

Email: njchurch@gmail.com DANIEL CHRISTODOSS, EMT, PhD, P.E.
**Water, Wastewater, Environmental Remediation, Compliance, AMR/AMI, Asset Management, Storm Water-Drainage-
City Engineer, Modeling, Pilot Studies, Design, Construction, Operational Optimization, Life-Cycle Sustainability**
Project Photos, References and Publications @ www.njchurch.org/resume

(Mobile) 817 894-1357 4931 Old Coffee Plantation, Rosharon, TX 77583

SUMMARY of EXPERTISE [Connect with me @ LinkedIn](#)

Process engineering, water sustainability planning, design of water and wastewater plants-pipelines-utilities, master plans, innovative technology pilot studies, bio solids & water reuse, waste to energy, industrial wastewater treatment, life-cycle asset management, soil & groundwater RI/FS and remedial design, InfoWorks ICM wastewater collection system modeling, I&I & water loss control, AMR/AMI, drainage design, residential and commercial development, web design. Phase 1 and 2 site assessments and environmental audits, soil & groundwater RI/FS and remedial design, technology research and development (R&D), EMS-ISO 14001 training & auditing, infrastructure grants identifying and securing.

AREAS OF EXPERTISE

Asset/Risk Management: Plant Engineering, Preventive Maintenance, Capital Project Planning (CAPEX)

- Water/Wastewater Plant GPS Asset Inventory & Condition Assessment with Condition/Criticality Ranking
- Prioritized Weighted Long Term Capital Improvement Project Program Planning for Multiple Assets
- Asset Preventive Maintenance Schedules

Environmental Compliance and Remediation

- RI/FS, Value Engineering, Pilot Studies, Proposed Plan, Record of Decision and Remedial Design/Construction
- Environmental Compliance and Audits
- Development, Design and Construction of Innovative Remediation Technologies

Water Services (Groundwater, Surface Water Plant Preventive Maintenance/Design/Construction)

- Modeling, Water Treatment Plant Design, Existing Design Optimization and Rehabilitation
- Distribution System Design
- Master Plans and 85% Capacity Reports to TCEQ

Municipal Waste Water Services (Preventive Maintenance/Design/Construction)

- InfoWorks ICM Modeling, Waste Water Treatment Plant Design with Reuse
- Collection System Design
- I&I Studies and Recommendations
- Lift Station Design
- Capacity Evaluations and Rating Studies
- Wastewater Master Plans
- Green Energy (Sludge to Pellets) and Bio-solids to Energy (Electricity Generation using Methane)

Industrial Waste Water Services

- Pilot Studies
- Treatment System Design, Construction and Optimization

Storm Water Management

- Hot Spot Studies, Design and Construction

City Engineering and Utility Program Management

- Review of Development and Engineering Plans
- Water and Wastewater and Stormwater Field Operations City Wide

- Code Compliance Investigations
- Stormwater Pollution Prevention Plans
- City Planning Functions
- Preliminary Traffic Engineering and Route/Road Widening Feasibility Studies

Grant Administration

- Identification of Applicable Grants
- Preparation of Grant Documents
- Coordination with the Funding Agency for Receipt of Grant Funds

Value Engineering

- Identification of Technologies
- Effectiveness, Implementability and Cost Evaluations
- Return on Investment (ROI) and Life Cycle Analysis
- Weighted Ranking of Alternatives
- Recommendation of Optimal Technology which provides the highest ROI at lowest Life Cycle Cost

Technology Innovation

- Problem Evaluation
- Pilot Studies for Development
- Full Scale Design

Automatic Meter Reading/Automatic Meter Reading Infrastructure

- Evaluation of Technologies
- Exploring available funding sources
- Grant Administration
- Business Plan
- Implementation of the optimal Automatic Meter Reading Technology for Utilities to maximize the Return on Investment (ROI).
- Construction Administration

