



Wastewater Services

FRWA Wastewater Mission Statement: To help wastewater systems collect, treat, and dispose of effluent and residuals, while protecting natural systems and complying with local, state and federal regulations.

Florida Rural Water Association (FRWA) provides technical assistance and numerous services to assist its Members in the daily operations of your wastewater system. As a member of FRWA, you have access to various products and services, such as, training, wastewater equipment, on-site technical assistance and practical regulatory explanations.

Wastewater Services:

Wastewater Treatment Troubleshooting – FRWA provides an in-depth analysis of plant operations to help identify problematic issues and to provide short and long term solutions.

- Meeting effluent standards – utilizing various lab analyses, such as, Nitrates, Phosphorous and Biochemical Oxygen Demand (BOD) to determine if facility is exceeding current permit limits and evaluate plant process for better treatment.
- Process control evaluation and recommendations – utilizing various equipment such as, wastewater labs, microscope, Dissolved Oxygen Probe and Oxidation Reduction Potential (ORP) to determine problems in process control
- Diffusers and blower operations – check amperage and visually inspect equipment for equipment failure and/or problems and recommend denitrification strategies.
- Nitrification/ denitrification/ anoxic zones – evaluate process control using several types of equipment, ORP to determine oxygen levels.
- Biological Nutrient Reduction – utilize various types of equipment, lab analyses and calculation programs to determine Nutrient Reduction problems.
- Energy Audits and recommendations to reduce power bills and increase treatment.
- Lab Sampling and Testing – Sludge Volume Index (SVI), Sludge Density Index (SDI), Mixed Liquor Suspended Solids (MLSS), Sludge Age, Mean Cell Residence Time (MCRT), Food to Mass (F/M) Ratio, Solids Retention Time (SRT), etc. Available formula sheets/explanation sheet with goals and suggested levels.
- Return Activated Sludge (RAS) / Waste Activated Sludge (WAS) pumping rates – verify pumping rates using ultrasonic flow meters and evaluating return wastage ratios.
- Corrosion, Hydrogen Sulfide (H₂S) formations, odor problems and reduction in the WWTF – identify problem areas where corrosion and hydrogen sulfide formation within the system.
- Cathodic protection of steel structures/tanks.
- Coatings and structural integrity of hydraulic structures, hand railing, etc – inspect structural integrity and condition of equipment and structures/ tanks.
- Electronic DMRs (EDMRs) – Assist with implementation and use of EDMR.
- Preventative Maintenance-PM development, implementation, reporting requirements.

Collection System Assistance – FRWA provides additional evaluation and assistance for the operation and maintenance of the collection system. FRWA has equipment available to assist in the continued emergency operation of the collection system, such as by-pass pumps and lift station pumps.

- Mapping Collection Systems using Global Positioning System (GPS).
- Line and manhole locates using Ground Penetrating Radar (GPR)/ Metal Detectors.

- Manhole and lift stations inspections – forms, vacuum testing, corrosion and odor needs, etc.
- Lift station floats and operations – visually inspect the lift station for problem areas, such as, tangled floats, pumps not sealed and pumping properly, grease build-up on pumps, etc.
- Corrosion, H₂S formation, odor problems and reduction in collection systems – problems/ solutions/ white paper/ assistance.
- Locating line blockages and leakage – utilizing sewer camera and other devices FRWA is able to determine the location and/or cause of the blockages and provide assistance in the clearing of these blockages.
- Air release valve maintenance – provide assistance and training on how to properly maintain and repair air release valves for optimum efficiency.

Critical Asset Evaluation and Management (Fiscal Sustainability) - This is a new EPA requirement for wastewater facilities and is being provided by FDEP and FRWA through the Clean Water State Revolving Fund Program (CWSRF). The purpose of the Fiscal Sustainability Program is to prepare a plan for each qualifying system at the request of the CWSRF program.

