invoice, and Exhibit E – Assignment of Copyright (if applicable).
 - (c) No conditions, notations, acknowledgements, comments, or terms other than the items required to be included and itemized on the Sub-recipient's invoice shall be binding on WRF.
 - (d) WRF may deduct amounts or withhold payments invoiced by the Sub-recipient if the Sub-recipient fails to comply with any WRF standard.

IV. COMPLIANCE MONITORING

- A. Financial Management System. The Sub-recipient shall maintain an accounting system and accurate and complete accounting records that, at a minimum but without limitation, allow for the identification, tracking, and verification of costs, expenses, Cost Share, in-kind contributions, invoiced items, and funding received, all in a manner that is segregated and allocable solely to performance of the Project. All costs incurred must be supported by receipts and be made available to WRF upon request.
- B. Record Retention. Sub-recipient shall retain all records pertinent to this MFRA and the Project for at least three (3) years from the termination of this MFRA.
- C. Audit and Monitoring.
1. WRF shall have the right to itself or through a designee visit the Sub-recipient premises to observe, review, and monitor the Sub-recipient's performance of the Project, as well as its application and use of the Project Funds. Accordingly, following a two (2) business day prior notice from WRF, the Sub-recipient shall provide WRF and its designee access to its premises, technical staff, supervisors, knowledgeable personnel, computer systems and databases, assistance, original documents, including those required to be maintained under this MFRA, and any information related to the Sub-recipient's use of the Project Funds and performance under this MFRA, to enable WRF's audit and monitoring. WRF's audit rights shall survive termination of this MFRA by three (3) years.
 2. WRF will keep any of Sub-recipient's proprietary financial, technical and/or scientific proposal information reviewed under this Section in confidence provided that such material is appropriately marked as "Confidential," was not already generally known to the public, is not required to be disclosed as a result of a legal proceeding, or applicable legal requirement, and was not already known to WRF or others without a confidentiality obligation.
 3. Any deficiencies or non-compliance in Sub-recipient's systems, procedures, record keeping, finances, and performance of other obligations under this MFRA discovered in the audit, review or monitoring process, or discovered otherwise, may, at WRF's option, require Sub-recipient to take corrective action that has been detailed by the Sub-recipient and approved by WRF for the Sub-recipient to remedy the deficiency or noncompliance, or may result in WRF exercising its termination rights under Section VII below.
 4. If WRF approves of the Sub-recipient's proposed corrective action plan, in connection with such approval it may require the Sub-recipient to submit additional periodic written verification that the corrective action plan has been implemented and continues to correct the targeted deficiencies and noncompliance. If the approved corrective action fails to correct the deficiencies within the time set by WRF in its sole discretion, WRF may exercise its termination rights under Section VII.

5. Nothing herein obligates WRF to accept or approve a corrective action or to forbear from exercising its right to terminate this MFRA. WRF's right to termination shall be in addition to all other rights and remedies available to it at law or in equity.

V. PROCUREMENT STANDARDS

- A. Procurement Standards. Sub-recipient will follow standards governing procedures for procurement of supplies, equipment, and other services for their organization type for which cost is incurred in whole or in part under this MFRA. These standards include but are not limited to the following:
1. Sub-recipient procurement policies must adhere to the minimum standards applicable to its organization type;
 2. Sub-recipient shall maintain and enforce with its officers, employees, and agents (including Subcontractors) a code of conduct designed to enhance goodwill, ethics, and compliance with laws while performing under this MFRA; and
 3. Sub-contractor shall conduct all procurement transactions in a manner that maximizes open and free competition.

