

Anjuman A. Islam, Ph.D.

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PERSONAL STATEMENT: A self-starter who is ready for new challenges; an empathic leader who is excellent in motivating team with positivity and minimize conflicts; a problem solver who gains satisfaction in finding new techniques and innovative solutions; a scientist with intensive research and innovation background; a female engineer with in-depth knowledge on regulations and extensive experience in water treatment, water quality and distribution systems operations and challenges as well as emergency responses.

EDUCATION: **University of Massachusetts, Amherst, U.S.A.**
Ph.D. in Environmental Engineering (May 2010)
University of Massachusetts, Amherst, U.S.A.
Master of Science in Civil and Environmental Engineering (May 2007)
Bangladesh University of Engineering and Technology, Dhaka, Bangladesh
Bachelor of Science in Chemical Engineering (April 2002)

TRAINING AND CERTIFICATION:

40 hrs Team Blue Leadership Training
24 hrs New Manager's Supervisory Training
35 hrs Project Management Professional (PMP) Training
20 hrs Asset Management Training
Water Sampler Certification
Drinking water field and lab testing: Biological and wet chemistry analysis
Advanced laboratory techniques: LC-MS-MS, GC-MS, ICP-MS, HPLC, qPCR and gene sequencing
ELISA certification: Cyano-toxin testing

AWARDS AND HONORS:

- **Stars of Water** - DC Water for excellence in community service
- **Chesapeake Water Environment Association Lab Practices Award (2016)**, for outstanding performance, professionalism, and contributions to the water quality analysis profession
- **Bernard & Neoma Berger Award (2009)**, University of Massachusetts Amherst
- **Perrell Award (2008)**, University of Massachusetts Amherst
- **Dean's Honor (2000, 2001)**, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

EXPERIENCE

DC Water, Washington D.C. - Manager, Water Quality and Technology [August 2017 - present]

- Direct, manage, plan, and coordinate operational activities for the department of Water Quality and Technology and responsible for creating the policies and strategies that meet DC Water's blueprint 2.0.

- Provide water quality oversight and review for drinking water treatment and distribution system water quality; ensures DC Water's water quality program is in full compliance with all EPA requirements for Safe Drinking Water Act (SDWA).
- Responsible for implementing, directing, and monitoring water quality compliance and non-regulated programs to prevent contamination and maintain water quality in the distribution system.
- In charge of online monitoring panels to monitor water quality data through SCADA.
- Handles emergencies and such as Boil Water Advisory, low pressure and contamination investigation, main breaks, CIP projects etc.
- Works with design engineers, pumping operations, linear asset management and valve control groups to maintain water quality in reservoirs and elevated tanks, trouble shoot distribution system and recommend preventive and corrective maintenance.
- Generate disinfection plans and test new mains and water reservoirs and tanks.
- Investigate customer complaints; plan and execute UDF, spot & automated flushing programs; develop distribution system investigations, identify water quality problem locations and select water mains for replacement.
- Presents monthly and quarterly updates and budget reports to the Board of directors and Senior Executive Teams.
- Manage a department of 18 union and nonunion staff. I assign projects and tasks, evaluate performance; conduct departmental hiring, promotions, and salary evaluation, resolve grievances. Develop departmental goals, research plan, safety protocols, training etc.
- Develop and oversee research projects, including guidelines, protocols, and analysis plans; presents in national and international conferences [refer to publications and presentations section].

DC Water, Washington D.C. – Supervisor, Water Quality and Technology [January 2016- August 2017]

Was responsible for day-to-day operational supervision of water quality programs range from contamination prevention to maintaining high water quality standards in the distribution system. Created and reviewed flushing plans, resolved customer complaints, developed research strategies, designed work flows and work order processing systems for the work management systems (MAXIMO). Was a part of emergency management and operational planning team, reviewed technical requirements for CIP projects etc, overseeing 12 S:CAN online water quality monitoring panels connected to SCADA. Represented DC Water in educational workshop/seminars and town hall meetings.

WSSC Water, Maryland – Specialist, Water Quality and Laboratory Services Group [January 2014- January 2016]

Water quality monitoring, Customer support on water quality problems, Water quality emergency response, Regulatory compliance monitoring, Laboratory analysis for water quality parameters, research and development.