Patent Applications

- Preparation and filing of Provisional (Patent-Pending) Applications
- Preparation and filing of Regular Patent Applications

Web Design

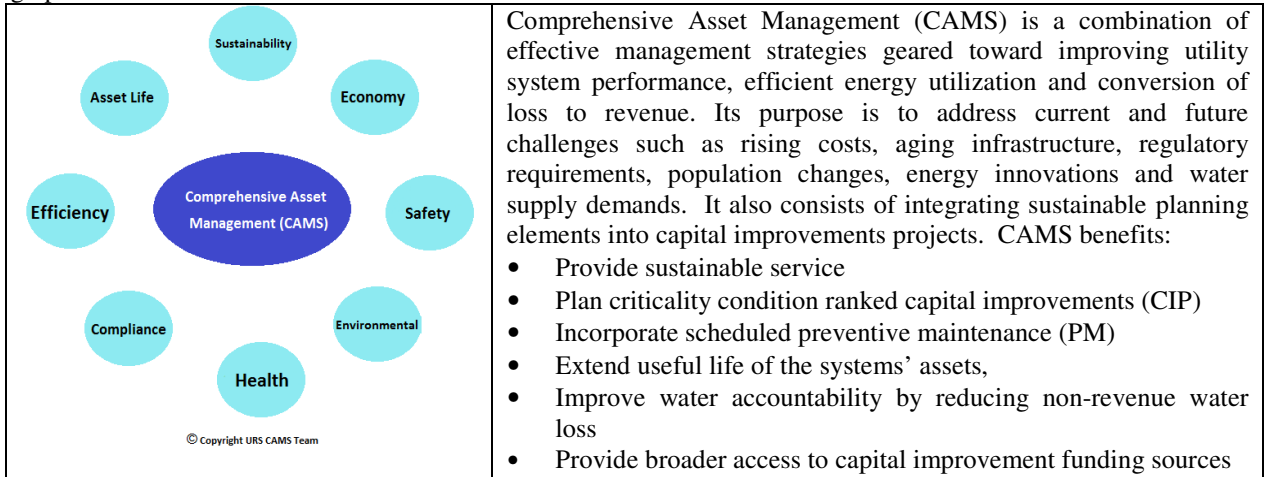
- Creation of interactive web sites utilizing state of the art design tools
- Website optimization and promotion

URS CORPORATION, Houston, TX

2012 – Present

Business Development – Marketing. Prepared a new water and wastewater and comprehensive engineering services business sector and brochure which included facilities, transportation, drainage/stormwater, asset and energy management, renewables with reuse, water and wastewater and permitting services. Upgraded standard SOQ template master to be comprehensive and focused on client needs. Established new relationships with over 52 municipalities in North, Central and South East Texas. Won \$25,000 of work for permit related engineering for Waco WMARSS Wastewater Plant the 2nd month. Developed new business initiatives for Biogas (methane) to Electricity Sludge to Soil Conditioner, FOG to Biodiesel, Wastewater Reuse, Comprehensive Asset and Energy Management plus AMR and AMI. Made marketing presentations on comprehensive municipal engineering services.

Comprehensive Utility Asset Management. Assembled a Comprehensive Asset Management Team (CAMS) and Program for Municipalities to address long-term infrastructure sustainability through Preventive Maintenance, Criticality and Condition Ranked Capital Improvements to include water audit and non-revenue water loss. The concept is outlined in the graphic below:



West District and Upper Brays Wastewater Treatment Plant Service Areas Sanitary Sewer and Odor Control Systems Master Plan, City of Houston, TX. Completed a Collection System Master Plan for the City of Houston as the Senior Project Engineer. The InfoWorks Model was integral to the master plan. The Master Plan identified existing wastewater system deficiencies and future needs of the system to provide prioritized recommendations to the City that would provide the greatest return for the time and money invested in the projects. The master plan involved condition assessments for the collection system infrastructure utilizing a prioritization matrix.