VI. IP RIGHTS AND PUBLICATION

A. Work Product.

1. WRF shall own all worldwide copyrights in all the Work Product including the Scope of Work, All Periodic Reports, All Draft Reports, the Final Report, and all drafts of these works and reports. Sub-recipient shall and hereby does assign exclusively to WRF all right, title, and interest in and to the Work Product and the copyrights embodied therein. The Sub-recipient may use **without** restrictions all data from the Work Product such as innovations, creations, processes, designs, methods, formulas, plans, technical data, and specifications. The use of this Intellectual Property will not be utilized by the Sub-recipient or Co-funder, if applicable, before WRF has released the final Work Product as described in Exhibit B. WRF will provide the Sub-recipient with five (5) hardcopies of the Final Report and a PDF. If the Final Report is published in a PDF format only, the Sub-recipient will receive the Final Report in that format. The Work Product may not be copied, published, adapted, posted on an intranet or website, or disclosed in any manner by the Sub-recipient, any Subcontractor or other third party except with WRF's prior written approval. The Sub-recipient shall utilize WRF's *Material Use Permission Request Form* located at <http://www.waterrf.org//funding/Pages/project-report-guidelines.aspx> for securing the foregoing required permission for WRF.
2. WRF hereby grants the Sub-recipient and Co-funder(s) a royalty free, perpetual, irrevocable, world- wide, nonexclusive license, without the requirement for any accounting, to utilize Foundation's Intellectual Property solely for Educational Purposes.
3. WRF PI and Co-PI Intellectual Property Guidelines are available at: <http://www.waterrf.org/funding/ProjectReportGuidelines/IntellectualPropertyGuidelinesforPIs.ndc o-PIs.pdf>.

4. PI guidelines for Periodic Report Format/Content and Preparation Research Reports are available at: <http://www.waterrf.org/funding/pages/project-report-guidelines.aspx>.

B. Inventions and Patents.

1. All proprietary or patentable ideas, devices, methods, formulations, designs, and other inventions developed or conceived by or on behalf of the Sub-recipient in the course of performing under the Project, including, but not limited to, the right to apply for patent protection thereon (collectively, “Inventions”), shall remain the property of the Sub-recipient.
2. If the Sub-recipient decides to abandon its rights to the Inventions, or not to seek patent protection on its Inventions, or to abandon any pending patent application or patent issued on the Inventions, Sub-recipient shall notify WRF of the same and promptly assign all rights in the abandoned Inventions to WRF at its request, *but preserving to Sub-recipient all rights of Sub-recipient under Article VI.A.3.*
3. Sub-recipient shall not withhold any information on or descriptions of Inventions, whether or not patentable, from Work Products or any Report. The Sub-recipient’s rights in Inventions shall not limit, delay, restrict, or in any other manner interfere with WRF’s right to own, publish, and exercise all other copyrights in the Work Product. If information contained in the Work Product owned by WRF is and is treated by the Sub-recipient as confidential information and/or trade secrets, the Sub-recipient shall be solely responsible for marking confidential portions of the Work Product as such, and may request that WRF reasonably delay, but in no event by more than one month, publication of a Work Product to allow the Sub-recipient to apply for patent protection on Inventions described in the Work Product.
4. All IP rights that were owned and developed by the Sub-recipient or third parties prior to the Effective Date and outside the scope of the Project (collectively, “Preexisting IP”), and which the Sub-recipient will use in the performance of the Project, or incorporate in whole or in part into any Deliverables, has been fully disclosed and identified by the Sub-recipient in the Project Proposal. The Sub-recipient represents and warrants that all Preexisting IP is used with full authorization and permission from its respective owner, and copies of such permissions and licenses shall be provided to WRF by the Effective Date. The Sub-recipient shall obtain all appropriate permissions on WRF’s behalf to the extent necessary to enable WRF to exercise its ownership and publication rights in the Work Product, including the Final Report, such right shall be transferable, sublicenseable, and shall not be subject to any payment or other obligation on the part of WRF. Such agreements to procure rights for WRF shall be subject to WRF’s prior approval, in its sole discretion.
5. The Sub-recipient hereby grants WRF a fully paid-up, royalty free, perpetual, irrevocable, world-wide, nonexclusive license, with the right to grant sublicenses, to utilize the Inventions and Preexisting IP for educational or other non-profit purposes.

