Request for Proposal (RFP):
Contaminant Level Occurrence above the “Maximum Contaminant Level Goal” (MCLG)

RFP Issued: September 10th, 2018
Submission Deadline: December 10th, 2018

Introduction
The Maximum Contaminant Level (MCL) is used as a benchmark when evaluating water treatment devices for industry certifications of performance. However, potential health risks remain for a number of contaminants with concentrations below the MCL but above the Maximum Contaminant Level Goal (MCLG). This study is the first attempt at collecting and analyzing national occurrence data between the MCL and MCLG, utilizing data that is available from state and federal databases including, but not limited to: EPA, CDC, USGS, FRDS, NCOD, and SDWIS. Of the contaminants governed by the National Primary Drinking Water Regulations, only those that have a MCLG value lower than its MCL value (including MCLG values of “zero”) will be included in this research.

Who is WQRF?
The Water Quality Research Foundation (WQRF) was formed in 1949 to serve as a universally recognized, independent research organization for residential, commercial and industrial drinking water treatment topics. Since its inception, WQRF has sponsored numerous research studies which have established best practices, generated essential marketing information, positively impacted legislative change, and helped decrease product testing costs.

Background on this RFP
The US EPA currently regulates over 90 drinking water contaminants. The decision on whether to regulate a contaminant is based on a number of factors, key amongst them is the balance of the risk of health effects, availability of suitable treatment technologies, occurrence, and anticipated cost of contaminant reduction to appropriate concentrations. Once the EPA has determined the need to regulate a contaminant, the Agency sets a Maximum Contaminant Level Goal (MCLG). The MCLG is the maximum level of a contaminant in drinking water at which no known or anticipated adverse health effect would occur. MCLGs are non-enforceable public health goals because they consider only health risks, not the analytical limits of detection or the treatment technology effectiveness. Therefore, MCLGs may be set at levels which water systems may not be able to meet because of technological limitations.

The EPA determines MCLGs based on the class of the contaminant that is targeted for regulation. For microbes that may present public health risk, the EPA sets the MCLG at “zero”. This is because ingesting one pathogenic protozoan, virus, or bacterium may cause adverse health effects. For carcinogenic chemical
contaminants, the EPA sets the MCLG at zero if there is evidence that a chemical may cause cancer and there is no dose below which the chemical is considered safe.

If a chemical is carcinogenic and a safe dose can be determined, EPA sets the MCLG at a level above zero that is considered safe. For non-carcinogenic chemical contaminants that can cause adverse non-cancer health effects, the MCLG is based on the amount of the chemical that a person can be exposed to on a daily basis, which is not anticipated to cause adverse health effects over a lifetime.

Once the MCLG is determined, the EPA sets an enforceable standard. In most cases, the standard is a Maximum Contaminant Level (MCL). The MCL is the maximum level of a contaminant which is allowed in water that is delivered to any consumer of a public water system. The MCL is set as close to the MCLG as possible, based on the cost-benefit of contaminant reduction. More information on this topic is available on the EPA’s website. The results of this study should direct attention to the importance of the MCLG (or the contaminant’s detection limit where the MCLG is zero) as a treatment goal.

This research concept aligns with WQRF’s research agenda to investigate Final Barrier/POU and whole house/POE devices as a means for sustainable treatment to create more opportunities for industry professionals to provide better quality water to more people, and to increase public awareness by highlighting the significance of the MCLG as it relates to drinking water quality and health. However, the final report and data generated therein shall not be utilized to detract from or disparage the efforts of utilities, municipalities and other agencies (e.g., AWWA, USEPA, state health departments) to provide safe drinking water to consumers.

Main Deliverables from this Research

Ideally, the final report for this project would detail the concentration, frequency, and population affected by the following drinking water contaminants occurring at levels above the MCLG, but below the MCL (in some cases it may be possible that the contaminant is occurring above the MCL or Action Level):

- Arsenic
- Lead
- Disinfection byproducts
- Other National Primary Drinking Water Regulations (NPDWR)-governed contaminants (that have a MCLG value lower than its MCL value or a MCLG value of “zero”), as determined by the researcher and the rationale for inclusion

The final report must also include a list of contaminants that logistically could not be included in the research and the rationale for exclusion.
Detailed information on the project concept

The purpose of this study would be to compile national occurrence data from public/municipal monitoring to identify frequency, concentration, and population exposed to regulated contaminants that are detected at levels below the enforceable MCL, but in excess of the MCLG. This research would primarily be a data mining exercise with a need to be able to access numerous state and federal databases including, but not limited to: EPA, CDC, USGS, FRDS, NCOD, and SDWIS. For this project, the intent is to focus the research on Arsenic, Lead, and Disinfection Byproducts. A strong proposal would also include as many contaminants as feasibly possible that are governed by the National Primary Drinking Water Regulations (NPDWR). Of the NPDWR governed contaminants, only those that have a MCLG value lower than its MCL value, including MCLG values of “zero” should be included in this research.

