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Introduction

Ms. Jesmani is a Water and Wastewater process engineer with five years' experience in water and wastewater process design and treatment engineering as well as water resource engineering. She has extensive experience in Enhanced Nutrient Removal, Co-Digestion, biosolids, water treatment, and water reuse. She has experience in site grading, Stormwater Management Analysis (SWM) and permitting, drainage design and Erosion & Sediment Control. Ms. Jesmani has skills in planning, process evaluations, detailed design, modeling, piloting, cost analysis, laboratory studies, feasibility studies, and contract documents combined with many years of research and development skills in this field. She also has advanced knowledge of AutoCAD Civil 3D, ArcGIS, ArcHydro, HydroCAD, EPA SWMM, Hydraulic toolbox, BioWin, GPS-X, Sumo, and MATLAB.

Education

Ph.D. in Environmental Engineering, Drexel University, Philadelphia, Pennsylvania, USA.	2018 - Current
M.Sc. in Civil and Environmental Engineering, Clarkson University, Potsdam, New York, USA	December 2016
M.Sc. in Environmental Engineering, Azad University	August 2013
B.Sc. in Civil Engineering**,** Azad University	February 2011

Professional Experience

Water and Wastewater Engineer II, AECOM, Philadelphia, PA, USA ***May 2017-Current***

Wastewater Treatment Projects

- ***Project Engineer*** *for designing and upgrading primary and secondary treatment as well as a digester at the New Castle Wastewater Treatment Plant, New Castle Sanitation Authority, PA. The plant is permitted to accept peak instantaneous flows of 34.5 mgd (i.e., wet weather peak flow) and a maximum monthly flow of 17.0 mgd with an organic loading capacity of 24,756 pounds per day.*
- ***Project Engineer*** *for providing engineering support services for the Philadelphia Water Department (PWD) for the grit removal system at the 210 mgd Southwest Water Pollution Control Plan (SWWPCP), Philadelphia Water Department (PWD), PA.*
- ***Project Engineer*** *for conducting Risk Management Plan Audits for Water Treatment Plant as well as Wastewater Treatment Plant at City of Bethlehem, Bethlehem, PA. The facility has a permitted hydraulic capacity of 20 mgd and an organic capacity of 39,365 lbs/day of BOD5. The plant has an annual average influent flow of 12.4 mgd and an organic loading of 32,413 lbs/day.*
- ***Project Engineer*** *for evaluating the current grit removal systems and make recommendations for upgrading the existing equipment at the 14.2 mgd Wildwood, 7.67 mgd Seven-Mile, and 8.24 mgd Ocean City Wastewater Treatment Facilities, Cape May County Municipal Utilities Authority (CMCMUA), NJ.*
- ***Project Engineer*** *for performing a plant-wide investigation to identify the cause of the recent suboptimal performance at the Delaware No. 1 Water Pollution Control Facility (WPCF) resulting in reduced effluent quality and dewatering performance and offered conceptual operational recommendations and capital recommendations, Camden County Municipal Utilities Authority (CCMUA), NJ. Camden County MUA treats 58 million gallons (220 million liters) of sewage per day at the Delaware No. 1 Water Pollution Control Facility. This flow travels through 135 miles (215 kilometers) of pipe assisted by 27 pump stations.*
- ***Project Engineer and Lead Engineer*** *for analyzing the biological and hydraulic capacity of Millville Wastewater Treatment Plant (WWTP) to better understand the ability of the facility to handle increases inflow/load from potential industrial sources. The plant has a permitted Average Daily Flow capacity of 5.0 mgd and a peak flow of 12.5 mgd. The project includes reviewing influent historical data, as well as current, design and future, flows and loads on the plant and develop a flow and mass balance for the liquid train process assessment. In addition, utilize process modeling software (BioWin) for assessment of increasing load at Millville Wastewater Treatment Plant, Department of Public Works, City of Millville, NJ.*
- ***Project Engineer and Lead*** *Engineer for performing Local Limit Evaluation for Proposed non-dairy Industrial Discharger. The plant has a permitted Average Daily Flow capacity of 5.0 mgd and a peak flow of 12.5 mgd. The project includes reviewing a potential connection that will contribute new flows to the system at a higher strength and use the updated BioWin model to determine the impacts on operations from the increased loadings, Millville Wastewater Treatment Plant, Department of Public Works, City of Millville, NJ.*
- ***Project Engineer*** *for designing conventional onsite wastewater treatment commercial system to collect, treat, and release about 1,600 gallons of wastewater flow rate per day and the minimum tank size of 3,200 gallons per day (gpd) from an estimated seven facilities in National Colonial Farm at Piscataway Park in Prince George's County, Wastewater Engineering Services, Frederick, MD.*