- C. Publication.** As the owner of Work Product, all rights to publish, distribute, publicly perform, and publicly present the Reports belong solely to WRF. The Co-funder(s) and Sub-recipient may publish

or present based on the Work Product, in whole or in part, only after providing WRF the opportunity for prior *review* by WRF. Any such *submission* for *prior review by* WRF must be made to WRF at least three (3) weeks prior to the requesting party's proposed date of publication or presentation based on any portion of the Work Product, and the request must be accompanied by copies of the proposed publication or presentation material. All copies of or presentations based on the Work Product authorized to be made by WRF shall furthermore conspicuously display the following notice:

*Author, Title of Foundation
Work Copyright [year of
publication]
Water Research Foundation Reproduced with permission*

- D. Participating Utility Review: The PI shall, with each participating utility, (a) grant the participating utility and Co-funder the right to review the Project's use and conclusions concerning that organization's data and/or test results, and (b) provide the participating utility with the reasonable opportunity to correct, or if correction will take an unreasonably long time, to respond to any problems or difficulties uncovered by the data, information, or test results, all of which must occur prior to the publication or use of such information. This provision shall apply to each water utility participating in any manner with the Project, including, but not limited to, providing services, data, materials for testing, test results, and/or documentation. If the PI has made reasonable efforts but is not able to obtain confirmation from each participating utility, the Principal Investigator may submit documentation to this fact and further state that the participating utility was provided reasonable opportunity to correct or respond to any problems or difficulties as stated above.
- E. Student Thesis. In the event a college or graduate student is a part of *the* Sub-recipient work on the Project and *that student completes a thesis, dissertation, or report relating to the Project, such student may use Subject Data as needed for such thesis, dissertation, or report, solely for Educational Purposes*, but may not use any written materials that are substantially similar to WRF Intellectual Property.
- F. Acknowledgement. Any public presentation or publication by the Sub-recipient or Co-funder(s), including a student writing a thesis, dissertation, or report, based on the Inventions or any portion of the Work Product, if permitted by WRF, shall include a statement substantially as follows: "[Sub-recipient] gratefully acknowledges that the Water Research Foundation, [Co-funder(s)] are Co-funder(s) of certain technical information upon which this publication [manuscript] [presentation] is based. [Sub-recipient] thanks the Water Research Foundation, [Co-funder(s)] for their financial, technical, and administrative assistance in funding the project through which this information was discovered."
- G. Return of IP. The Sub-recipient shall provide to WRF legible copies of all Work Product (including source and object code of any computer software program) and all Inventions abandoned by the Sub-recipient, and shall furthermore provide to WRF and Co-funder(s) legible copies of all Preexisting IP, all within thirty (30) days of any party's delivery of a notice of termination hereunder, whether a cure period is provided. Further, at the same time, Sub-recipient shall provide copies and originals shall be delivered in whatever medium and format is reasonably designated by WRF. No further payments will be made unless the Sub-recipient fully complies with the foregoing requirements.
- H. Originality. The Sub-recipient represents, that it, and its Subcontractors, are the sole creator(s) and

originator(s) of all Work Product, Inventions, *if their own* and Preexisting IP; none of those rights have been bargained, sold, encumbered, licensed or otherwise transferred to any other party in a manner that would limit or interfere with the requirements and covenants of the Sub-recipient under this MFRA. Further, the Sub-recipient *represents* that no portion of this Project, including any portion completed by Subcontractors, *knowingly* infringes upon the IP rights of any other person or entity or violates the common law or statutory right, title, or interest of any person or entity. The Sub-recipient, shall execute and deliver to WRF, and shall cause its Subcontractors and agents to execute and deliver to WRF, all documents and instruments reasonably requested by WRF, including, without limitation, the Assignment of Copyright attached hereto as Exhibit E, to further evidence or memorialize the assignment of rights to WRF set forth in this MFRA.

- I. Trade Secrets. In accordance with the Defend Trade Secrets Act of 2016, Trade Secrets have previously been protected by state laws in the U.S. This bill amends the Economic Espionage Act of 1996 to permit a private federal civil action for misappropriation of a trade secret that is “related to a product or service used in, or intended for use in, interstate or foreign commerce.” For further information, go to: <https://www.congress.gov/bill/114th-congress/senate-bill/1890/text>.