The National Primary Drinking Water Regulations pertain to the following categories of contaminants: Inorganic Chemicals, Disinfection Byproducts, Microorganisms, Radionuclides, Organic Chemicals, and Disinfectants. If it is not possible to include all regulated contaminants as defined above, proposals should address those contaminants that are anticipated to occur at higher levels and frequency. The paragraphs below describe the contaminant categories, in descending order of importance for this research request.

Inorganic chemicals include only three specific contaminants for which the established MCLG is lower than their respective MCL or Action Levels. These are Arsenic, Lead, and Thallium. Of these, Arsenic and Lead must be included in the report for this MCLG occurrence study.

Disinfection byproducts (DBP) include Chlorite, Bromate, Total Trihalomethanes (TTHMs), and Haloacetic Acids (HAAs). WQRF requires that all proposals include DBPs. The groupings of TTHMs and HAAs are each comprised of several individual chemicals which have their own specific health effects and risks. Thus, several of these individual chemicals have their own MCLG established by the USEPA, but an MCL has been established for each contaminant grouping. It is important to note that there is no MCLG established for the five HAAs even though they are included in the total. WQRF believes that the individual occurrence data for the chemicals comprising TTHMs and HAAs are available and therefore should be reported in relation to their individual MCLG values. For more information on TTHMs and HAAs, visit the EPA’s website.

Microorganisms included in these regulations are Cryptosporidium, Giardia, Legionella, Viruses, Total Coliform (includes fecal coliforms and E. Coli), Heterotrophic Plate Count (HPC), and Turbidity. Instead of MCLs these are governed by detailed Treatment Technique requirements. The MCLG for many of these are “zero,” indicating the importance of not having any pathogens present in drinking water. WQRF realizes that while communities have often resorted to boil water advisories when pathogen indicators are found in treated waters, these types of exceedances are of special cases and do not readily fit into this project. However, if the researcher can determine a means of approaching microbial occurrences in a practical manner in relation to their respective MCLG values, WQRF believes this to be valuable to include in the proposal.

Radionuclides include four specific contaminants of interest: Radium, Uranium, Alpha Particles, and Beta Particles. All four have MCLG values that are “zero.” WQRF would like to hear from the researcher as to the appropriateness of including radionuclides in this study.

Organic chemicals are a fairly large category, with 24 organic chemicals having MCLG values that are lower than their respective MCL values. WQRF is looking to the researcher to propose the feasibility of finding occurrence data for any of these chemicals that would be of significant interest in regard to the drinking water treatment industry.

Disinfectants include the chemicals deliberately added by a utility. The USEPA has established Maximum Residual Disinfectant Residuals (MRDLs) for these chemicals and also have set Maximum Residual Disinfectant Residual Goals (MRDLGs) that are equal to the MRDLs. As such, this class of chemicals/compounds does not fall within the scope of this research proposal.
Requirements for Researchers

Researchers must be well-qualified and have expertise in researching data that are available from various sources. An understanding of drinking water treatment would also be helpful for this study. The names and qualifications of primary investigators involved in this project must be provided.

The researchers must have the facilities and capabilities to accomplish this project, or provide a list of partners and their qualifications they will work with to accomplish this project, as well as a list of the primary investigators from those partners.

The researchers must complete work on this project within one year of the approved start date.

Restrictions

The proposal shall be scoped to prevent use of the study to promote or disparage a specific product model, company, brand name, or organization. The researchers cannot have a commercial interest in any products or technologies proposed for inclusion in the study.

While the WQRF supports the benefits of product validation testing, the WQRF does not fund validation testing of new products or emerging technologies.

The research shall not be of a type ordinarily carried on by commercial or industrial operations such as the ordinary testing and inspection of materials or products, or design and construction of water treatment equipment or parts thereof.

Business Requirements and Responsibilities

In support of this project, WQA and WQRF agree to the following duties and responsibilities:

- WQRF will provide the researcher with any background information needed, such as a list of industry stakeholders.
- WQRF technical staff and the WQA Water Sciences Committee will take an active role in technical review of interim reports and approval of the final report, especially with regards to industry specific knowledge or operations which the researcher may not be otherwise aware of.
- WQA will track progress and provide any necessary coordination with industry stakeholders throughout the course of the research, will supply technical input upon request, and will facilitate support and input from the Water Sciences Committee.
- WQA and WQRF will provide public access to an executive summary of the report and provide access to the full report for WQA members.

The researcher will contract with WQRF to perform the following activities:

- Perform all aspects of the research concept and any other activities deemed appropriate by WQRF that falls within the scope of the research.
- Provide an invoicing schedule for completing the research, including a schedule of interim reports for peer review by the research task force, and complete the study in a timely manner according to the schedule.
• Engage with and provide response to the WQRF questions relating to progress and coordination, as well as Water Sciences Committee comments on interim reports.

