

VIRAJ DESILVA, PHD, PE, BCEE

Education

PhD - Environmental Engineering, Northwestern University, 1997

ME - Sanitary Engineering, Muroran Institute of Technology, Japan, 1991

BS and MS - Civil Engineering, Lviv Polytechnic Institute, Ukraine, 1986



Viraj deSilva

Professional Licenses

Professional Engineer – Florida, Ohio

Specialty Certifications

Board Certified Environmental Engineer (BCEE), Water Supply & Wastewater Engineering

Professional Affiliations

Water Environment Federation (WEF) - Committee Member

American Water Works Association (AWWA) - Member

Member, American Academy of Environmental Engineers (AAEE) - Member

Professional Experience

Dr. deSilva joined SCS in May 2018 as our Wastewater Treatment Director. He has over 28 years of progressive experience in wastewater engineering, from concept through construction and start-up. He is an international leader in operations and maintenance, energy management, solids handling processes, construction management, and commissioning wastewater treatment plants (WWTP) around the world. He has conducted projects throughout the United States as well as in Japan, France, Australia, Ukraine, Venezuela, Guam, India, Sri Lanka, Korea, Qatar, Jordan, Kuwait, UAE, and Iraq. Dr. deSilva is experienced in the evaluation and sizing of wastewater treatment and solids handling processes from headworks to disinfection including anaerobic digestion and waste-to-energy facilities.

Representative projects in which Dr. deSilva has been involved are described below.

Wastewater Treatment

Technical Director

- Phosphorous Removal Study and Design, Noblesville WWTP, IN.
- Long-Term Control Plan Program Manager, Evansville IN.
- Long-Term Control Plan Program Manager, South Bend IN.
- Phosphorous Removal Study and Design, Rockville WWTP, IN.
- Upgrading Century Archers WWTP, Franklin County, OH.
- Long-Term Capital Plan City of Anderson WWTP, IN.

Energy Optimization Program for Municipal WWTPs in South Hutchinson, Hutchinson, Medicine Lodge, Newton and Larned, KS. Program Leader. Developed the Energy Optimization Program and Study to reduce operation costs (energy and chemicals). Most WWTP studies include the evaluation of aeration energy and solids handling processes. The energy optimization includes automation, peak shaving, and on-line nutrient/DO monitoring.

BNR Plant Upgrade, City of Newton, KS. Construction Engineering Lead/Commissioning Engineer for 4.4 MGD BNR plant. The Newton WWTP is being upgraded from 3 MGD to 4.4 MGD. The new plant will meet the BNR limits required by KDHE. Processes include anaerobic, anoxic, aerobic processes, clarification and UV disinfection, aerobic digestion and dewatering via centrifuges.

Assessment of 2.35 MGD WWTP Plant, Custer Hill, KS. Project Manager/Demolition Expert. Supported plant assessment for course of action to preserve the plant for future use or demolition. Flow from under-loaded Custer Hill WWTP diverted to Ft. Riley WWTP. Managed evaluation of the plant by a team of five engineers and led the process/equipment assessment tasks.

Nutrient Studies at WWTPs in Newton, Custer Hills, and South Hutchinson, KS. Lead Engineer. Studied a number of WWTPs for KDHE to determine required process changes and associated costs to meet three different effluent standards: BNR, ENR, and LOT. Each level of effort was evaluated along with associated costs.

Aerobic Digester Upgrades at South Hutchinson WWTP, KS. Project Manager. Oversaw upgrade of four existing aerobic digesters to provide more efficient operation with reduced energy. The design included new PD Blowers and biosolids feeding system and polymer feed system optimization for GBT and BFP to provide flexibility and ease of operation.

Design-Build/Design-Build-Operate

Commission 1.2 MGD Dodge City (KS) MBR WWTP DB Project. Commissioning Engineer. Reviewed O&M manuals and plant-startup/trouble-shooting assistance. Led efforts on membrane cleaning, aerobic digester operations, and biosolids disposal tasks during the early stages of plant operation.

Construction of Wastewater Treatment Plant, Jahra-Kubd, Kuwait. Project Manager/Construction Supervisor for \$300 million wastewater treatment plant, pump station, and pressure mains. The 50 MGD VLR activated sludge plant includes screening, secondary treatment, and tertiary treatment with world largest Disk Filter design followed by UV disinfection.

DBO Airport Sewerage Treatment Plant, Doha, Qatar. Lead Design Checker/Constructability Engineer for 7.5 MGD activated sludge MBR plant, which includes screening, secondary treatment and tertiary treatment followed by UV disinfection. Led team that independently checked the STP design conducted by another consultant.

Sewerage Treatment Plant DBO Project in Al Khor, Qatar. Commissioning Engineer for 1.25 MGD activated sludge SBR plant DBO, including screening, secondary treatment, and tertiary treatment followed by UV disinfection. Led the HAZOP team on Plant O&M issues and oversaw the plant design and construction.