VII. TERM AND TERMINATION

- A. Term. This MFRA is effective as of the Effective Date, and shall continue for the duration of the Project, ending on WRF’s delivery to the Sub-recipient of the final disbursement of the Project Funds in accordance with Section III.B above, and as further specified in Exhibit C. This MFRA may be terminated earlier for the following reasons:

1. WRF may terminate this MFRA by written notice to the other parties at any time in the event of a *material* breach of this MFRA or any requirements of or timelines in the Project by the Sub-recipient or its agents following Sub-recipient’s receipt of WRF’s *written* notice of breach. *The notice may include Sub-recipient’s action to cure breach within a specified timeframe.*
2. WRF may terminate this MFRA by *a thirty (30) day* written notice to the other parties in the event WRF after consultation with the Co-funder(s) and the PAC reasonably determines that the Project is no longer feasible or its performance desired, or that if Sub-recipient is not likely to complete the requirements of the Project on time.
3. Co-funder(s) may terminate this MFRA by *thirty (30) day* prior written notice to the other parties if either the Sub-recipient or WRF materially breaches this MFRA, *and fails to cure such breach within thirty (30) days of such notice*
4. Upon receipt of any written notice of termination, the Sub-recipient shall cease all work associated with this MFRA as of the *effective* date of *termination* receipt of the notice, but shall continue to prepare

whatever reports, accounting statements, and invoices that are necessary to support receipt of any payments and deliver existing Work Product as required under the MFRA.

5. If the Sub-recipient, after reasonable consultation with WRF and sufficient exploration of other options and possible mutual agreements to amend this MFRA, determines that circumstances

beyond its control prevent it from continuing the Project, the Sub-recipient may terminate this MFRA at any time by written notice to WRF.

6. Any change in legal requirements or entitlements which materially alter Sub-recipient's performance under this MFRA, or any change in the availability of funds to WRF, shall warrant good faith renegotiation of the provisions of this MFRA impacted by such change. If the parties cannot agree to an amendment to this MFRA, at WRF's option the Sub-recipient's performance of the Project may be suspended, or this MFRA may be terminated effective upon thirty (30) by WRF's written notice.

VIII. TERMINATION

If termination occurs under this Section, the Sub-recipient shall prepare and submit to WRF a final invoice and accounting of expended and non-cancellable funds as of the effective date of termination. Any portion of the Project Funds that was prepaid to the Sub-recipient but which remain unspent non-cancellable upon the effective date of termination, shall be returned to WRF with the final invoice. WRF shall pay any amount owed under the final invoice and shall return to the Co-funder(s) any remaining and unspent funds in proportion to the Co-funder funding.

IX. STANDARD TERMS AND CONDITIONS

- A. Survival. All terms which by their nature and intent are required to be performed after termination of this MFRA shall survive to the extent necessary to enable their fulfillment.
- B. Quality Assurance. The Sub-recipient shall employ diligent efforts to ensure that all data and test results developed during this MFRA and included, or relied upon, in the Final Report are accurate to the best of its knowledge, information, and belief. In the event the Sub-recipient obtains any data, test results, information derived from such data or test results, or other information to be included in the Project from water utilities or any Subcontractor, the Sub-recipient will utilize reasonable and customary efforts of like institutions to ensure the accuracy of the information obtained.
- C. Co-funder(s) Review. The Co-funder(s) shall have the right and reasonable opportunity prior to submission of the Final Report, to review the data, results and conclusions derived from the Project, and to correct or comment upon any discrepancies in the reviewed materials. The Sub-recipient shall be responsible for providing letters for review and execution by each Co-funder confirming that they have reviewed the submitted materials. Such confirmation letters, signed by each Co-funder, shall be submitted to WRF with the Final Report. If the Sub-recipient has made reasonable efforts but is not able to obtain signed confirmation letters, the Principal Investigator may submit a signed letter stating this fact and further stating that the Co-funder(s) were provided reasonable opportunity to review and comment upon the materials as required.
- D. Standard of Performance. At all times, all obligations performed by the Sub-recipient or by any Subcontractors pursuant to this MFRA shall be performed in a manner consistent with or exceeding the professional standards governing such activities by like institutions. Further, the Sub-recipient shall be responsible for, and shall, to the extent permitted by law, hold harmless and indemnify WRF, Co-funder(s), and their officers, directors, affiliated organizations, employees, agents, volunteers, and publisher, if any, from any and all liability, obligation, damage, loss, cost, claim, lawsuit, cause of action, or