City of Beaumont Collection System Optimization. As the Senior Project Engineer, built a collection system model using Info Works (Integrated Catchment Model) ICM to perform a conceptual study. Determined optimal operating conditions to maximize the collection system capacity. Evaluated storage potential of the existing collection pipes, manholes, and lift stations/pump stations, against various dry and wet weather flows. Input alternative pump operating schemes into the model to maximize available storage, and identify additional storage needs within the collection system. The study was intended to minimize the capital improvements needed by maximizing the storage and redundancy within the sewer infrastructure comprised of pipes, manholes and lift stations/pump stations. Infiltration/Inflow (I/I) was also studied for storm events during the Info Works ICM collection sewer system hydraulic modeling conceptual study/preliminary engineering report (PER). Additional storage needs within the collection system were identified from the Info Works ICM Modeling Effort.

Oil & Gas + Timberwood NH Livingston WWTP WTP and WWTP Compliance support and TCEQ coordination for an International Oil & Gas Client. Prepared Sludge Management Plan for TCEQ Compliance as part of the WWTP Permit.

Ralston Acres Water Supply Corporation Prepared \$1.5M TWDB DWSRF Grant Application for Replacement of water well, water lines, storage and pressure tanks, chemical, electrical and structural modifications.

Industrial Source Water Treatment, France Prepared conceptual design for innovative removal of Trihalomethanes (THMs) in chlorinated source water used for process and human consumption.

Phillips 66 Borger Landfill Leachate Pump Design Designed the Leachate Pump, Piping, Electrical and Controls/Instrumentation for pumping the landfill leachate to the tank. Performed pump hydraulic design for system head, total dynamic head and design point.

ENPROVISE SOLUTIONS. INC, Granbury, TX

2009 – 2012

Municipal_Industrial: Water/Wastewater Master Plans, Technology Development/Validation through Pilot Studies, Hydraulic and Treatment Design, Construction and Operation. **Environmental Remediation:** RI/FS, Remedial Design & Construction. **Public Works:** Drainage hot spot evaluation, hydraulic design, and construction.

SOUTHWEST WATER COMPANY, Sugar Land, Texas

2009 – 2012

Design: Performed chemical feed and booster/well pump designs to attain optimal efficiency.

Technology: Implemented innovative aeration/recycle technology for Tri-Halo Methane reduction in Water Tanks.

Asset Manager/Design and Construction Manager: Managed assets by preparing an Asset Management Implementation Project Plan followed by Inventory Audit and Condition Assessment of Water and Wastewater Infrastructure. Prepared Asset Appraisal and Life Cycle Analysis plus Return on Investment for Management.

Criticality Assessment and Preventive Maintenance: Assigned scores to ground water, surface water and wastewater treatment plant assets based on redundancy, criticality, system and probability of failure to prepare a preventive maintenance plan, and long term capital improvement plan.

Water Capacity Planning: Planned for long-term capacity using population projections, economic outlook and historical trends to increase water system capacity to match future growth. Utilized peak and average flow graphical trend predictions to make future decisions on augmenting groundwater supplies vs. purchasing wholesale water.

Transition to Wireless RF Frequency Automatic Meter Reading (AMR): Created a new AMR Program by preparing a business case/return on investment (ROI) document to evaluate the merits of transitioning from a manual meter reading system to an AMR system. Team modified Mobile Antenna for optimal RF interception.

Meter Replacement: Evaluated AMR technologies and made recommendations on the best technology which provided the highest rate of return at the lowest life-cycle cost. Prepared detailed schedule in MS Project.

Water Loss Program: Created a new water loss program by controlling real and apparent losses. *Real Loss Control:* Performed Cycle-stop valve installation and testing to quantify reduction in leaks through pressure equilibration. *Apparent Loss Control:* Utilized study identifying significant drop in efficiency for meters that registered over 1.7 million gallons and proposed replacement of meters with state of the art automatic meter reading and high accuracy rugged registers.