Wastewater Biosolids Projects

- ***Project Engineer*** *for providing engineering services at Millville WWTP for upgrading Solids Dewatering to new rotary presses (two units). The plant has a permitted Average Daily Flow capacity of 5.0 mgd and a peak flow of 12.5 mgd. The project includes*

Upgrading and replacement of the existing belt filter press sludge dewatering equipment with two new units rotary press to minimize operations and decrease annual sludge cake disposal costs. Millville Wastewater Treatment Plant, Department of Public Works, City of Millville, NJ.

- ***Project Engineer*** *for evaluation wastewater biosolids at 20 mgd Kent County Regional Resource Recovery Facility (KCRRRF). The project includes evaluation of liquid sludge screening, new automated centrifuges to replace Belt Filter Press (BFP) and new dryers. In addition, perform a market assessment for the dried biosolids product as well as Class A biosolids product while reducing operation and maintenance costs at KCRRRF, Kent County Regional Resource Recovery Facility (KCRRRF), Kent County Levy Court, DE.*

- ***Project Engineer*** *for upgrading Final Dewatering Facility (FDF) of a wastewater treatment plant for District of Columbia Water and Sewer Authority Utility Administration (DC Water) at Blue Plains Advanced Wastewater Treatment Plant, Washington, D.C. The plant has a treatment capacity of 384 mgd or 1.45 Gl per day, with a peak capacity (partial treatment during large storms) of over 1 billion gallons per day (3.8 Gl/day).*

Wastewater Facilities Plans Projects

- ***Project Engineer and Lead Engineer*** *for reviewing the City's Act 537 Sewage Facilities Plan Update Revision. The project includes review current flow and load trends, re-evaluate wet-stream process alternatives for future plant expansion and provide a recommendation approach (BIOACTIFLO) to the High Flow Management Plan, and develop recommendations for Bethlehem WasteWater Treatment Plant modifications/upgrades based on reviewing existing Act 537 Plan and based on future plant capacity expansion (~ 50 mgd) and biological organic capacity of between 56,000-63,000 lbs/d and comply with ammonia limits (May thru October limit: 5 mg/L NH3-N, November thru April limit: 15 mg/L NH3-N)). The current plant capacity flow is 12.4 mgd with the organic loading of 33,000 lbs/day. Bethlehem WWTP, Department of Public Works, City of Bethlehem, PA.*

- ***Project Engineer*** *for providing engineering services related to the Western Lehigh Sewage Partnership (WLSP) Capacity Planning Effort Assistance – Phase 1. The project includes preparing a comparison of capital and operating opinion of probable cost to assist in furthering two options (expand 41 mgd Kline's Island Treatment Plant with the organic capacity of 46,000 lbs/day or Upgrade the 11.75 mgd Industrial Pretreatment Plant (PTP) with organic loading of 13,000 lbs/day), asses hydraulic considerations at KITP, preparing the report on regulatory implications, evaluate sizing options for future WLSP and regional needs, and prepare process capacity (loading) at KITP as well as PTP. Lehigh County Authority, PA.*

Collection Systems, Stormwater, and CSOs Projects

- ***Project Engineer*** *for updating the Sewer Repair Facilities, Rehabilitation, and Replacement Program, Parkway Branch Basin ESA, Washington Suburban Sanitary Commission (WSSC), Prince George's County, MD. The length of the sewer range is from 92 feet through 350 feet for different vicinities in Prince George's County, MD.*

Water Supply, Transmission and Pumping Projects

- ***Program Management and Assistant Project Manager*** *for conducting engineering support services for the Philadelphia Water Department (PWD) to assist with the design of security fencing around the premier of the Upper Roxborough Reservoir site. The reservoir capacity is 147 MG. The site is in the Upper Roxborough area of Philadelphia. The property is bounded by recreational parks to the northwest and southeast, Hagys Mill Road to the southwest and Harner Street to the northeast.*