• Agree all intellectual properties and copyrights are owned by the Water Quality Research Foundation.
  o WQRF owns the entire right, title, and interests, including all copyrights and other intellectual property rights, in and to all Project Intellectual Property developed by WQRF personnel. Project Intellectual Property that is jointly developed by the researcher and WQRF personnel under this Agreement will be jointly owned by the researcher and WQRF.
  o It is important to understand that while the WQRF reserves the intellectual property rights associated with the final report submitted to the WQRF, and copyright thereof, and all rights to publish the final report, the WQRF freely shares the knowledge gained through the research that they fund, and the researcher will not be precluded from republishing that knowledge with proper citation to the WQRF report, or from using that knowledge to further their own research.
  o Please note that WQRF does not wish to fund product development activities (e.g., new product validation, ordinary testing and inspection of materials or products, design and construction of water treatment equipment, etc.). Consistent with this policy, use of any patents or trademarks resulting from this research shall be made available to the public-at-large on a non-discriminatory basis. While this is a critical limitation to WQRF funding that all submitters should be aware of, the WQRF does not foresee that proposals submitted under this RFP will approach this boundary since the project is primarily data-mining in nature.

• None of the research information/results can be published without prior review and approval by WQRF (the WQRF may delegate this review to the WQA Water Sciences Committee or another WQA committee). However, it is WQRF’s preference that after such review and approval of the final report, the researcher will seek to publish the study in a peer-reviewed publication.

Confidentiality
All proposals will be treated as confidential and will not be shared outside of the WQRF, with the exception of committees, task forces and WQA staff members who are acting under restriction of confidentiality on behalf of the WQRF. The distribution list includes the WQA Water Science Committee (members only) and their assigned Research Task Force. The Water Science Committee and its assigned Research Task Force are made up of subject matter experts from the water treatment industry.

Proposal Format
See Appendix A

Selection Criteria
Proposals will be mainly evaluated based on value by rating the potential (positive) impact of the research compared to the cost. As referenced in Appendix A, the WQRF prefers to keep indirect costs at or below 13% of the total research budget. The researcher’s credibility, previous experience, qualifications and publications will also be taken into consideration. Additional factors will be considered where applicable.
Informative References

Click on the following links for informative references. Please note that researchers are in no way limited to the use of the links below. Researchers are encouraged to use other appropriate references and collaborate with laboratories to collect data when needed. WQRF requests that the dataset in the final report includes a citation to the source of the information, whether it be a publicly available reference or directly from a specific laboratory.

- ASDWA
- Consumer Confidence Reports
- EPA ECHO Database
- EPA’s National Primary Drinking Water Regulations Chart
- EPA National Water Quality Standards Database (NWQSD)
- EWG’s Tap Water Database
- FRDS
- National Water Quality Monitoring Council Water Quality Portal
- SDWIS
- USGS Water Quality Portal/Database
- WBDISS

Questions

The contact for this RFP is Kayla Heriaud. Questions can be directed to her at any time.

Contact info:
Kayla Heriaud
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Due Date

Proposals must be received by email or hard copy no later than December 10th, 2018.
APPENDIX A – Format

Proposals should include the following sections, and if necessary other sections may be added:

**Abstract** – Summarize the research project, plan, timeline and objectives. Identify which research agenda topic the proposal falls under. Explain the potential (positive) impact on the industry from your proposed project.

**Introduction and literature review** – Should include an overview of the research topic, especially focal points which are relevant to the proposed work, and a review of related research or publications which define what is already known about the research topic.

**Detailed research plan and methodology** - Describe the proposed experiment(s) including any equipment and methods which will be used to complete the work.

**Deliverables** - Describe the deliverable(s) that will be provided for this work. For example, the project deliverables might include:

- Raw data;
- Interim research report(s);
- Final research report;
- Hosting a workshop; or
- Other deliverables.

**Estimated timeline** – This should be completed based on an unknown start date (e.g., the first interim report will be issued 3 months from the authorized start date...). The projected start date is subject to change. The timeline shall not exceed 1 year from the start date.

**Credentials and qualifications** – A statement of qualifications, previous experience, and related publications of the primary and supporting investigators.

**Budget** – Total budget shall not exceed $50,000. At a minimum, the budget should be broken down by the following categories (where applicable): Salaries, Fringe Benefits, Equipment (including materials & supplies), Travel, Subcontract fees, and Indirect costs. The WQRF prefers to keep indirect costs at or below 13%. Other categories may be added as needed.

**Potential Conflict Circumstances statement (required)** – A statement shall be included reporting any direct or indirect circumstances which could potentially create a conflict of interest. For example, if the proposed study could further the interests of a company with which the researcher or the research organization has a contractual agreement to provide testing, certification, consulting or other services (or is negotiating such an agreement), that shall be disclosed as a potential conflict circumstance. The WQRF shall have final authority over whether a potential conflict circumstance represents a Conflict of Interest.