Hydraulic Design/Filter Backwash Pump Design: Prepared a hydraulic model of backwash systems at two water plants to evaluate piping upgrade and pump replacement options to meet the minimum backwash flow requirements established by TCEQ. Extensive Hydraulic Design and Modeling to select optimum pipe and pump.

Sludge Dewatering Project: Evaluated available technologies and selected a new technology to provide a sludge volume reduction of 94% at a wastewater plant documented in the business plan/ROI in coordination with pilot testing at the facility.

Developments: Reviewed design and performed ROI calculations based on infrastructure cost vs. life cycle revenue.

ALAN PLUMMER ASSOCIATES INC, Fort Worth, Texas

2007 - 2009

Project Manager/Engineer: Managed and designed projects involving road and bridge construction (\$5M), drainage and water/wastewater utility improvements (\$1M), and water treatment plant improvements (\$10M) and made presentations at City Council and Client meetings. Provided marketing support for numerous prospects and won over \$5M in projects for the company. Developed and implemented an innovative water treatment technology, met with potential clients and consulting engineers to discuss and develop plans to employ the technology on projects, and submitted a patent application for bio-filter de-nitrification technology. Projects included:

Huntsville Water Treatment Plant: Prepared construction plans for expansion from 6 MGD to 12 MGD including the design of innovative 11 MGD GAC biological de-nitrification filters for nitrate and taste and odor removal.

- Designed backwash pump station and 1.2 MG clearwell: four 350 HP low energy vertical turbine pumps
- Performed hydraulic design of parallel 30 and 42 inch 10 mile long transmission main with booster pump

Mansfield Water Treatment Plant: Evaluated GAC pressure filters vs. gravity filters for the plant expansion from 15 MGD to 30 MGD (current) and 45 MGD (2020).

TRA Central WWTP Diamond Filters: Project Engineer for the high flow and small footprint diamond cloth filters to replace the existing sand filters. Features include higher solids loading per square foot of media (2.5 times the filtration area of sand filters), higher hydraulic loadings, reduced backwash water volume, reduced footprint

Amarillo Wastewater Treatment Plant (WWTP) Master Plan: Project engineering and management for performing a feasibility study of new satellite WWTP vs. upgrade of existing Hollywood Road and River Road WWTPs with reuse cooling water to the power plant.

Azle Flooding Hotspots: Identified drainage solutions and prepared hydraulic designs for 10 of 25 flooding hot spots in the City of Azle. These 10 hot spots were prone to flood prone businesses, and major streets.

Stribling Drainage Channel: Designed and managed the reconstruction of the eroded channel to grade with armor flex and geotextile mat for erosion control and conveyance of the 100 year storm.

Highway 199 Lift Station: This lift station serves an area which includes a large undeveloped section of land along State Highway 199 west of the lift station site. Performed hydraulic design of pumps and pipe.

Highway 199 Sewer line Crossing, Ash Creek Sewer line Relocation and Turpin and Conwell Water Lines: Designed the replacement of an existing 8 inch aged sewer line with a new 12 inch line by methods other than open cut since the line crossed a busy highway. Performed hydraulic design to select optimum pipe and grade.

Ash Creek WWTP Effluent Pump Station: Project increased the capacity of line from 2 MGD to 3 MGD.

Grant Support to Cities and Authorities: Assisted City of Azle and Trinity River Authority in applications to the Texas Water Development Board for Water Treatment Plant Expansion and Wastewater Treatment Plant Upgrade Funding (approximately \$25M combined).

Denver Trails Road and Bridge: Designed and managed the project which involves a 3,000 ft long road with a 900 ft bridge over the floodway of Ash Creek with drainage (storm collection system comprised of inlets and flume combinations) and water-sewer improvements.