- Inventorying the condition, age, and performance of Critical Assets
- Plan for maintaining, repairing, and, as necessary, replacing the treatment works and a plan for funding such activities = modifications to Capital Improvements Program (CIP)
- Full cost pricing of wastewater rates – rates studies that provide funding for system needs
- Syncing wastewater rates to annual cost-of-living adjustments (use the Florida Public Service Commission Price Index¹ to automatically adjust rates annually)
- Impact fee studies – using engineering and fiscal accountability studies to determine the impact fees a system should be charging to remain solvent
- Project funding options and application assistance
- Provide certification that the system has been evaluated and is implementing a water and energy conservation plan as part of the Fiscal Sustainability Plan. FRWA will be completing the Fiscal Sustainability/ Asset Management Plans for the CWSRF Program.
- Other Financial and Management Services Available:
 - Utility Management – assistance, training, certification, promotion
 - Rate Analysis and Cost of Service – Analysis of cost of providing service and presentation to governing board
 - Interim Finance Program – lowest cost required Interim/Gap financing required by USDA, FDEP State Revolving Fund (SRF)
 - Finance Programs, Grants, and Loans, etc – all funding program assistance
 - Long Range Planning and Capacity Analysis – evaluate present and future expansions
 - Customer Relations and Services – improve Customer Service and Public Awareness about WWTFs and collection systems
 - Regulatory Updates and Assistance – provide regulatory updates and clarification of the rules and regulations
 - Infiltration and Inflow –Quantify water entering the sewage collection system during wet weather conditions and compare rainfall to daily flow for quantifying problems
 - Emergency Response Planning and Vulnerability Assessments – all required and essential plans assistance

Inflow and Infiltration (I&I) studies – FRWA provides assistance in the identification of problem areas within the collection system and to provide long-term solutions for collection system maintenance.

- Video Push Camera Inspection System – inspect and troubleshoot collection system lines
 - FRWA provides camera, expertise and locational information on potential problems
 - Systems provides sufficient employee support, traffic control and repair of potential problems
- Smoke Testing to identify inflow and infiltration areas and collection system integrity. FRWA provides the smoke blower and FRWA Staff expertise in identify potential sources of infiltration and inflow. FRWA has examples of Smoke Testing Notifications to be used before and during smoke testing events.
 - FRWA Staff will provide the following:
 - Smoke testing equipment

¹ Florida Public Service Commission Price Index is found at <http://www.psc.state.fl.us/utilities/waterwastewater/>, click on “Price Index and Pass Through Application for Water and Wastewater Utilities”.

- FRWA Staff will provide training and assistance for the Manhole Inspection Program
- Provide recommendations and examples for public notification/emergency services notification of smoke testing event
- The Wastewater System is required to provide the following:
 - Purchase the gasoline to operate the smoke blower and other related supplies
 - Provide two (2) employees
 - Purchase the liquid smoke
 - Provide Public Notification/Emergency Services (fire department, etc.) Notification prior to the Smoke Testing Event
- Establishing Ordinances and Fines for illegal connections, such as rain water gutters, storm drains, and using sewer cleanout and manholes for storm drainage
- Sewer Tool Kit to help utilities reduce sanitary sewer overflows by improving system maintenance and to provide additional forms and information regarding the System's liability when a sewer overflow occurs
 - Forms - to set up a maintenance program and emergency response to sewer overflows
 - Models - to provide assistance in developing a comprehensive maintenance plan for the treatment system
 - Public Education information and templates to provide to property owners awareness of sanitary sewer overflows through, newsletters, articles and billing stuffers
 - Other Resources – to provide information in developing a comprehensive sewer maintenance program, such as inflow and infiltration, state and federal regulations, etc.

Pretreatment Programs – FRWA is able to provide recommendations to reduce and/or minimize problems to the WWTF by reducing and/or minimizing what goes into the collection system utilizing various pretreatment programs.

- Fats, Oils and Greases (FOGs) – provide assistance in setting up removal and/or control programs
- Industrial Pretreatment Programs – Mercury Best Management Practices (BMP) assistance, Program Design and ordinances
- Recommendations for controlling heavy metals – arsenic, lead, mercury, cadmium, chromium, copper, nickel, zinc, etc.
- Forms are available to assist the system is setting up an Industrial Pretreatment Program to minimize hazardous wastes from entering the wastewater system

² The Sewer Tool Kit can be downloaded at <http://www.frwa.net>.

