

Richard D. Moore, P.E., BCEE

Senior Solids Handling Consultant

Education

M.S. – Civil/Environmental
Engineering, University of
Massachusetts at Lowell, 1977

B.S. – Civil Engineering, Michigan
State University, 1978

Registration

Professional Engineer: Florida
(License No:34083)

Professional Engineer: California
(License No: 23122)

Richard Moore specializes in engineering and project management services related to biosolids management, drinking water, and wastewater treatment, and has over 46 years of experience in the planning, design, and construction of major water and wastewater facilities in the United States and overseas. Mr. Moore's project involvement includes managing major public utility projects in the areas of biosolids management and solids handling, water supply, treatment, and distribution; wastewater collection, treatment, and disposal. Amongst other roles, Mr. Moore served as CDM's Division Quality Manager and was responsible for developing and overseeing the division's Quality Implementation Plan, including training of staff, monitoring compliance with quality management (QM) procedures, and performing and overseeing independent QM audits and technical reviews for CDM's ten Florida offices. Mr. Moore was a lead author for CDM's QMP-4, the Quality Management Process Manual for Design-Build projects.

BIOSOLIDS AND RESIDUALS MANAGEMENT

Lead Design Engineer, Tampa Bay Regional Surface Water Treatment Plant, Tampa Bay, Florida. This project included the expansion the Regional Surface Water Treatment Plant to 120mgd under a design/build/operate agreement with Veolia Water and Tampa Bay Water. Mr. Moore was lead design engineer for solids handling improvements including gravity thickeners, belt filter press dewatering, sludge conveyor systems, backwash solids clarifiers, and recycle surge basins.

Lead Design Engineer, Okaloosa County 10 mgd Arbennie Pritchett Water Reclamation Facility Design/Build Project, Florida. Mr. Moore was lead design engineer for biosolids handling facilities including rotary drum thickener, aerobic digesters, centrifuge dewatering, and sludge pumps.

Lead Design Engineer, Babcock Ranch Town & Country Utilities, Florida. Mr. Moore was the lead design engineer for the biosolids processing facilities for a small water reclamation facility expandable up to 7 mgd. Facilities include sludge drying beds and aerated static pile composting systems.

Technical Advisor, Orange County Utilities Biosolids Management Program, Florida. Mr. Moore prepared summary of regulatory and market changes affecting biosolids land application programs in Florida, and evaluation of alternative biosolids processing technologies as part of a long range regional master plan.

Senior Technical Advisor, Miami Dade County Biosolids Master Plan, Dade County, Florida. Mr. Moore assisted in the performance of a Biosolids disposal evaluation. As senior technical advisor, he provided assistance in evaluating the existing biosolids program for the County's three regional wastewater treatment plants, and evaluating alternative processing technology alternatives for a long range master plan.

Senior Technical Advisor, Palm Beach County Solid Waste Authority Biosolids Processing Facility, Florida. This design/build/operate project was for a regional \$30 million biosolids pelletization facility. Mr. Moore was the senior technical advisor for preparation of the Request for Qualifications (RFQ) and the Request for Proposals (RFP) including design criteria package. He evaluated responses and recommended award to the design/build/operate (DBO) contractor and assisted in oversight of the project implementation during design and construction.

Project Director, Residuals Treatment and Disposal Study, Tallahassee, Florida. For the Florida Department of Corrections (FDOC), Mr. Moore prepared a report on impacts new sludge regulations may have on wastewater treatment facilities operated by the FDOC throughout the state. This project evaluated the U.S. Environmental Protection Agency's (EPA's) Chapter 503 residuals treatment and disposal regulations, reviewed the facilities operated by the FDOC, and prepared a residuals treatment and disposal report. Residuals disposal alternatives included landfilling, contract hauling, and land spreading. Dewatering alternatives included drying beds, mechanized dewatering, and no dewatering. Stabilization alternatives included aerobic digestion, anaerobic digestion, and lime stabilization.

Other Biosolids and residuals management Projects

- Tampa Bay Water Regional Surface Water Treatment Plant residuals handling and dewatering with beneficial reuse as agricultural soil amendment
- Sarasota County sludge composting study and design of yard waste co-composting facilities
- Manatee County compost facility design
- City of Fort Myers sludge master plan, and design and construction of digester improvements
- Manatee County Southwest WWTP anaerobic digesters
- Lee County sludge composting feasibility study
- Dewatering facility design for the City of West Palm Beach East Central WWTP
- City of Venice lime stabilization and land application program

WASTEWATER:

Senior Technical Advisor, City of Fort Lauderdale Wastewater Improvements Program, Florida. Mr. Moore provided QA/QC reviews on various design projects including pump stations, collection systems, and improvements at the G.T. Lohmeyer Wastewater Treatment Plant.

Project Director, Bee Ridge Water Reclamation Facilities, Sarasota County, Florida. This project included the design of a new 1.5 mgd water reclamation facility for urban reuse of reclaimed water. The facility was designed with provisions for expansion in phases to an ultimate capacity of 15 mgd and to meet AWT standards for surface water discharge on an as-needed basis.