Azle Water Treatment Plant Evaluation: Identified possible causes for the high turbidity at the transfer station and recommended that the caustic feed be relocated to a zone of high mixing upstream of the transfer station.

Azle Development/Construction Plan Reviews: Reviewed development and construction plans for conformity with City of Azle Ordinances and acceptable engineering practices so City budget can be dedicated towards expansions and improvements to accommodate growth rather than remediation of problem systems.

Azle Central Parks: Responsible for the design and construction of the 30 acre park which included recreational facilities, gardens, bird blinds, landscaping, irrigation and lighting, and a drainage system and a detention pond.

CITY OF WACO, Waco, TX

2004 – 2007

Program Manager: Operations and maintenance manager for about 900 miles of waterlines and 800 miles of sewer at Waco and Coordinator for the Environmental Management Systems (EMS) Program Initiative with TCEQ.

- Performed hydraulic design and constructed an emergency 36 inch sewer line across a major arterial road which collapsed due to a sinkhole. Budget constraints led to design-build at 50% of the cost of contract bids
- Prepared Manhole/Lift Station Overflow Reduction Plan to TCEQ
- Responsible for managing construction/preventive maintenance of water distribution systems and wastewater treatment plants spanning 100 square mile of service area and serving 150,000 residents
- Saved \$20 Million by doing a hydraulic-treatment stress test to retain the WMARSS wastewater treatment plant capacity at 37.8 mgd and eliminate downgrading to 31 mgd and made presentations to TCEQ
- Stabilized operations budget during energy crisis (natural gas @ \$13/mmbtu) by waste to energy initiatives
- Prepared plans to provide 24/7 water and sewer service for 150,000 population including line cleaning, Water/Sewer Mains and Lateral Repair/Replacement, sewer overflows prevention, and pipe leak prevention

KILLEEN ENGINEERING, Killeen, Texas

2004 -2005

Development Engineer: Performed residential and commercial subdivision/lot designs for lot layout, roads, hydraulic design of drainage, water and sewer designs in compliance with Drainage Criteria and Design Manual and TCEQ/Local water and sewer codes. Prepared standardized spreadsheets to document hydraulic designs.

CITY OF TEMPLE - Temple, TX

2002 - 2004

City Engineer (CIP, Development, and Building Inspection & Flood Plain Manager): Directed public works activities, including the design, construction, and operation of roads, traffic engineering and road alignment feasibility studies, water/wastewater utilities, and City developments; coordinated maintenance of road and drainage systems and traffic control functions with Director of Services.

- Served as the City Flood Control Engineer
- Managed roads, drainage, water and sewer, and subdivision infrastructure projects in excess of \$400 M
- Made presentations to City Council and Planning/Zoning Commission on Zoning, Plats and Construction
- Managed all environmental activities associated with storm water permits; and recommended solutions

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION, San Antonio, TX

1997 - 2002

Senior Project Engineer: Field engineer for optimization of the Unipure industrial heavy metals co-precipitation treatment plant, performing a comprehensive study of process parameters for enhancing treatment performance and meeting NPDES limits.

Kelly AFB: Performed a hydraulic design upgrade to the existing Groundwater Treatment Plant (GWTP) in a design-build process, and oversaw construction. Performed hydraulic design and construction oversight of lift/pump station, recovery well pumps, silt traps, below ground piping, mechanical and instrumentation components

- Brought in new work through consistent technical support to AFB client via AFCEE/AFB programs
- Evaluated Interim Stabilization Measures for Sites A, B and C contaminated with Heavy Metals from Plating Operations, Free Product, Chlorinated Solvents in soils and groundwater exceeding TCEQ limits

Brooks AFB: As Resident Support Engineer conducted engineering evaluations and system cost analysis and recommended, designed, and oversaw reengineering projects as required to ensure optimal operation.