Headworks and Primary Troubleshooting – We provide assistance and/or troubleshooting in the operation to minimize the amount of debris entering the WWTF and to reduce additional maintenance and repair costs to the plant.

- Bar Screens proper handling and disposal of screenings. Bar Screens provide troubleshooting and operation and maintenance information for optimum operating efficiency
- Sand and Grit Evaluation and Removal – identification of problems associated in capacity reduction in lift stations, treatment plants and reduction in diffuser operations.
- Recommendations for installing sand and grit removal in WWTFs headworks or other strategies.

Flow Meter Testing and Calibration/Verification – FRWA provides assistance in the identification of hydraulic issues utilizing ultrasonic and other devices to determine the actual wastewater flow, as required by the Florida Department of Environmental Protection (FDEP).

- Meter calibration – verify calibration and pumping rate for accuracy and efficiency of the pump
- FRWA provides meter testing equipment, test, reports/system provides system employee to help to help with repair/reporting.

Disposal/ Reuse Evaluation and Feasibility – Provide additional assistance in identification of problematic areas; surface water disposal concerns/cost/regulatory elimination.

- Sprayfield maintenance – provide written recommendations/scheduling for spray head replacement, harvesting ground cover, ponding issues and erosion.
- Monitoring wells – identify percolation rates based on monitor well levels, evaluate lab analyses for permit , determine groundwater flow and identify source areas

- Re-use applications recommend things, evaluate application and permit compliance utilizing FRWA in-house engineers, feasibility and funding assistance

Residuals/ Sludge/ Biosolids Disposal Options and Treatment – We provide technical and engineering assistance in the design of various treatment and operations of sludge disposal.

- Sludge drying beds – application rates, re-rating, refurbishing, stock piling, etc.
- Land application, landfill, composting, etc.
- Provide engineering assistance with sludge treatment design issues and equipment issues.
- Sludge Treatment Equipment Evaluation – provide assistance in troubleshooting and improving equipment efficiency.
- Consider other options for dewatering, such as belt presses, centrifuges, screw presses, etc.

Emergency Response Plans and Equipment – FRWA in conjunction with FlaWarn, is able to provide assistance and the necessary equipment to help keep WWTFs and wastewater collection systems functional in an emergency situation, such as hurricanes, lightning strikes, and flooding. FRWA Staff is able to provide the resources needed, at a moment's notice. Here is a list of FRWA's Emergency Equipment available to FRWA Members:

- 20 - Stand-by generators (50kw to 150kw)
- 10 - Portable generators (2000 to 6500 Watt, and 15 kw)
- Variable Frequency Drive (VFDs) Controllers (10 -20 HP)
- By-pass and trash pumps (6", 4", and 3")
- By-pass quick disconnects
- Self-Contained 2006 Emergency Response Trailer
- 15 KW PTO generator
- Emergency Fuel Tanks (gas & diesel)
- Satellite phones
- 5'x 8' enclosed single axle trailers to haul equipment
- Various lab equipment – pH Meters, Chlorine Analyzers and Dissolved Oxygen Probe, etc.
- Ground Penetrating Radar
- Meter Detectors – valve locators, pipe probes, line locates, etc.
- Flow Meter and Flow and Pressure Recorders
- Fire Hydrant Flow Meters
- Winches – 12 volt and 500 lb. hitch to tailgate
- Hand Tools – shovels, wrenches, voltage and amp meters, electrical connectors, etc
- Valve tool – electric valve exercisers, and curb wrenches
- Sewer Cameras
- Regal Gas Chlorinator
- 53' single drop semi-trailer capable of carrying 5 large generators
- Lift Station Control Panel
- Safety Equipment – Self-Contained Breathing Apparatus (SCBA), Chlorine A & B Kits, Chlorine Gas Detectors, etc.