demand arising from Sub-recipient's negligence or willful misconduct which may include, but not limited to, reasonable attorneys' fees and costs, arising from (i) any actions taken by, or omissions of, the Sub-recipient, its officers, directors, Subcontractors, employees independent contractors, agents, or other related entities or individuals or any uncured material breach of this MFRA by the Sub-recipient.

- E. Governmental Entities.** If the Sub-recipient or any Subcontractor is a governmental or quasi-governmental entity that is by law prohibited from indemnifying others, Sections IX.D and IX.S are modified to the extent that will impose the maximum available liability and responsibility on Sub-recipient. Sub-recipient shall require all parties involved in the performance of this MFRA that are not prohibited from indemnifying others to so indemnify WRF and the Co-funder(s) through a written agreement acceptable to WRF and the Co-funder(s).
- F. Insurance.** The Sub-recipient shall maintain a financially sound program of self-insurance or commercially purchased liability insurance in the amount of one million dollars (\$1,000,000.00). Proof of such insurance shall be presented to WRF pursuant to the schedule detailed by Exhibit B and to the Co-funder(s) upon request. The proof of insurance document shall clearly specify the Project by number on the insurance certificate.
- G. Worker's Compensation.** The Sub-recipient and all Subcontractors shall maintain Worker's Compensation Insurance which complies with the applicable state laws. Proof of such insurance shall be presented to WRF pursuant to the schedule detailed by Exhibit B.
- H. Authority.** The individuals executing this MFRA on behalf of their respective parties hereby represent and warrant that they have the right, power, legal capacity, and appropriate authority to enter this MFRA on behalf of the entity for which they sign below.
- I. Modifications:** No provision, requirement, or term of this MFRA may be modified, supplemented or amended, nor may it be waived or discharged, except in writing, signed by authorized representatives of all parties. A written waiver of a breach of one provision in this MFRA shall not operate as a waiver of a subsequent breach of the same provision.
1. Examples of items requiring WRF's prior written approval include, but are not limited to, the following:
 - Deviations from the Project plan.
 - Change in scope or objective of the Project.
 - Change in a key person specified in the application.
 - The absence for more than three months or a 25% reduction in time by the principal investigator.
 - Need for additional funding.
 - Any changes in budget line item(s) as described in Exhibit A of greater than ten percent (10%) of the total.