JACOBS ENGINEERING, Oak Ridge, TN

1994 - 1997

Senior Feasibility Engineer: Prepared feasibility studies, proposed plan, ROD, construction oversight and monitoring plan for 5-year CERCLA review for a Y-12 Filled Coal Ash Pond Remediation and received written commendations from DOE for escalation of milestones which resulting in a savings of over \$2M and completion of the Remedial Design, and Remediation 7 years ahead of the original schedule

Feasibility Study Engineering Group Leader: Conducted weekly meetings for engineering staff and prepared presentations on emerging treatment technologies for contaminated soil, groundwater, and sediment and was commended for effective communication and presentation of geological hydrogeological and engineering principles relevant to remediation. Projects included but not limited to:

Chanute AFB, IL: Developed an environmental Cleanup Plan for the demobilization, closure and spill control and discharge plan for remediation of a landfill and a test site contaminated with metallic and organic contaminants.

Task manager for the K-25 Project: Prepared a ROD for a classified, contaminated burial ground and engineering studies for in situ vitrification and chemical oxidation of a pit contaminated with volatile organics and radionuclides, and remediation of PCB-contaminated ponds.

Senior Engineer for restoring contaminated auto salvage sites: Prepared Engineering Evaluation/Cost Analysis and Specifications for Magnetometer Surveys to identify buried objects, Soil Sampling with Geoprobe Sampling Systems for site contaminated with PCBs, radiological constituents, organics and heavy metals including mercury.

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION, Oak Ridge, TN

1992 - 1994

Senior Environmental Engineer: Project manager for an Engineering Evaluation/Cost Analysis-Environmental Assessment (EE/CA-EA) for the Colonie site, New York under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

- Prepared regulatory requirements package for Creek Environmental Impact Statements
- Performed an environmental audit of the Paducah Gaseous Diffusion Plant (PGDP), Paducah, KY
- Prepared Integrated Waste Management Plans for organic, nuclear and mixed wastes for the Y-12 inactive nuclear weapons production plant, K-25 inactive gaseous diffusion plant, X-10 active research facilities
- At the Burial Grounds at PGDP prepared conceptual designs and analysis for remediation of the WAG 22 and received commendation from DOE site manager for the team's finding cost-effective ways for cleanup
- Prepared conceptual designs for air strippers, ion exchange and activated carbon treatment units for the Portsmouth site groundwater corrective measures study (CMS)

BECHTEL ENVIRONMENTAL INC. - Oak Ridge, TN

1989 - 1992

Civil Engineer: Principal Investigator for development of an innovative technology in hazardous waste treatment & waste minimization including producing a conceptual design of sewer and treatment systems to convey water (via railroad crossing) from blow-down, tank farm sinks, metal frame warehouse and a 2 story concrete block warehouse to a sanitary sewer after being treated in an activated carbon unit.

- Performed hydraulic design of storm sewer system, sumps and catch basins based on a 25 year storm
- Performed structural analysis of manholes for a FUSRAP project to prepare specifications for purchasing the appropriate manhole to accommodate site-specific requirements

- Performed calculations for determining the bearing pressure, buoyancy, uplift force, AASHTO soil load on the manhole structure, bending stress, maximum moment and shear on manhole roof
- Calculated the maximum slope angle based on angle of internal and the cohesion "c" (for various factors of safety) for a low level radioactive waste storage pile covered with clean soil and riprap on the slope
- Prepared the conceptual design for a soil cover and riprap configuration for the FUSRAP project.