Safety Issues – FRWA stands ready to provide training and support for safety issues including:

- Standard Operating Procedures (SOPs)
- Confined Space Entry Training
- Slip, Trip and Fall protection on walking and/or working surfaces
- Hazardous gas monitoring and/or equipment
- Lockout and Tag out programs Training
- Personal Protective Equipment (PPE) – protection for eyes, face, head, foot, hand, etc.
- Proper clothing
- Self-Contained Breathing Apparatus (SCBA) ensure equipment is inspected and certified annually
- Respiratory Protection
- Chemical Storage and Handling
 - Safety Data Sheets (SDS)
 - Keeping chlorine tank repair and equipment up to date

- Lab and Environmental sampling and safety
- Ladder safety devices and handrail and walkway maintenance
- Proactive WWTP housekeeping

Electrical, Computers and Computer Diagnostic Software, etc.

- Electrical evaluations and calibrations – provide assistance in identifying problematic areas and make recommendations. Energy efficiency evaluations and recommendations.
- SCADA, telemetry and controls – provide assistance in the operation and troubleshooting of the equipment
- Lightning protection – provide engineering assistance in the proper installment and operation in minimizing lightning strikes to the system

Wastewater Continuing Education Units (CEUs) and License Preparatory Training - We provide owners and operators of WWTFs with the most up-to-date wastewater information and technology available. FRWA provides over 100 training sessions for CEUs, per year to our members.

- Prepare for wastewater operator Class A,B, C, and D license examinations
- Provider for operator license renewal CEUs
- Provide annual on-site, hands-on training to include regulatory updates, compliance issues and technological improvements and/or advancements. This is also available at Focus on Change and/or the Annual FRWA Conference
- Sacramento correspondence course and time management tips to improve learning techniques
- Utility Management Course and Certification – National Utility Manager Certification
- Resource library materials available upon request to members, such as: books, videos and presentations, forms, wastewater manuals, FDEP and EPA rules and regulations, cross-connection and articles of interest.
- Online Training available for CEUs and education

Wastewater Engineering Support - FRWA has three engineers on staff with over seventy-five years of combined experience to assist members with Engineering Design and Permitting issues. FRWA does ask for contributions to support engineering salaries and costs, which is still less than most Engineers charge.

- Construction Management Support and/or Troubleshooting
- Provide assistance in hiring an engineering consultant through the Consultants Competitive Negotiation Act (CCNA) Process
- Value Engineering and Constructability Reviews
- Feasibility and Preliminary Engineering Reports
- Capital Improvement planning
- Minor Plant Engineering Design and Permit Modifications
- FDEP permitting and consent orders
- Capacity Analysis Reports
- Operation and Maintenance Performance Reports
- WWTF Operating Permit Renewals

Wastewater Equipment

One of the benefits of being an FRWA Member, is the availability of various types of equipment that can be loaned to the WWTF, at no additional cost. This equipment is purchased by Annual Membership Dues and is available to FRWA Members at no additional cost. Please contact FRWA at (850) 668-2746 or your Wastewater Circuit Rider for equipment availability. The FRWA staff can perform the task with the FRWA equipment and/or provide additional training to the WWTF staff in the operation of the loaned equipment. The only condition for using the loaned equipment is to take care of it and to return the equipment in the same condition.

Some of the Wastewater Equipment Available to FRWA Members are:

3" Trash Pump – to by-pass lift station pumps	Manhole Inspection Mirror w/Light – visually inspect manhole	Sulfide Test Kit – to check hydrogen sulfide levels
4: by-pass pump	Microscopes – to perform microbiology evaluation	Suspended Solids Interface Level Analyzer