- J. No Assignment.** The Sub-recipient shall not assign this MFRA in whole or in part, including by operation of law, merger, reorganization, or change in ownership or control. Any unauthorized assignments shall be void.
- K. Sub-Contracting:** The Sub-recipient may only utilize Subcontractors under this MFRA that have been disclosed in the Project Plan and are pre-approved by WRF.
1. Sub-recipient shall require all Subcontractors to comply with all applicable and material terms of this MFRA prior to working on the Project in any manner. All obligations of the Sub-recipient apply equally to the Subcontractor(s). Sub-recipient shall at all times remain primarily responsible and liable to WRF and the Co-funder(s) for the acts and omissions and performance of this MFRA by its Subcontractors.
 2. Payment for services of any and all Subcontractors shall be the Sub-recipient's sole obligation and responsibility. The Sub-recipient, *to the extent permitted by law*, hereby indemnifies and holds WRF and Co-funder(s) harmless for any liability concerning such payment. In furtherance of the foregoing, and to safeguard WRF if Sub-recipient or any Subcontractors is legally prohibited from indemnifying others, Sub-recipient shall in all its Subcontractor agreements specify that WRF and Co-funder(s) shall have no liability or obligation to the Subcontractor, and that the Subcontractor agrees to look solely to the Sub-recipient for payment and enforcement of its rights under its agreement with the Sub-recipient.
 3. Subcontractor shall, *where reasonably practical*, conduct all procurement transactions in a manner that maximizes open and free completion.
 4. WRF shall require for Sub-recipient to notify WRF, within two (2) months of the Project start date pursuant to the schedule detailed in Exhibit B, that all Subcontractor agreements have been executed between the Sub-recipient and any Subcontractors set forth in the Project Proposal (if applicable). Send notification to Peg Falor, WRF Manager – Contracts & Project Administration, Email: pfalor@WaterRF.org.
- L. Integration.** This MFRA, including all attachments hereto and the documents and requirements referenced herein, contains the entire understanding between the parties relating to this MFRA. This MFRA supersedes all prior and contemporaneous understandings, representations, negotiations, and agreements between the parties whether written or oral. In the event of a conflict between the terms of an Exhibit or other document referenced herein and this MFRA, the terms of this MFRA shall control.
- M. Severability.** The provisions of this MFRA shall be severable, and the invalidity, illegality or unenforceability of any provision of this MFRA shall not affect the validity or enforceability of any other provisions. If any provision of this MFRA is found to be invalid, illegal, or unenforceable, such provision shall be modified to the extent necessary to render it enforceable, and as modified, this MFRA shall remain in full force and effect.

- N. WRF Right of Approval. WRF and Co-funder(s) shall have the right, in their sole discretion, to refuse to permit any employee of the Sub-recipient, or employee of an approved agent, assignee, or subcontractor of the Sub-recipient, to be located at a WRF or Co-funder(s) work location, or *within reasonable limits* to provide services to WRF, Co-funder(s) or their clientele pursuant to this MFRA.
- O. Notices. Any notice, request, demand, or communication required or allowed under this MFRA shall be sent in writing to the addresses and contact information for the parties set forth in Exhibit B, and shall be deemed sufficiently given upon delivery, if delivered by hand (signed receipt obtained), or three (3) days after posting if properly addressed and sent certified mail return receipt requested, or upon receipt if sent via facsimile or email, if delivery can be confirmed by the sender. Notices shall become effective on the date of receipt or the date specified within the notice, whichever comes later.
- P. Captions for Convenience. All captions, fonts, underlining, or footers used in this MFRA are for convenience only and shall have no meaning in the interpretation or effect of this MFRA.
- Q. Construction. This MFRA, and any and all amendments to it, shall not be construed against the drafter.
- R. Force Majeure. None of the parties hereto will be liable for damages for any delay or default in performance during the term hereof if such delay or default is caused by conditions beyond its control, including, but not limited to, acts of God, Government restrictions, continuing domestic or international problems such as wars, threats of terrorism, or insurrections, strikes, fires, floods, work stoppages and embargoes; provided, however, that any party will have the right to terminate this MFRA upon thirty (30) days prior written notice if another party's delay or default due to any of the above-mentioned causes continues for a period of two (2) months.
- S. Limitation of Liability. Subject to the provisions of Section IX.E, IN NO EVENT SHALL EITHER PARTY OR ANY OF THEIR OFFICERS, DIRECTORS, EMPLOYEES, AFFILIATES, AGENTS OR REPRESENTATIVES BE LIABLE TO ANY OTHER PARTY, OR ANY THIRD PARTY FOR ANY SPECIAL, INDIRECT, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OR LOSS OF GOODWILL OR EXPECTED PROFITS OR REVENUES, IN ANY WAY RELATING TO THIS MFRA, INCLUDING, WITHOUT LIMITATION, THE FAILURE OF ESSENTIAL PURPOSE, EVEN IF IT HAS BEEN NOTIFIED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH DAMAGES OCCURRING, AND WHETHER SUCH LIABILITY IS BASED ON CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, STATUTE, PRODUCTS LIABILITY OR OTHERWISE. IN NO EVENT, SHALL WRF'S OR THE CO-FUNDER(S)' LIABILITY HEREUNDER EXCEED THEIR RESPECTIVE FUNDING ALREADY MADE UNDER THIS MFRA.
- T. Applicable Law/Venue. *Each party believes its home state laws and home city/county/state venues are to be applied to any dispute between the parties. As the parties are unable to agree, this MFRA will remain silent as to choice of law and venue, which will be the first issues to be resolved should a dispute arise between the parties. The terms of this Paragraph will survive the termination of this MFRA.*
- U. Counterparts. This MFRA may be executed and delivered in counterparts, and by facsimile and email, and each shall be valid as if all parties had executed the same document.

