

SIAMAK MODARRESI, PHD, PE, PMP

Education

PhD – Civil Engineering (Environmental), University of Washington, 2016
MS – Chemical Engineering, Sharif University of Technology, 2010
BS – Chemical Engineering, Iran University of Science & Technology, 2008



*Siamak,
Modarresi*

Professional Licenses

Professional Chemical Engineer – State of California

Professional Certifications

Project Management Professional

Professional Affiliations

American Water Works Association
Water Environment Federation
Pacific Northwest Clean Water Association

Dr. Modarresi is a Senior Project Manager at SCS Engineers with over 11 years of experience in municipal and industrial wastewater treatment. He holds a PhD in Environmental Engineering and an MS and a BS in Chemical Engineering. He is experienced in detailed design and management of water and wastewater treatment projects using biological, physical, and chemical treatment processes, with extensive experience in membrane filtration systems, membrane bioreactor systems, and water reuse. The projects in which Dr. Modarresi has been involved are described below.

Confidential Landfill Client, Foam Fractionation PFAS Treatment System Design, MO (on-going). Project Manager and Lead Process Design responsible for developing the design basis, evaluating foam fractionation vendors, completing pilot testing, leading vendor selection, and preliminary and detailed design of a 0.22 MGD PFAS foam fractionation treatment system.

Confidential Utility Client, Deep Well Injection Pretreatment System Design, TX, (on-going). Served as the lead process engineer and project manager, designing a deep well injection pretreatment system for CCR liquids disposal. The work includes sampling, geochemical analysis, design-basis establishment, treatability bench- and pilot-testing, and preliminary design of the treatment system.

Confidential Utility Client, Deep Well Injection Pretreatment System Design, IN, (on-going). Served as lead process engineer and project manager, evaluated and conceptually designed a deep well injection pretreatment system for CCR liquids disposal. The work includes sampling, geochemical analysis, alternative evaluation, conceptual design, CAPEX cost estimate, design basis establishment, and treatability bench- and pilot-scale testing.

Roseburg County MBR and RO Leachate Treatment Design and Commissioning, OR. Served as the Technical Lead of the 50,000 GPD MBR landfill leachate pre-treatment plant of the Roseburg County landfill in Oregon. The pre-treatment system includes a double denitrification activated sludge treatment train upstream of an external tubular ultrafiltration (UF) system, followed by a reverse

osmosis (RO) system used to polish the MBR effluent and remove PFAS. Conducted comprehensive technical evaluations of the piping and instrumentation diagrams (P&IDs), design of the oxic and anoxic biological treatment reactors, piping design, equipment sizing and instrument selection, waste management, and the development of the control narrative to meet NPDES effluent limits.

Kenai Peninsula Borough, Class I Deep Well Injection Feasibility Evaluation, AK. Client service manager and project manager for evaluating the feasibility of Class I deep well injection for landfill leachate disposal at the Central Peninsula Landfill. Managed the multidisciplinary team performing geological, regulatory, and well-construction cost evaluations; reviewed technical deliverables; prepared and delivered the client presentation; and oversaw project budgeting, schedule control, and stakeholder coordination.

Confidential Food Ingredients Manufacturer, Wastewater Pretreatment Design and Commissioning For Deep Well Injection, KS. Project Manager and Technical Lead for evaluation, design, construction, and commissioning of a 0.35 MGD pretreatment system upstream of a Class I deep-well injection system. Led membrane separation selection, pilot testing, process design review, hydraulic and equipment sizing, I&C design, procurement, and commissioning.

Carleton Farms Landfill, Republic Services. Leachate Pretreatment Plant Design. Detroit, MI. Served as the technical reviewer to review the piping and instrumentation diagram (P&ID) and equipment layout.

Confidential Automotive Manufacturer, Drinking Water Treatment System Evaluation. Lead process engineer and project manager for assessment and optimization of the facility's on-site drinking water treatment system. Directed DBP mitigation analysis, prepared the regulatory response to an NOV for DBP exceedance, evaluated the campus water distribution system, and supported permitting of a new potable-water storage system.

Bristol Integrated Solid Waste Management Facility, Leachate Treatment Alternatives Evaluation (Bristol, VA) Served as the subject matter expert in evaluating treatment alternatives for 0.43 MGD of landfill leachate to treat benzene, ethylbenzene, phenol, cyanide, arsenic, chromium, barium, and nitrogen. Assessed biological (CAS, MBR, attached growth), chemical (ion exchange, specialty media, pH adjustment), and physical (GAC, RO) technologies and prepared the final alternatives evaluation report.

Confidential Snacks Manufacturer, Wastewater Pretreatment System Evaluation and Upgrade, PA. Technical Lead evaluating a 165,000 GPD pretreatment system exceeding discharge TSS and BOD limits. Assessed wastewater characteristics from pretzel and chip production; evaluated screening, EQ, and DAF systems, and evaluated process upgrades including centrifuge, MBR, and MBBR technologies to treat TSS and soluble BOD.

Swinomish Casino, MBR System Upgrade and MBT Sludge Thickening System Design and Commissioning, WA. Lead Process Engineer and Project Manager for full MBR system upgrade, including EQ, screening, double denitrification, MBR filtration, and membrane thickening (MBT). Led process design, P&IDs, hydraulics, equipment sizing, 3D layout, bid package development, procurement, commissioning, system troubleshooting, and operator training.