- ***Program Management and Assistant Project Manager*** *for conducting a physical model study of the West Oak Lane High Service Pump Station. The project includes the construction of A 1:3.0 scale model, and conducting tests to determine the nature and severity of any adverse hydraulic conditions that may affect the new 10 mgd pump performance, West Oak Lane, Philadelphia Water Department (PWD), PA.*

- ***Program Management and Assistant Project Manager*** *for investigation the existing conditions for Philadelphia Water Department (PWD) to assist with assessing the cause of vibration and flow loss during the operation of four of the six existing pumps with new Xylem dry pit submersible pumps located at Central Schuylkill Pumping Station (CSPS). The capacity of each pump is about 36 mgd. The project includes performing Physical Hydraulic Modeling by sub-consultant Clemson Engineering, attending Witness test to demonstrate the Physical Hydraulic model and prepare recommended mitigation measures to correct the pumping issues, Philadelphia Water Department (PWD), PA.*

Industrial Waste Treatment Projects

- ***Project Engineer*** *for conducting treatability study test to simulate the current operations of the biological treatment process at the DuPont Wastewater Treatment Plant while proportionally incorporating the High-Temperature Nylon (HTN) wastewater to assess*

the biodegradability of 3-MP and Dytek A and the nitrification ability of the biomass, DuPont Parkersburg, Chemical Manufacturing Facility, West Virginia.

- ***Project Engineer*** *for conducting Respirometry Testing to evaluate the impact of introducing 5,000 gallons of new wastewater "spent scrubber blowdown wastewater (SBWW)" generated by the Washington Works facility on the existing biological treatment process at the Chemours Washington Works manufacture facility, Chamours Washington Works, Wood County, West Virginia.*

Construction Management Projects

- ***Data Manager, and Program Management II*** *for reviewing Atlantic Coast Pipeline (ACP) and Mountain Valley Pipeline (MVP) site-specific Erosion and Sediment Control (ESC) and Stormwater Management (SWM) plans, requirements needed during and after construction completion. The project includes investigation of every foot of land disturbance related to 300 miles of pipeline in Virginia, 200 miles access roads in Virginia, and construction lay-down area. The total construction project cost is $9.8 billion. Served as a Project Engineer for conducting Erosion and Sediment Control (ESC) as well as Stormwater Management (SWM) for 12 miles of pipeline and 8 miles of the gravel access road in Virginia. Also, being part of a team that grew from 12 people to 400+ and helped trained others as a lead engineer, Atlantic Coast Pipeline (ACP), Virginia Department of Environmental Quality (VDEQ), VA.*

Location Quality Manager (LQM), AECOM, Beltsville, MD, USA ***Dec 2017-Aug 2018***

- *Director/Advisor*
- *Monthly coordination of Regional Quality Manager hosted calls*
- *Providing monthly Quality Insights training and Quality Data tools*
- *Supporting DCSA Quality Data needs*
- *Addressing DCSA QMS training questions*
- *Coordinating the logistics for planned Audit (local organization, #of PMs, meeting rooms, pre and post audit meeting coordination, etc.)*
- *Monthly coordination (RQM meeting) and regular coordination as needed*
- *Providing general quality support, as needed.*
- *Providing direction on Improvement Plan implementation*

Safety, Health, and Environment (SH&E) Representative of Water Group, AECOM, Beltsville, MD, USA ***Nov 2017-Aug 2018***

- *Identifying best safety observation/near miss reported so far and work with employee to create a Lesson Learned*
- *Creating a new emergency contact tri-fold every year*
- *Supervising Beltsville water employees for safety observation and near miss reporting, and required safety training*
- *Hazard recognition at Beltsville office if any*
- *Improving ideas to increase safety awareness at Beltsville office, including slip, trips and falls, healthy initiatives/wellness, SH&E board*

Safety, Health, and Environment (SH&E) Representative of Water Group, AECOM, Philadelphia, PA, USA ***Aug 2018 - Current***

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Improving ideas to increase safety awareness at Beltsville office, including slip, trips and falls, healthy initiatives/wellness, SH&E board

Research Engineer, Carollo Engineers, Walnut Creek, CA, USA ***Jan 2015-Dec 2015***