Project Director East Port Water Reclamation Facility Upgrade/Expansion, Charlotte County, Florida. This project involved a capacity expansion from 3 mgd to 5 mgd, and an upgrade of the treatment process to a Modified Ludzack-Ettinger (MLE) advance secondary treatment process with high-level disinfection for effluent reuse on area golf courses and a 95-million-gallon reclaimed water storage reservoir. The design provided for the future expansion to 10 mgd with eventual residential reuse. As Project Director, Mr. Moore oversaw the design, bidding, and construction services associated with the upgrade and expansion of the county's East Port water reclamation facility (WRF).

Senior Technical Advisor, Wastewater System Expansion Program, Charlotte County, Florida. In 1993, Charlotte County developed a 25-year water and sewer master plan to meet growth demands in compliance with environmental regulations. Implementation of this plan by the year 2000 was required by the county's comprehensive plan and the Florida Department of Community Affairs. To assist the county in implementing this wastewater expansion program, this project consisted of program management, technical, and financial expertise in two distinct stages: (1) project management/planning and preliminary design/permitting and (2) final design and bidding. These program management responsibilities included financial planning and management, 201 facilities plan update, permitting, surveying, geotechnical, design reports, public information, design, bidding, and construction management.

WATER TREATMENT:

Project Manager, Tampa Bay 66 mgd Regional Surface Water Treatment Plant Design Build Operate, Tampa Bay, Florida. This D/B/O project included the construction of a 66 mgd surface water treatment plant. The treatment process included high rate ballasted flocculation sedimentation, deep bed granular activated carbon (GAC) filters, and ozone disinfection. Mr. Moore was also project director for Tampa Bay Water's surface water supply project, which included design, permitting, land acquisition, and construction services for two intake pump stations, a repump station, and 17 miles of 84-inch and 72-inch pipelines for Tampa Bay Water.

Officer in Charge, Membrane WTP Expansion and Construction Services, Collier County, Florida. This project included the value engineering and management for the design and construction of the Collier County Membrane Water Treatment Plant expansion from 12mgd to 20mgd. Mr. Moore provided project oversight for a complete membrane process evaluation, constructability review of design done by another firm, bidding services, on-site project management, construction engineering, and construction administration services, and a detailed observation/inspection of the construction work. He also managed the engineering services during construction.

Project Manager, Manatee County Water Treatment Plant (WTP) Expansion and Wellfield, Florida. This project included the Lake Manatee Watershed water resources development report, a 30-mgd WTP expansion involving a dual-purpose process train for lime softening of groundwater supply or coagulation/sedimentation/filtration for surface water supply. The project also included developing a new 15-mgd wellfield for alternate water supply.

Professional Activities

American Water Works Association

Water Environment Federation

Florida Engineering Society

National Society of Professional Engineers

Member and former Chair of the Florida Engineering Society Conservation and Environmental Quality Committee

Publications / Presentations

“Tampa Bay Water’s Experience with Design-Build-Operate Project Delivery for its Regional Surface Water Treatment Plant”, Richard D. Moore, Jonathan M. Kennedy, and William Mayer, Florida Engineering Society Journal, March 2010.

“Ballasted Sedimentation Boosts Floc Settling,” Don Thompson and Richard Moore, AWWA Opflow, June 2005.

A Case Study in Permitting a Design/Build/Operate Water treatment Plant in Florida: Tampa Bay Water. Florida Water Resources Conference Proceedings, 2001 (with C. Carden, S. Solters, D. Thompson).

Role of Trenchless Technology in a Large Diameter Raw Water Pipeline Project. Florida Water Resource Conference Proceedings, 2000 (with C.M. Tappan and W.L. Moscinski).

Evaluation of Tampa Bay Water’s Surface Water Supply Alternatives. Florida Water Resources Conference Proceedings, 2000 (with C.C. Montgomery and M. Coates).

Implementing Septic Tank Replacement in Florida. Florida Water Resources Conference Proceedings, 1998 (with T.G. Walker).

Maximizing Aerobic Digestion System Capacity Using Bench Scale Testing. Presented at the 1995 Florida Water Resources Conference (with J.L. Hagerty, E. Dixon, and T. Briggs).

Pilot Testing of High Solids Centrifuges and Belt Filter Presses for Biosolids Dewatering in West Palm Beach, Florida. Presented at the 1994 Florida Water Resources Conference, and the 1995 Water Environment Federation Annual Conference (with J.L. Hagerty, D. Holtz, and D. Hubbs).

Construction of Reuse Distribution Systems in Existing Developments. Presented at the 1992 Water Environment Federation Urban and Agricultural Water Reuse Specialty Conference (with C.T. Rose).

Financing Reclaimed Water Programs. Presented at the 1991 Water Pollution Control Federation Annual Conference (with D.C. Kemp).

Pre-Filtration Solids Removal Study for Venice, Florida, Reverse Osmosis Facility. Presented at the 1991 International Desalination Conference (with W.B. Suratt and C.T. Rose).

Integrated Reuse Water Conservation Program for Venice, Florida. Presented at Conserv '90 Conference, 1990 (with D.K. Ammerman and R. Downs).

Using Stress Testing in Wastewater Treatment Plant Expansion Design. Presented at the 1986 Water Pollution Control Federation Annual Conference (with R.L. Matthews).

Professional History

2010 to Date C Solutions Inc. Senior Solids Handling Consultant - Florida

2005 to Date RDM Engineering. President – Sarasota, Florida

1990 to 2005 Camp Dresser & McKee Inc. Vice President – Florida

1973 to 1990 Camp Dresser & McKee Inc. Project Manager / Project Engineer – Florida