Snoqualmie Pass Utility District, Wastewater Treatment System Upgrade Design and Commissioning, WA. Lead Process Engineer and Project Manager for design, fabrication, and commissioning of a 20,000 GPD package MBR system. Developed the MBR process design, including biological reactor design, hydraulic calculations, pipe sizing, P&ID, equipment sizing, and instrumentation. Led the

development of the piping and equipment layout, as well as the fabrication team in designing and testing the MBR package. Developed the control narrative and oversaw procurement. Following installation, completed commissioning, provided operator training, and compiled the O&M manual for the client. In addition, technical guidance is provided for the operation and troubleshooting of the system for one year after commissioning.

City of Dundee, Wastewater Treatment System Upgrade and Commissioning, OR. Project Manager for the expansion of the MBR wastewater treatment facility by adding a new MBR basin to the existing process to increase the treatment capacity by 0.5 MGD. Led structural engineering, seismic analysis, and designed custom seismic support braces. Prepared equipment and valve submittals and managed procurement. Additionally, modified the control narrative and led the upgrade of the PLC program, and completed commissioning and operator training.

Town of Gilbert, Wastewater Treatment System Design and Commissioning, MN. Lead Process Engineer and Project Manager for retrofitting Microdyn-Nadir membranes with Kubota submerged membranes. Conducted process and equipment evaluations, identified required modifications, updated PLC programming, optimized in-basin piping layout, managed procurement, and led commissioning.

Town of Bourne, Massachusetts, Package MBR System Design. Lead Process Engineer for design of a custom 0.1 MGD MBR system (pre-anoxic, oxic, post-anoxic, MBR) meeting <5 mg/L TN effluent. Responsible for equipment sizing, layout development, and bid proposal preparation.

Division of Drinking Water, Evaluation of MBR Effluent for Potable Water Reuse, CA. Served as a Research Scientist in collaboration with Carollo Engineers to evaluate pathogen Log Removal Values (LRVs) for direct potable reuse application of MBR effluent. Developed sampling plans, analyzed virus/bacteria/protozoa removals to investigate pathogen removal mechanisms, and prepared technical presentations for major conferences.

Kubota Membrane USA, Application Engineering, WA. Application Engineer responsible for preparing 50+ proposals for MBR systems (20,000 GPD to 8 MGD). Performed process simulation, biological reactor sizing, membrane sizing, and cost estimation.

Brightwater WWTP, Phosphorus/COD Removal Pilot System (3,000 GPD), WA. Research Engineer designing and operating a μ GAF pilot system with HAOPs media for TP and COD removal from MBR effluent. Achieved 99.5% TP removal (influent TP concentration ranging from 4 to 9 mg/L) and >50% UV254 removal during 45-day operation.

Daneh Pardaz Starch Processing, Starch and Gluten Production Expansion, Iran. Process Engineer evaluating and optimizing starch/gluten production. Conducted feasibility and cost analysis for 40% capacity expansion (Phase 1) and 100% expansion (Phase 2).

Publications and Presentations

G. Lee, **S. Modarresi**, M. M. Benjamin, 2018. Efficient phosphorus removal from MBR effluent using heated aluminum oxide particles (HAOPs) in μ GAF reactors, *Water Research*, 159, 274–282.

S. Modarresi, M. M. Benjamin, 2019. Enhancement of low-pressure membrane fouling protection by mixtures of adsorbents and microgranular adsorptive filtration, *J. Membr. Sci.*, 573, 528–533.

S. Modarresi, M. M. Benjamin, 2018. Insights and model for understanding NOM adsorption onto mixed adsorbents, *Environ. Sci. Technol.*, 52, 11, 6343–6349.

S. Modarresi, M.R. Dehghani, P. Alimardani, S. Kazemi Sabzvar, F. Feyzi, 2013. Measurement and modeling of mean ionic activity coefficient in aqueous solution containing NaNO₃ and polyethylene glycol, Iran. J. Chem. Chem. Eng., 32 (2), 31–39.

S. Modarresi, M. Soltanieh, S.A. Mousavi, I. Shabani, 2012. Effect of low frequency oxygen plasma on polysulfone membranes for CO₂/CH₄ separation, J. Appl. Polym. Sci., 124, 199–204.

J. Yang, **S. Modarresi**, Pretreatment Design for UIC Wells, 2025, GWPC Annual Forum.

N. Fontaine, L. Morris, C. McBride, H. Kuge, **S. Modarresi**, Y. Terao, A. Gilmore, A. Salveson, A. Branch, 10-year-old membranes challenge the tiered system with protozoa, virus and surrogate removal. 2021 WEFTEC.

L. Morris, N. Fontaine, A. Branch, C. McBride, H. Kuge, Y. Terao, **S. Modarresi**, A. Gilmore, A. Salveson, Demonstration of pathogen log reduction values for 10-year-old flat sheet membrane bioreactors. 2021 MTC.

N. Fontaine, A. Branch, H. Kuge, **S. Modarresi**, A. Gilmore, A. Salveson, L. Morris, 2020. Validating virus and protozoa removal and surrogates of a full-scale flat sheet membrane bioreactor. 2020 WEFTEC.

M. M. Benjamin, **S. Modarresi**, 2018. Development and verification of a new model for competitive adsorption on multiple adsorbents. Presented at the 255th American Chemical Society (ACS) National Meeting, New Orleans, LA, March 18–22.

S. Modarresi, M. M. Benjamin, 2016. Combining PAC, HAOPs, and Microgranular Adsorptive Filtration to Enhance Membrane Performance. Presented at the 2016 AMTA/AWWA Membrane Technology Conference, San Antonio, TX, Feb 1–4.

S. Modarresi, M. Soltanieh, S.A. Mousavi, I. Shabani, 2011. Effect of low-frequency plasma on polymeric membranes for CO₂/CH₄ separation. Presented at the 2011 National conference of membrane and membrane processes. Tehran, Iran, Feb 21–23.