- *Studied energy yield and investigated the fate of major nutrients in a full-scale co-digestion treatment in four wastewater treatment plants, namely Buffalo, Ithaca, Rock Creek and Waco.*
- *Laboratory Studies: Designed and built a bench-scale co-digestion unit*
- *Sampling and Measurements: TS, VS, COD, TKN, NH3, NO2, NO3, TP, AHRP, RP, biogas volume, and methane production rate*
- *Data Analysis and Validation: Statistical analysis and numerical modeling*
- *Report Writing and Data Presentation: Reported and presented findings to Water Environmental Research*
- *Foundation (WERF), Carollo Engineers Company, O'Brien & Gere Company, and an author and co-author for journal publication.*

Research Engineer, Clarkson University, Potsdam, NY, USA ***Aug 2013-Dec 2016***

- *Cost Analysis: Estimated Capital costs as well as O&M costs of Wastewater Treatment plants to evaluate net present value of phosphorous and nitrogen removal or recovery.*

- *Lifecycle Assessment (LCA): Conducted Lifecycle Impact Assessment of Wastewater Treatment plants with different advanced biological and chemical treatment processes.*
- *Modeling: Modeled a full-scale Wastewater Treatment plant for Boothbay Harbor, Maine with all unit operations and processes to predict nitrogen and phosphorous removal or recovery*
- *Report Writing and Data Presentation: Wrote a full report and presented the findings to National Science Foundation (NSF), and an author and co-author for journal publications.*

Professional Activities

- Water Academy coordinator, AECOM.
- Secretary of Water Pollution Engineering Technical Committee, Environmental and Water Resource Institute (EWRI), American Society of Civil Engineers (ASCE).
- Active Member of Water Reuse Committee, Chesapeake Water Environment Association (CWEA).
- Associate Member of American Society of Civil Engineers (ASCE).
- Vice President, American Water Works Association (AWWA), Student Chapter of Clarkson University.

Advanced Computer Skills

- Professional Software: *MATLAB, LabVIEW, AutoCAD, Autodesk AutoCAD Civil3D, ArcGIS, ArcHydro, HydroCAD, Hydraulic toolbox, EPA SWMM, BioWin, GPS-X GIS, BioWin,*
- Development Tool: *MS-Outlook, MS-Visio, MS-Project, MS-Access, MS-Word, MS-Excel, MS-PowerPoint*
- Operation Systems: *Windows, Mac, OS*

Trainings and Certifications

- DC Water's Biosolids Processing Facilities at Blue Plains Advanced Wastewater Treatment Plant Tour, Chesapeake Water Environment Association (CWEA), Washington D.C.
- Stormwater Technical Training Seminar, Chesapeake Water Environment Association (CWEA), Baltimore, MD.
- Hazardous Waste and Emergency Response Training, Laboratory Safety, Clarkson University, Potsdam, NY.
- Protection Scour Critical Bridges, American Council of Engineering Companies, NY
- HSE, 1SO9001, ISO14000, OHSAS18000 Workshop, Certification Europe, London, UK.
- GIS (Arc Map, Arc Catalog, and Spatial Analysis), and Remote Sensing (RS)
- Environmental Design and Landscape Workshop

Professional Affiliations

- American Water Works Association (AWWA)
- Water Environmental Association (WEA)
- American Society of Civil Engineers (ASCE)

Technical Conference

- Moderator, Water Pollution Engineering Technical Committee, Environmental and Water Resource Institute (EWRI), American Society of Civil Engineers (ASCE), 2018 & 2019.
- Moderator, Water Reuse Committee, Chesapeake Water Environment Association (CWEA), 2018.
- Oral presentation, A model for nutrient bioextraction as a sustainable alternative to wastewater treatment removal process, ACE|AWWA, 2018.
- Oral Presentation, A model for nutrient bioextraction as a sustainable alternative to wastewater treatment removal process, Water Pollution Engineering Technical Committee, Environmental and Water Resource Institute (EWRI), American Society of Civil Engineers (ASCE), 2019.
- Oral presentation, Use of Biochar from Biosolid Pyrolysis for PFAS Management in Landfills: Technical and Economic Feasibility, American Chemical Society (ACS), 2020.
- Instructor of Technical Workshop, An Overview of BioWin, GPS-X, and Sumo, Water Pollution Engineering Technical Committee, Environmental and Water Resource Institute (EWRI), American Society of Civil Engineers (ASCE), 2020.