V. Relationship. The parties are independent contractors, and no agency, employer-employee, partnership, or joint venture relationship is intended or created by this MFRA. No party shall have any right or authority to assume or create any obligation, commitment or responsibility for or on behalf of the others except as the other may expressly authorize in writing. No party shall be eligible to participate in another's benefit program. Sub-recipient shall be solely responsible for the performance and compensation of its employees, for withholding taxes and providing unemployment and other benefits.

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Title: Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water

IN WITNESS, WHEREOF, the parties have caused this MFRA to be signed and dated as shown below.

Water Research Foundation

City of Ann Arbor

By: Robert C. Renner, PE, BCEE
Title: Chief Executive Officer

By: Christopher Taylor, Mayor

Date: _____

By: Jacqueline Beaudry, City Clerk

Approved as to substance

By: Grace Jang, PhD
Title: Research Manager

By: Howard S. Lazarus
Title: City Administrator

Date: _____

Date: _____

Above signed has read and understands the terms, conditions, and deliverables of this MFRA.

Craig A. Hupy, PE, Public Services Area Administrator

By: Brian Steglitz, PE
Title: Manager, Water Treatment Services
Principal Investigator

Date: _____

Approved as to form and content

Stephen K. Postema, City Attorney

Above signed has read and understands the terms, conditions, and deliverables of this MFRA.

Title: Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water

Project proposal, & all subsequent correspondence.

Title: Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water

<u>TASK</u>	DUE Date (1st or 15th of the month)
Project Start	September 1, 2017
Scope of Work	October 1, 2017
Proof of Insurance (Ref. IX.F)	October 1, 2017
Notification of Subcontractor(s) Agreement(s) executed (Ref. IX.K.4)	November 1, 2017
Periodic Report 1 – electronic copy & Invoice (Periodic Reports-Ref. II.A.1, Invoices – Ref. III.B)	December 1, 2017
Periodic Report 2 (incl. Technical Summary & Web Update) - electronic copy & Invoice	March 1, 2019
Periodic Report 3 – electronic copy & Invoice	June 1, 2018
Periodic Report 4 (incl. Technical Summary & Web Update) – electronic copy & Invoice	September 1, 2018
Periodic Report 5 – electronic copy & Invoice	December 1, 2018
Periodic Report 6 (incl. Technical Summary & Web Update) – electronic copy & Invoice	March 1, 2019
Periodic Report 7 – Electronic copy & Invoice	June 1, 2019
Draft Report – electronic copy & Invoice (Incl. Technical Summary Web Update) (Ref. III.B.3.b)	September 1, 2019
Final Report – electronic copy (Ref. III.B.3.b)	February 1, 2020
Exhibit E – Complete & Submit – Assignment of Copyright (Ref. V.I)	February 1, 2020
PI submission of each participating utility review & IK (Ref. V.A.6)	February 1, 2020
Final Invoice & Final Compensation (Ref. III.B.3.b)	February 1, 2020
Project End & Foundation Publication Date (Ref. VI.C)	September 1, 2020

Note: Please submit one electronic copy of each Periodic Report and Draft Report. Submit the Final Report in electronic copy in MSWord format. For each report an invoice shall be submitted for payment using Exhibit D – printed on your company letterhead. All Reports and Invoices should be sent to the Research Manager and Project Coordinator identified in Exhibit B WRF Key Contacts.