LICENSES /CERTIFICATION

- Professional Engineer (PE) – State of Texas
- Emergency Medical Technician (B) – State of Texas
- 40 Hour OSHA Management of Hazardous Waste Operations (HAZWOPER)

EDUCATION

- PhD in Civil Engineering - University of Tennessee - Knoxville, TN
- MS in Public Health Engineering - Bharathiyar University, Coimbatore, India
- BS in Civil Engineering - Madras University, Coimbatore, India

AWARDS

- Texas Environmental Excellence Award for Waste to Energy and Pollution Prevention at Waco WWTP
- *National Pollution Engineering Award* for Eco Sensitive Remediation Design of Coal Ash Pond/Dam
- *AWWA Award* for contribution to research in water treatment.
- *Award for effective team building-technical excellence in key SAIC projects (1994)*
- *Bechtel Award of Merit for technical excellence (1990, 1992 and 1993)*
- Bechtel Technical Grant Award for development of innovative technology in remediation. SAIC Year 2000 Environmental Excellence Award as part of team that facilitated the Air Force Base Closure Agency's acquisition of Kelly Air Force Base through innovative remediation-related efforts

PUBLICATIONS

- ✚ Tangential Flow Filtration (TFF) Membrane Applications, Texas A&M Short Course, Dept. of Food Sciences, April 2013.
- ✚ Water Reuse: Technologies for Industrial & Municipal, Texas A&M Short Course, Dept. of Food Sciences, October 2013
- ✚ Streamlining Cleanup Decisions at Filled Coal Ash Pond, Proceedings for the Air and Waste Management National Conference, Nashville, TN (1996)
- ✚ 2011 Implementation of a High-Tech Automatic Meter Reading Application in Unprecedented Record Time at Diversified Texas Water Utilities, 15th Annual Energy, Utility & Environmental Conference, Phoenix, AZ (2012)
- ✚ Anoxic Selector Single Stage Nitrification Process, Texas Commission on Environmental Quality Annual Water Quality Training, Waco, TX, (2006)
- ✚ Paper: "Capping Options for Low-Level Radioactive Mtrl Storage Pile, Waste Management Symposia '93
- ✚ Wastewater: Heavy Metals Removal-Enhancing the Process-Part I & II, Environmental Technology Journal of Advanced Science & Engineering (1999)
- ✚ Remedial Action Alternatives for Containment of the Source and the Centroid of the Northwest Plume of Groundwater Contaminants Originating from the Paducah Gaseous Diffusion Plant in Kentucky, USA, 2nd International Symposium on Environmental Contamination, Budapest '94, Hungary
- ✚ Turning Wastewater Treatment Sludge into Revenue by Bio-transformation (Bio-Fuel: Methane Generation, Optimization, Electricity Production/Reuse), Texas AWWA Conference Proceedings, Austin, TX, April 2006/Texas Public Works Association, Mesquite, TX (2006)
- ✚ Activated Sludge Plant Field/Model Capacity Evaluation, Texas AWWA Conf', Austin, TX (2006)
- ✚ Meeting O&M and Capital Investment Challenges in Wastewater Treatment, ASCE, Temple, TX (2006)
- ✚ Activated Sludge Plant Field Study, Texas Public Works Association Meeting, Mesquite, TX (2006)
- ✚ Retaining and Replenishing Water Utility Operators for Long Term Operational Sustainability of Critical Infrastructure, Utility Management Journal (abstract submitted)
- ✚ Manganese Sequestration by Silicates-Polyphosphates with Oxidants, Ph.D. Dissertation, Univ. of Tennessee, August, 1990
- ✚ Silicate Effects on Iron Colloids in Sequestration, ASCE Conference on Environmental Engineering, Washington, DC, (1990)
- ✚ Sequestration of Iron in Groundwater by Polyphosphates, AWWA Annual Conference, Cincinnati, OH (1990)
- ✚ Sequestering Methods of Iron and Manganese Treatment, AWWA Research Foundation Project Report (1989)
- ✚ Fluoride Analysis and Treatment of High Fluoride-Bearing Water Sources, MS Thesis, Madras University (1985)
- ✚ Tangential Flow Membrane Filtration (TFMF) Applications in Wastewater Reuse plus Brackish Groundwater and High Chloride Surface Water Treatment, March 2014 Membrane Technology Conference, AWWA-AMTA, Las Vegas, NV