6" By-pass Pump – to by-pass lift station pumps	Magnetic Locators – to locate piping	Soil Extraction Kit
Amp Meters – to measure voltage	Multi-Meters	Tensette Pipet
Centrifuges	ORP Meters – oxidation reductive process to measure low levels of dissolved oxygen in wastewater	Test Kit (Oxygen)
Chlorine Tracer	Magnetic Stirrer	V Notch Weir (6' Tel-Mar)
Colorimeters	pH Meters – to measure the pH in wastewater and water	V Notch Weir (8' Tel-Mar)
D O Meters – to check dissolved oxygen	Portable Flow Meter	Valve Locator (Magnetic) – used to locate valves
Generators (10 to 150 kW) – back-up power system	Portable Ultrasonic Flowmeter – to measure the wastewater flow and compare with actual flow meter calibration	VFDs
GPS Mapping Systems – to map collection systems	Rain Gauges	Voltage Converter – to reduce voltage
Lift Station Panel (Central)	Rotation Meters	Weighted Stand & Sample Cup For Tracer
Line Tracer	Sludge Judge – to measure sludge in clarifier	YSI DO Meter – to measure dissolved oxygen in wastewater
Long Handled PE Dipper		Smoke Blower – used to identify infiltration and intrusion problems within sewer line
Lufkin Measuring Wheel – to measure distance		

The following list of items are utilized by FRWA Staff to provide on-site assistance in troubleshooting wastewater systems and are not loanable to the Members. Please contact one of the FRWA Staff for assistance and availability of this equipment:

- Flow Meters – to measure the flow
- Portable Push Sewer Line Inspection System – to identify potential problems and piping integrity
- Ultrasonic and Doppler Flowmeters – used to perform flow meter calibration
- Ground Penetrating Radar (GPR) – to locate water and wastewater piping
- Leak Correlators – used to pinpoint leaks within the system

FRWA provides several services to its members to include the following:

Membership Services:

- Training Assistance to Water & Wastewater Operators;
- Training Discounts;
- Regulatory Representation;
- Monitoring Legislation at State and Federal Levels;
- Promotion of Funding for Water and Wastewater Projects;
- FRWA Annual Conference;
- On-Site Assistance at No Charge;
- Access to FRWA Equipment;
- Evaluation of wastewater plant and collection systems;
- Fiscal Sustainability;
- Professional Engineering;
- Training materials and wastewater information available on the FRWA website.
- Pharmaceuticals & Personal Care Products (PPCPs) treatment technologies, monitoring and removing
- Mercury reduction programs
- TMDLs, NNC, advice
- Bacterially compromised water bodies - proposed bacteria rule 62-302.530, FAC advice
- Starting a new wastewater system recommendations... look to commercial corridors first -- sewerage existing residential septic systems is VERY expensive and should be tackled only if when are outstanding / documentable contamination of wells (health issues) or “smoking gun” evidence of environmental damage (not just someone’s perception or concern)
- Handling / logging customer complaints proactively
- Contract Operations – checklist & whitepaper

FDEP State Revolving Fund (SRF) Engineers and Project Liaison. The SRF Professional Engineers work with SRF applicants (water and wastewater systems) and their engineers as they submit Requests for Inclusion (RFI) to make sure that the projects are right sized for the community and actually fit community needs. The PEs will also review Facility Plans and Business Plans and provide comments – they may also be asked to author Facility Plans and Business Plans for small communities. The PEs will also review Design Drawings, Specs, and Contract Drawings to assure that the project matches the Facility Plan. They will perform some of the site visits as well, attend the pre-construction conference, during construction and at the end of construction.

Some of the other activities that the engineers will be involved with include review of planning documents and asset management for water, wastewater and storm water treatment projects; review of design and bid documents; value engineering; field engineering; construction inspections; site meetings with project sponsors, construction contractors, and design professionals; and other programmatic support activities. Reviews will be documented. Asset Management Plans (AMPs) may be completed and adopted prior to the end of construction but the program will examine the implementation of the AMPs as they are updated to attain sustainability.

The SRF Project Liaison will coordinate with SRF Staff and PEs by performing periodic site visits to assure and assist the engineer, owner and contractor with compliance with SRF procedures and standards (Davis-Bacon Wages, American Iron & Steel requirements, record keeping, reports, etc.). Specialists may attend the pre-construction conference, during construction and at the end of construction.