Title: Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water

WRF Key Contacts:

Water Research Foundation
6666 West Quincy Avenue
Denver, CO 80235

Name:	Title:	Phone:	Email:
Grace Jang	Research Manager	303.347.6112	hjang@WaterRF.org
Peg Falor	Manager-Contracts & Project Administration	303.734.3424	pfalor@WaterRF.org
Corina Santos	Project Coordinator	303.347.6125	csantos@WaterRF.org
Lisa Rather	Contract Administrative Assistant	303.347.6211	lrather@WaterRF.org

Sub-recipient/Sponsor Key Contacts:

Name/Organization:	Address/Title:	Phone:	Email:
Brian Steglitz, Manager, Water Treatment Services	City Ann Arbor 919 Sunset Road Ann Arbor, MI 48103	734.794.6426 ext. 43905	bsteglitz@a2gov.org
Lynne Chaimowitz, Financial Analyst	City of Ann Arbor 919 Sunset Road Ann Arbor, MI 48103	734.794.6426	lchaimowitz@a2gov.org

Co-Principal Investigator(s):

Name/Title:	Organization/Address:	Phone:	Email:
Lutgarde Raskin, Professor	University of Michigan Department of Civil and Environmental Engineering 2350 Hayward Street Ann Arbor, MI 48109	734.647.6920	raskin@umich.edu

Each party shall provide written notice of changes in contact persons, addresses, telephone, and email addresses. The Principal Investigator, Co-Principal Investigator, or any Subcontractor may only be changed with the prior written approval of the Foundation.

BUDGET SUMMARY

Exhibit C

Sub-recipient:	City of Ann Arbor 301 E. Huron Street Ann Arbor, MI 48104
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Title: Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water

Neither WRF nor the other Co-funder(s) shall have any obligation for payment of invoices for costs incurred by the Sub-recipient after the foregoing end date.

Payments to the Sub-recipient will be issued to the Sub-recipient organization and mailed to the address shown in the first paragraph and shown above of this funding agreement unless otherwise noted below:

Lynne Chaimowitz, Financial Analyst	City of Ann Arbor 919 Sunset Road Ann Arbor, MI 48103	734.794.6426	lchaimowitz@a2gov.org
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Note – The “Effective Date” that appears in the opening paragraph represents the date of the last signature received by WRF. Upon receipt of all signatures, WRF will email a fully executed agreement to each signatory.

Project Start Date

End Date:

Financial Obligations for Project

- a. WRF agrees to provide Award Funds: \$100,000.00
- b. Sub-recipient agrees to provide Cost Share: \$74,541.00
- c. Sub-recipient agrees to provide in-kind: \$67,108.00
- d. Co-funder(s) City of Ann Arbor agree to provide to WRF: \$100,000.00
- e. Total Project budget is: \$341,649.00

All amounts are in U.S. dollars.

ORGANIZATION	Award Amount	Cost Share	In-Kind Amount
Sponsor/Co-funders			
City of Ann Arbor	\$100,000.00	\$74,541.00	\$0.00
Co-PI			
University of Michigan	\$0.00	\$0.00	\$67,108.00
Continued next page			

ORGANIZATION	Award Amount	Cost Share	In-Kind Amount
Sub-recipient			
City of Ann Arbor	\$0.00	\$0.00	\$0.00
Water Research Foundation	\$100,000.00	\$0.00	\$0.00
TOTALS	\$200,000.00	\$74,541.00	\$67,108.00
Total Project Budget	\$341,649.00		

Award Funds Not to Exceed: \$200,000.00

10% of Project Funds Advance: \$20,000.00
(Ref. III.B.3.a)

Draft Report & Invoice Retainage: \$20,000.00
(Ref. III.B.3.b)

Final Report & Invoice Retainage: \$20,000.00
(Ref. III.B.3.b)

Title: Optimizing Filter Backwashing Practices to Reduce Selection for Opportunistic Pathogens in Drinking Water

Exhibit D – Invoice Form

For access to the Water Research Foundation website please see:

<http://www.waterrf.org>

To download Exhibit D – Invoice Form please see WRF's website:

http://www.waterrf.org/funding/ContractMaterials/Invoice_ExhibitD.pdf