Independent Environmental Consultant- [January 2014- January 2016]

Projects:

- Coal Based Mega Power Plants in Bangladesh: Environmental Concerns and Possible Solutions.
- Energy-Water Nexus: Situation (and Opportunities) in Bangladesh.

- Monitoring IMED 's developmental project "Hygiene, Sanitation and Water Supply (HYSAWA) project" funded jointly by Danish International Developmental Agency (DANIDA) and Government of Bangladesh.

University of Maryland - Baltimore County, (UMBC) – Research Assistant professor [July 2011-July 2012]

Department of Chemical Biochemical and Environmental Engineering

Projects:

- Applying activated sludge technique in removing COD, toxicity, iron from a complex industrial wastewater
- Model development for predicting arsenic (As) adsorption co-efficient for a iron oxide impregnated granular activated carbon (GAC) using surface complexation approach.
- Investigation of adsorbed As(III) oxidation by GAC and evaluation of the effects of competitive ions, such as SO₄sulfate, phosphate, Silicate etc., on Arsenic (III) and Arsenic (V) adsorption on to GAC.
- Analytical method development for arsenic species analysis (As(III) and As(V)) by IC-ICPMS technique.

University of Maryland - Baltimore County (UMBC) – Research Assistant professor [June 2010-June 2011]

Department of Chemical Biochemical and Environmental Engineering

Projects:

- Investigated application of activated sludge technique in removing chemical oxygen demand (COD), toxicity and iron from an industrial wastewater.
- Studied ferrate (Fe(VI)) treatment for cyanide and heavy metal remediation from missile vertical launch system wastewater.
- Worked on pilot-scale tubular ultra-filtration (UF) treatment of RO reject water for PO₄ removal by ferric chloride addition –FeOOH(s) adsorption.

University of Massachusetts Amherst, Massachusetts -Graduate RA [January 2004 – May 2010]

Department of Civil and Environmental Engineering

Projects:

- Manganese (Mn) removal by media filtration: release and complexation (Ph.D. Dissertation, 2010).
- Characterization of natural organic matter (NOM) in evaluating performance of a pilot UF membrane plant.
- Optimizing the generation and capacity of adsorptive sites on oxide surfaces for manganese control (Worked with nine full-scale drinking water treatment plants in USA and UK).
- Uptake of dissolved manganese by oxide coated filter media (Masters Thesis, 2007).
- Isotherm development for Mn⁺² adsorption by pyrolucite and
- Kinetic study of Mn oxidation by free chlorine at various pH.
- Water quality analysis during pilot testing of Lantern Hill (Connecticut) drinking water treatment plant

SELECTED PUBLICATIONS AND CONFERENCE PRESENTATION:

- Islam, A. A., Schmelling, M, Louie, S., 2023. " Know Thy Past: Historical Water Quality Trends Provide Clues Towards Remediating Complicated Water Quality Issues." Conference Paper in "AWWA Water Quality and Technology Conference 2023", Dallas, Texas, USA.
- Chen, K. L, Islam, A. A., Schmelling, M. 2022. " Using Oxidation Reduction Potential To Monitor Chloramine Levels in Drinking Water in Washington, D.C." Conference Paper in "AWWA Water Quality and Technology Conference 2022", Cincinnati, Ohio, USA.
- Islam, A. A., Schmelling, M. 2022. " Investigation of Increased Nitrite and Microbial Community Shifts in POU Carbon Block Filters by Flow Cytometry and qPCR Technique" Presented at the "American Water Works Association Annual Conference and Exposition (AWWA ACE), June 2022, San Antonio, TX.
- Islam, A., Timilsina, Y. Schmelling, M. 2022. "Impact of Covid-19 Pandemic Years in Maintaining Water Quality throughout the Washington D.C. Distribution System". Presented at the "Chesapeake Tri-Association Conference, September 2022, Ocean City, MD.
- Islam, A., McCauley, D., Schmelling, M. 2021. "Water Testing to Identify Unknown Service Lines". Presented in the "Chesapeake Tri-Association Conference, Sep 02, 2021, Ocean City, MD.
- Fikremariam, T., Islam, A., Schmelling, M. 2021. "Proactive Flushing of Water Mains to Improve Disinfectant Residual and Mitigate Water Discoloration". Presented at the "Chesapeake Tri-Association Conference, Sep 02, 2021, Ocean City, MD.
- Alfredo, K., I Lin, J., Islam, A. A., Wang, Z. 2019. "Impact of activated carbon block point-of-use filters on chloraminated water quality". AWWA Water Research, <https://doi.org/10.1002/aws2.1180> (Jun, 2020) 02(9): 71-83.
- McGee, S., Islam, A. A., Schmelling M., 2019. "Starting from Scratch: Approaches, Challenges, and Lessons Learned from Legionnaires' Disease Investigations in Long-Term Care Facilities in Washington, DC" American Public Health Association (APHA) Annual Meeting and Expo, Nov 2019, Philadelphia, PA.
- Islam, A. A., Stillings, G. K., Schmelling, M. 2018. " Assessing Effectiveness of Hydrant Flushing in Improving Microbial Water Quality using Flow Cytometry" Conference Paper in "AWWA Water Quality and Technology Conference 2018", Toronto, Canada.
- Islam, A. A., To, P., Nguyen, C., and Shin, J. Y. 2016. "Mitigation and Prevention of Discolored Water Induced by Manganese" Conference Paper in "Chesapeake Tri-Association Conference 2016". Ocean City, Maryland, USA.
- Islam, A. A. 2014. "Water Energy Nexus: Situation in Bangladesh" Conference Paper in 2nd international symposium "sustainable science, technology, human health and environment for a global society". Coppin State University, Maryland, USA
- Islam, A. A. 2014. Key Note Speaker: "Coal Power Generation in Bangladesh: World's Best Practices". Seminar arranged by Power Division of Government of Bangladesh on February 3, 2014 at Dhaka, Bangladesh.
- Ngantcha-Kwimi, A.T., Islam, A.A., Reed, B.E. 2012. "Role of DO, pH and Activated Carbon on the Oxidation of As(III)". International Conference on Environmental Science and Technology 2012, Houston, Texas. (Awarded third place for best Student Paper at the 2012 6th Annual ES&T Conference)

- Reed, B., Islam, A. A., and Kwon, S. 2012. "Removal of Toxicity, COD and Fe from a Metal-Working Facility UF Permeate." *J. Hazard. Toxic Radioact. Waste*, 10.1061/(ASCE)HZ.2153-5515.0000179 (Dec. 26, 2012).
- Reed, B., Islam, A. A., and Bendick, J. 2012. "Ferrate (Fe(VI)) and Alkaline Chlorination Treatment of a Cyanide/Heavy Metal Maritime Wastewater." *J. Environ. Eng.*, 10.1061/(ASCE)EE.1943-7870.0000676 (Nov. 5, 2012).
- Islam, A. A., Reed, B. 2011. "Pilot-Scale Tubular Ultrafiltration Treatment of RO Reject Water for PO4 Removal by Ferric Chloride Addition-FeOOH(s) Adsorption". American Water Works Association: Annual Conference and Exposition (Awwa ACE), June 2011, Washington D.C.
- Islam, A. A., Goodwill, J. E., Bouchard, R., Tobiason, J. E., Knocke, W.R. 2010. "Characterization of Filter Media MnOx(s) Surfaces and Mn Removal Capability". *Journal of American Water Works Association*, 102(9): 71-83.
- Islam, A. A., Tobiason, E.E., Kaminski, G. S. 2009. "Application of HPSEC-UV followed by ICP-MS to Investigate Manganese-Natural Organic Matter Interaction/Complexation" American Water Works Association: Water Quality Technology Conference (Awwa WQTC) 2009, Seattle, Washington.
- Tobiason, J.E., Islam, A. A., Knocke, W., Goodwill, J., Hargette, P., Bouchard, R., Zuravnsky, L. 2008. "Characterization and Performance of Filter Media for Manganese Control". IWA Publication. Denver, Colorado.
- Islam, A. A., Tobiason, J. E., Russell, J., Kaminski, G. S. 2009. "Investigation of Manganese Release from Full-Scale Filter Media". American Water Works Association: Annual Conference and Exposition, San Diego, California.
- Islam, A. A., Goodwill J., Tobiason, J. E. 2006. "Manganese Removal by Oxide Coatings: Media Characterization and Optimization of Operational Variables". American Water Works Association: Annual Conference and Exposition (AwwaACE), June 2006, San Antonio, Texas.