The SRF Project Liaison functions as an intermediary between stakeholders involved in the funding process for utilities. Those stakeholders involved in the State Revolving Fund process include those members seeking funding (Sponsors), DEP, FRWA, Engineers, Consultants, and others. The Florida Department of Environmental Protection appropriates approximately \$250 million dollars each year to Water, Wastewater, Storm Water, and other projects through low cost loans from the SRF. The SRF Program Liaison coordinates stakeholder meeting and activities throughout the funding process to insure an orderly transition from the application process through the end of construction. Oversight and assistance to members/sponsors helps to insure orderly project development. This assistance is designed to minimize project costs and delays, and to inform members/sponsors what to anticipate throughout the process.

Energy Efficiency Program On average, a water utility spends 30% of their annual budget on energy costs. This cost continues to grow as new regulations require electric companies to reduce their impact on the environment. By improving your system's energy efficiency, you can reduce the cost of purchasing electricity. FRWA's Energy Efficiency Program helps your system reduce energy costs. The process is simple. You schedule an on-site visit and provide the last twelve months' electric bills. Following the visit, a report is written which gives you helpful tips and customized advice for your unique system. The report can help your system secure funding from SRF or USDA Rural development, as well as inform you of other funding sources and incentives. This service is FREE to our members; these services typically cost \$15,000.

DW Security/Vulnerability Assessment Program Due to a number of catastrophic events that have taken place over the past 15 years, a few key presidential directives and Executive orders have been issued which eventually led to a water sector specific risk assessment along with guidelines for implementing both physical, and cyber security measures. Florida Rural Water Association was selected to do a drinking water and wastewater security and Vulnerability Assessment program throughout the state of Florida by the FDEP. FRWA meets with the water utilities to improve the benchmarking of standards for both the water and wastewater Utility business. The reports that are generated will assist the strengthening of Florida's water system against cybersecurity, intrusion, natural disasters, Terrorism, vandalism, and will benefit the stake holders of Florida in the same manner. By assisting systems in identifying areas of vulnerability, including vulnerable areas within the SCADA systems, all systems within Florida will benefit. The new regulations that have been developed with the drafting of the new America's Water Infrastructure Act is a driving factor for the increased awareness and concern for improving our water resources and the Vulnerability Assessment reports are being developed to protect the Utilities.



FLORIDA RURAL WATER ASSOCIATION
 2970 Wellington Circle
 Tallahassee FL 32309

Wastewater Personnel by Region

Our Circuit Riders

The Wastewater Circuit Riders below are available throughout the entire State of Florida and are able to provide technical assistance and evaluation of your wastewater treatment plant and collection systems, and disposal.

Central Florida	Reuben Law	Reuben.Law@frwa.net
East Florida	Tim Plymel	Tim.Plymel@frwa.net
North Central Florida	Jamie Hope	Jamie.Hope@frwa.net
NW Florida	Scott Phillips	Scott.Phillips@frwa.net
South Florida	Allen Slater	Allen.Slater@frwa.net
Professional Engineer	Sterling Carroll	Sterling.Carroll@frwa.net
FRWA Engineer	Jeffrey Lawson	Jeffrey.Lawson@frwa.net
Energy Efficiency Circuit Rider	Mark Hallett	Mark.Hallett@frwa.net
SRF Engineer	Michael Murphy	mpmurphy1050@frwa.net
SRF Engineer	Robert Holmden	Robert.Holmden@frwa.net
SRF Project Liaison	Rick Herndon	Rick.Herndon@frwa.net
Utility Asset Management	Chris Bailey	Chris.Bailey@frwa.net
Utility Asset Management	Lauren Busacca	Lauren.Busacca@frwa.net
Utility Asset Management	Patrick Dangelo	Patrick.Dangelo@frwa.net
Utility Asset Management	David Haring	David.Haring@frwa.net
Utility Asset Management/ EPA Water Trainer	Paul Thompson	Paul.Thompson@frwa.net
Security/Vulnerability Assessment Technician	Jim McLaugherty	Jim.Mclaugherty@frwa.net