Industrial Wastewater Treatment

QA/QC Technical Director

- Richmond Power & Light, Transformer Oil Treatment Sys, Richmond, IN
- Community Tissue Center Oil Water Separator Design, Kettering, OH

Renewable Energy Upgrade at Ethanol Facility in KS (Confidential Client). Lead Engineer. The facility includes anaerobic digesters fed by waste from ethanol, cow manure, and animal carcasses. The produced methane gas is converted to renewable energy. As part of this upgrade, an odor control and truck wash facility was designed.

Troubleshooting Study for Meat Processing WWTP, Dodge City, KS. Project Manager and Lead Process Engineer. The study includes evaluation of existing UV capability and existing post-aeration system. Recommendations include process modifications to meet permit requirements.

Process/Reactor Design for Cutting Oil Treatment and Oil Recycle (Confidential Client). Lead Engineer. The BOD/COD reduction from waste includes a batch chemical process and solids disposal and dewatering. Five different oil waste types were considered, and different chemicals with appropriate dosing were proposed for the treatment process.

Alternative Sludge Disposal Systems Investigation, Tropicana WWTF, Bradenton, FL. Lead Engineer. Investigated four different process options to upgrade existing cattle feed sludge disposal system banned by the European Community.

Anaerobic Digesters

Lead Process Engineer

- Anaerobic Digester Upgrade, Northwest WPCF, City of Clearwater, FL
- Anaerobic Digester Upgrade, Marshall Street WPCF, City of Clearwater, FL
- Anaerobic Digester I&C upgrade, North and South WWTPs, Miami Dade Water & Sewer, FL
- New Anaerobic Digester Concept Design, Polebridge WWTP, DeKalb County, GA
- Anaerobic Digester Troubleshooting, South Cross Bayou WRF, Pinellas County, FL
- Anaerobic Digester Upgrade, Oakley, KS

Construction Supervision/Support during Construction Phase

Engineering Support during Construction

- WWTP, Ft. Reilly, KS
- WWTP, Ft. Leonard Wood, MO
- 30 MGD ASR Surface Water Treatment Plant, Wichita, KS
- WTP, Ft. Scott, KS
- WTP, Pittsburg KS
- WWTP, Hutchinson, KS
- 1.25 MGD Sewerage Treatment Plant, Al Khor, Qatar
- 50 MGD WTP, Jahra-Kubd, Kuwait
- 66 MGD Surface Water WTP, Tampa Bay Water, FL
- 6 MGD Groundwater WTP, Tampa Bay Water, FL

Supervised Construction

- Southwest Master Pumping Station, Pasco County, FL
- 33 MGD South Cross Bayou WRF, Pineless County, FL
- 23 MGD Northwest WRF, St. Petersburg, FL
- 12 MGD Northeast WPCF, Clearwater, FL
- 6 MGD Marshall Street WPCF, Clearwater, FL
- Food Establishment Sludge Facility, Pasco County, FL
- 20 MGD Southwest WRF, City of St. Petersburg, FL
- Two Wastewater Pumping Stations, Colombo, Sri Lanka, under World Bank's Greater Colombo Sewage Project

Select Publications and Presentations (Complete list of over 110 available upon request)

Direct Potable Reuse Applications Around the World, Membrane Technology Conference, West Palm Beach, FL, 2018.

Grit Removal in WWTPs, Options and Solutions, IWEA Conference, Indianapolis, IN, 2017.

Toilet to Tap – Global Water Reuse Projects, AWWA Conference, Philadelphia, PA, 2017.

Phosphorous Recovery Options at Water Resources Recovery Facilities – Stopping the Race Track Effect, WEFTEC, New Orleans, LA, 2016.

Ammonia-Based Aeration Control. On-Line Probes to Save Energy Cost and Meet Compliance, WEFTEC, New Orleans, LA, 2016.

On-Site Sodium Hypochlorite Generation vs. Commercial Sodium Hypochlorite, AWWA Conference, Chicago, IL, 2016.

Treatment Challenges for Blue-Green Algae Control – Overview and Case Studies, AWWA Conference, Chicago, IL, 2016.

Challenges Treating Oily Wastewater, WEFTE, Chicago, IL, 2015.

On-line Nutrient Monitoring-Operator's Job Got Easier, OWEA Conference, San Dusky, OH, 2015.

Energy Audits at WWTPs – What to Look for and Where to Save, IWEA Conference, Indianapolis, IN, 2015.

Cost-Effective Odor Control Strategies in Collection System – The Traditional and the New, IWEA Conference, Indianapolis, IN, 2015.

On-Line Wastewater Nutrient Monitoring, IWEA Conference 2014, Indianapolis, IN.

Achieving Bio-P at Noblesville WWTP – Case Study by Process Modeling Approach, IWEA Conference Indianapolis, IN, 2014.

Control of Zebra Mussels – Treatment Options, AWWA Conference, Boston, MA, 2014,

Energy Management at Wastewater Treatment Plants, KWEA Annual Conference, Wichita, KS, 2013.

Utilizing On-line Monitoring and Automated Process Control to Achieve Low Effluent Total Nitrogen Levels, WEFTEC, Chicago, IL, 2013.

Energy Conservation and Ease of Operation at Hutchinson, Kansas Wastewater Treatment Plant WEFTEC, Chicago, IL, 2013.